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**UNITED NATIONS INDUSTRIAL  
DEVELOPMENT ORGANIZATION (UNIDO)**

**INDUSTRIAL DEVELOPMENT REVIEW  
OF UGANDA**

**PRELIMINARY DRAFT OF CHAPTER III:  
INDUSTRIAL BRANCH PROFILES**

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**Preparation of Industrial Development Review of Uganda**

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**A: WOOD AND WOOD PRODUCTS**

**The Resource Base**

Uganda is endowed with a rich bio-diversity which is reflected in the country's varied forest ecosystems and vegetation. This is attributed to the Uganda's location in a zone between ecological communities, characteristic of the East African dry savannah of West Africa rain forests, coupled with topographical and climatic variations within the country.

The resource base for wood and wood products in Uganda is largely the natural forest resources composed of the Budongo forest, the Mabira forest, other natural hard wood forests, and forest plantations.

**Budongo Forest.**

The total area of productive forest is about 23,037 ha. According to the Forest Inventory Report (1993), the total annual allowance cut (AAC) of trees with a diameter larger than 70 cm. is 53,046m for complete reserve. See Table 1 for details.

**Table 1: Species Encountered in Budongo Forest (tree diameter between 50cm and 70 cm)**

Species	Standing timber stock (m <sup>3</sup> )		Annual allowable cut
	>70cm	>70cm	>70cm (m <sup>3</sup> )
Chlorophora			
Exceisa	13,783	13,783	230
Entandrophragma spp	192,961	179,179	2,989
Fagara spp	4,59	4,594	77
Khaya spp	234,309	220,526	3,675
Lovoa spp	13,783	9,189	153
Olea spp	18,377	4,594	-
Guarea cedrata	4,594	-	-
Holoptelea grandis	87,292	68,914	1,149
Mitragyna sliputosa	13,783	9,184	153
Total tree Group 1	583,476	509,509	8,499
Cynometra alexandrii	1,598,816	1,240,461	20,674
Albizzia spp	95,132	49,943	766
Cordia spp	68,914	55,132	919
Maesopsis eminii	220,526	147,018	2,450
Trichilia spp	18,377	13,783	230
Alstonia boonei	289,411	248,092	4,135
Aningeria spp	27,566	22,972	383
Antiaris toxicaria	13,783	13,972	230
Celtes spp	344,572	220,715	3,829
Chrysophyllum spp	128,570	64,320	1,072

Diospyros spp	4,594	-	-
Dombeya spp	4,594	4,504	77
Juniperus grandis	78,183	64,320	1,072
Funtonia spp	32,160	32,160	536
Morus lactea	27,566	18,177	306
Other spp	137,829	114,859	1,914
Total Tree Group 2	3,050,528	2,315,528	38,593
Klaineodoxa			
gabunensis	50,537	36,754	613
Blighia spp	4,594	-	-
Bosquiea phobeberos	9,189	4,594	77
Clestopholiis patens	27,566	13,783	230
Cola gigantea	55,132	36,754	613
Crossonephilis africanus	4,594	-	-
Crotons spp	9,189	9,189	153
Ficus spp	22,971	22,971	383
Lychrodiscus cerosperms	4,594	4,594	77
Phyllanthus discoideus	32,160	27,566	459
Ricinodendron heudelotti	50,537	41,348	689
Sapium ellipticum	4,594	-	-
Unknown and other spp	78,183	59,726	995
Total tree Group			
3 and 4	353,840	257,279	4,288
Total (all species)	3,987,929	3,182,774	53,046

Source: John Carvalho and Gordon Pickles, Forestry Industries and Rehabilitation and Development Plan, Forestry Department 1994

From the above, it can be seen that a very large part of the AAC is in Group 2 species, 54% of which consists of alexandria (iron weed).

#### Mabira Forest

The total area of productive forest i.e. 16,608 ha. The Forestry Inventory Report (1993) indicates that the estimated total AAC of trees of more than 70 cm. diameter is 16,920 m<sup>3</sup> with a standing stock volume of 1,015,209 m<sup>3</sup>.

As in the case of Budongo forest, a large part of AAC in Mabira Forest is in group 2 species. However, the Interim Management Plan 1994/95 and the Natural Forest Management Conservation Project, propose that out of 16,608 ha. of productive forest, 6,504 ha. should be retained, as buffer zones. This is 82% of the area and carries 78% of the volume of productive forest. Hence, 393,000 m<sup>3</sup> gross standing volume would remain in the productive area.

### Other Natural Hard Wood Forests.

There are no up to date inventories for natural forest reserves other than Budongo and Mabira. The programme for conducting inventories in other natural forest reserves commenced in March 1995 and will last until 1998. No provisional reports have been made available. The natural hard wood forest reserves to be covered will be the lake shores, Masaka, Ssesse Islands, Bugoma, Marabigambo Kasyaho/Kitoma, Kalinzu, West and East Mengo, and Itwala.

### Forest Plantation

Most of the existing coniferous plantations were planted in the 1960's. These plantations have nearly all reached maturity and are likely to become the main source of timber in the future. Currently there are 14,000 ha. of coniferous plantations. The area planted by main species are as follows:

Species	Area ha.	Percentage of total area
Cupressus lusitanica	4,621	35
Pinus Palula	4,711	35
Pinus Caribaea and oocarpa	3,648	27
Other pines	401	3
Total	13,381	100

A working plan based on inventory results, with details of current condition of the crop and the market situation is still lacking. Table 2 gives a summary of inventory reports for some of the plantations.



Table 2: Summarised Inventory Results For Plantations

Plantation	Ha. m <sup>2</sup>	At clear felling	At clear felling as per inventory results m <sup>3</sup>	Proposed schedule
Katugo	1,512	383,000	236,000	1991-2001
Namafuma	101	37,000	22,000	1991-2006
Suam	503	212,000	157,000	1993-2000
Kapkwata	707	354,000	178,000	1993-2002
Kyehara	321	101,000	59,000	1992-1999
Oruha	268	95,000	55,000	1992-1993
Kikumiro	512	145,000	84,000	1992-1996
Kagorra	337	65,000	57,000	1992-1998
Kanyawara	431	141,000	54,000	1992-1998
Kikonda	145	38,000	18,000	1990-2001
Lukuga	87	44,000	21,000	1990-1999
Nakwaya	112	45,000	30,000	1990-1999
Zimwa	41	14,000	12,000	1990-1999
Lendu	1,001	598,000	505,500	1993-2000
Usi	253	114,200	71,100	1993-2000
Awang	99	47,200	38,900	1993-2000
Okavu-Reru	279	170,000	144,000	1994-2001
Total	6,707	2,614,700	1,744,600	

Source: John Carvalho and Gordon Pickles, Forestry Industries and Rehabilitation and Development Plan, Forestry Department 1994.

The inventory reports show the gross volume to be expected, if the areas attaining 25 years or over were clean felled, would be 2,614,700m<sup>3</sup> between the year 1990-2002 - this gives an AAC of 201,130m<sup>3</sup> per year.

#### Past Trends

The major product categories for the sector include saw timber, poles, fuel wood for households, commercial and industrial use and charcoal. The main wood consumption in Uganda is for fuel, either as firewood or converted into charcoal. Current charcoal production techniques are inefficient and wasteful. An estimated 300,000 - 400,000 m<sup>3</sup> of wood is utilised in round wood form for building materials, electric and telephone poles. A further 750,000 is used annually for conversion into industrial products.

### Saw Milling

The current output of saw mills in Uganda is estimated to be in the region of 8,000 m<sup>3</sup> of soft wood and 4000m<sup>3</sup> of hard wood per annum. Currently, the conversion process from tree to timber is very wasteful with average recovery in the range of 20%. This is because most of the conversion is done by pitsawing from natural forests. It is the private sector that is mainly engaged in exploitation and processing of forest products.

There are ten major saw mills operational in seven natural forest reserves. The contribution by the other saw mills is small, as in most cases these mills are old and either are not functional or operate well below capacity. Table 3 illustrates the current processing capacity in the country.

**Table 3: Existing Primary Processing Capacity for Natural Hard Woods**

Natural hard wood reserve	Sawmill	Date of installation	Estimated capacity input m <sup>3</sup>
Budongo	Amply	1986	21,000
	Rwenzori Sm	1960	7,500
	Budongo Sm	1953	10,000
	Bubwa Sm	1960	5,000
Mabira, W.Mengo and Private forests	Kiira Sm & Plywood Co.	Na.	20,000
Kalinzu	Nkombe Sm	Na.	5,000
Mt. Elgon (now National Park)	Kapkwata Sm	1993/94	5,000
Ssesse Islands (Public land and Private forests near Kyani)	Tesekererwa Sm	1973	5,000
Mukono Forest	Jinja Const- ruction and Joinery	1969	5,000
	F.D. Nakawa	Na.	88,500

Source: Ministry of Housing, National Shelter Strategy for Uganda: Vol II, 1993.

It is important to note that due to lack of foresight with regard to raw material availability, some complete saw mills with expensive new machinery have

been imported in the country between 1984 - 1994 and these have not been installed because of lack of raw material based on natural forests or uncertainty about the market.

#### Timber and Charcoal Production.

Available data is insufficient to quantify, in monetary terms, the value or some of the benefits derived from forest production. However, Table 4 gives a rough picture of the potential of some of the products.

**Table 4: Total Production for Round Wood Timber and Charcoal 1986 - 1992**

Product	Quantity ('000mt.)						
	1986	1987	1988	1989	1990	1991	1992
Sawn timber	67	106	130	129	133	136	142
Poles	291	335	381	407	438	464	479
Fuel wood							
- household	10,522	10,814	11,115	11,432	11,751	12,068	12,400
- commercial	1,454	1,494	1,536	1,580	1,626	1,674	1,733
- industrial	473	497	548	602	638	691	780
Charcoal	1,264	1,392	1,522	1,448	1,520	1,596	1,692
Total wood production	14,071	14,638	15,238	15,598	16,106	16,629	17,226

**Source:** Ministry of Finance and Economic Planning, Background to the Budget 1993-94 June 1993; Kampala.

Although supply and demand for saw timber appears to be in balance, no wood based panels (WBPs) are now being made in Uganda; and supplies are being imported from Kenya. The most recent import statistics for 1994 give a rough estimate of the demand of these products as illustrated in table 5 and 6 below.

**Table 5: Imports of Selected Wood Based Products, 1994**

Product	(U) Sh.000's	Approx. m3
Plywood	102,202	500
Hard wood	65,516	300
Blockboard	17,926	200
Total	185,644	1,000

**Source:** Department of Customs, 1994

The information collected from the Uganda Department of Customs and Imports of WBPs is regarded as underestimate; the statistics are nevertheless reproduced in table 7 as the only major source of data.

**Table 6: Imports of Wood Based Panels 1994**

Plywood	m <sup>3</sup>	28,164	110,732
Blockboard	m <sup>2</sup>	149,447	20,500
Wood Wool and flur	m <sup>2</sup>	13,492	21,006
Wooden doors	kg	21,505	12,006
Hard wood	m <sup>2</sup>	34,565	64,792
Other boards of wood	m <sup>2</sup>	48,902	21,229
Office material	Kg	25,660	52,160
Total		321,735	302,978

**Source: Department of Customs 1994**

The main investment within the sector is made by Government of Uganda (GOU), though an increasing number of NGOs have recently taken up the activity as a conservation measure. The Forestry Rehabilitation Project (FRP) was implemented in 1988. Notable among the project, achievements and planting of new forests by the Forestry Department, new plantings by the private sector (NGOs), enrichment planting (4,800 ha.) and encroachment planting of 800 ha. in the natural forests.

#### **Constraints and Prospects**

The sector faces some challenges in production and investment. These include:

- The conversion process from tree to timber is very wasteful with average recovery in the range of 20%-25%
- Pitsawn timber sold by illegal operators creates unfair competition to producers of legally cut and converted timber from saw mills.
- The contribution by the other mills is small, as in most cases these mills are old and either are not functional or operate well below capacity, because they are in dire need of rehabilitation. They lack the requisite logistics and working capital for logging operations and therefore permanently in short supply of logs. The poor state of these mills determines the low overall utilisation of forest

resources as there is such lack of capacity to saw more valuable species; these include *Cynometra alexandrii* and iron wood found in Budongo Forest.

- Lack of information on demand, especially the expected growth rate for sawn timber and other products.<sup>1</sup>
- Lack of inventories to establish the exact stock. The Forestry Department expect that this information will be available by 1997 with the completion of all main inventories. This will make it possible to relate the supply position to knowledge of demand and its associated rate of increase.

There has been increased production of sawn timber and plywood between 1986 and 1993 by over 40% and 90% respectively. This could be a reflection of the demand derived of the service sector of the building and construction industry. Similarly, production of poles, fence posts, chipboard and blockboard was growing according to statistics recorded for 1984/85 to 1993/94.

According to official statistics recorded in the Background to the Budget 1994/95 the following wood products grew in monetary terms between 1981 and 1993 as shown below:

**Table 7: Total Production of Round Wood, Timber and Charcoal 1981 - 1993**

Product	%growth 1981-1993
Sawn timber	35
Poles	300
Fuel wood - commercial	38
- industrial	70
Manufactured charcoal	30

In addition to the traditional wood products common to the local market, study; <sup>2</sup> has identified particle board

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<sup>1</sup> Conservatively one can say that the rate of construction in the country and demand for furniture reflect demand for these products. Estimates of consumption of sawn timber range between 60-200 m<sup>3</sup>

<sup>2</sup> A study of Resource Endowment and Comparative Advantage: Uganda, May 1993

products, and plain, laminated and cement bonded board products to have potential for further development. There is also a possibility of producing cement bonded particle board.

There are prospects for completely knocked down (CKD) or ready-to-assemble (RTA) furniture made from both wood and particle board. Opportunities also exist for manufacture of small wood products, rods, broom handles, other rods and rails. The products can be diversified to cover a wide range of handles, toys, buttons, ornament and house wares. Other opportunities include manufacture of boxes, crates of cartons made out of wood. Other wood products include chip board and plywood, rapid wood cement slabs for low cost housing, marine plywood, hooded strip wood board, and tongue and groove wall panel.

**B: AGRO-INDUSTRIES**

**STAPLE FOOD CROPS**

**Resource Base**

Agriculture is the mainstay of the Ugandan economy accounting for about two thirds of the GDP, over 90% of all exports and more than 80% of total employment. Almost all the agricultural output originates exclusively from about 2.5 million share-holders. About 74% of the agricultural production consists of food crop production.

The main staple food crops are plantains (matooke) finger millet, sorghum, maize, beans, cassava, sweet potatoes, ground nuts, rice, wheat and irish potatoes. The cropping pattern for these crops is largely determined by soils, rainfall and ultitude. There are eleven agro-ecological zones with their prevailing agricultural farming systems as detailed below:

**Table 8: Agro-ecological zones in Uganda.**

Zone	District	Agricultural faming system
Zone I	Busoga/Bukedi	Banana, millet, and cotton systems with outliers of the main coffee-banana system.
Zone II	Bugisu/Sebei	Montana system; arabica coffee, bananas (wheat and maize in Sebei).
Zone III	Teso	Teso system; finger millet, cotton and cattle keeping (mixed agriculture).
Zone IV	Karamoja	Pastoral system; cattle keeping.
Zone V	Lango/Acholi	Northern system; finger millet, cotton, tobacco, (some mixed agriculture also).
Zone VI	West Nile/Madi	West Nile system; basic agriculture like Zone V but with predominance of cassava as staple food.

Zone VII	Bunyoro/Toro	Arabica and Robusta coffee and banana systems Montana systems.
Zone VIII	Ankole	Montana systems in the west and pastoral to the east. Arabica and robusta coffee, tea, bananas, cattle.
Zone IX	Kigezi	Montana systems but with larger annual crop acreage than other montana systems. Sorghum is major staple. Arabica coffee, tea.
Zone X	Lake Victoria	Main robusta coffee and banana system; robusta crescent coffee, bananas, tea, cocoa, sugar.
Zone XI	Northern Buganda	Western extension of the banana-millet-cotton system, but now largely taken up by big ranching project.

Source: Draft Uganda National Plan of Action for Nutrition, June 1995

#### Past Trends:

Food crop production including major staple food crops is shown in table 9 below (1990 - 1993).<sup>3</sup>

Table 9: Food Crop Production 1990-1993

	Production ('000 Tonnes)			
	1990	1991	1992	1993
Cereals:				
Banana	1388	1430	1450	1502
Finger Millet	373	384	398	407
Maize	401	420	441	454
Sorghum	240	245	250	255

<sup>3</sup> Compiled and computed from data obtained from Ministry of Agriculture, Animal Industry and fisheries, and Statistics Department, Ministry of Finance and Economic Planning.



Rice	39	45	50	54
Wheat	2	5	5	5

Root Crops:

Sweet Potatoes	413	425	438	451
Irish Potatoes	32	35	37	39
Cassava	417	417	430	442

Pulses:

Beans	495	451	536	552
Field Peas	24	25	26	27
Cow Peas	49	48	49	51
Pigeon Peas	62	60	62	64

Oil Seeds:

Ground Nuts	186	180	184	187
Soya Beans	37	54	59	65
Sim Sim	124	130	143	150

Beans:

The field bean (*Phaseolus*) is one of the most widely grown grain legumes in the country. It has remained the chief source of protein in the diet of Ugandans. The average yield of 600 kg/ha. is far below potential. Beans have become increasingly important as a non-traditional export crop. During the period 1991-1993, beans contributed an average of 6.3% to total export values. Government of Uganda has developed a research programme for this product and hybrid seeds are being distributed.

Plantains:

Uganda has the largest banana germplasm in the world and yet this resource is not exploited to the full because of two main hindrances. Firstly, the germplasm has never been fully categorised and utilisation and research is often hindered by a high degree of cultivar syndromes. Secondly, the germplasm has not been evaluated in order to realise its full genetic potential. Government has now commissioned a project to:

- characterise and evaluate 200 cultivars already assembled;
- control the banana weevil biologically and the scraping systems, aimed at improving productivity of the banana stands.

### Cassava

Cassava is the second major food crop in the region and the most important root crop in Uganda. The crop is grown throughout Uganda and has an outstanding ability to withstand drought and remain long in the soil after physiological maturity. Apart from being a staple food, it is used for starch production.

Cassava processing into flour is mechanised and its consumption is wholly domestic. No exports of raw or processed cassava have been registered. It is also processed into light snacks such as cassava crackers largely based in household enterprises relying almost exclusively on manual labour.

### Rice

Rice is grown mostly as a cash crop in the swampy area around Lake Kioga. Domestic demand for rice has risen with changes in consumer diet, and its cultivation has expanded over the years. The area under rice in 1994 was estimated at 52,000 ha. producing about 62,000 mt. Organised rice farming is carried out by the Kibimba Rice Company, the Doho Rice Scheme and the Olweny Swamp Rice Irrigation Project.

Rice processing in Uganda which involves the separation of the rice kernel from the husk is traditionally carried out on the small holder forms, mainly by women, with the threshed but unhusked grains being pounded by hand. There is one mechanised rice milling facility in Uganda at Kibimba in Eastern Uganda. With rice continuing to be consumed mainly as grain, further processing into flour, noodles or confectionery is extremely limited.

With changes in consumer diet and the population itself continuing to grow at an annual rate of some 2.5%, the prospects for the rice milling industry remain favourable.

### Sweet/Irish Potatoes

Sweet potatoes are grown throughout Uganda, the crop is drought resistant, doing well in areas with 750 mm. rainfall and above. Irish potatoes are grown mainly in temperate areas at elevations of about 1800 m., which are found mostly in Kabale and Mbale districts.

Industrial processing is at present conducted on a small scale on smallholder farms, especially in the east. Since 1990, however, the COU has actively promoted the commercial production and processing of sweet potatoes as an alternative to other costly staples such as rice and wheat, and as a raw material for the manufacture of a variety of products, including maltose, glucose and alcohol.

## GRAIN MILLING

### Past Trends

Grain milling in Uganda involves five cereal grains ie. maize, wheat, rice finger millet and sorghum. It is a capital intensive operation.

There are 130 established maize mills, including 4 large and 4 medium mills, but most are small. Rice, sorghum and millet mills are mainly small scale, but there is one large rice mill. Wheat milling is done by two companies; Uganda Grain Millers Ltd., a wholly GOU owned company, and one other company. Uganda Grain Millers Ltd. has two mills with an installed capacity to handle 60,000 mt. of wheat per year. About 22,000 mt. of wheat is at present being milled to produce about 14,000 mt. of flour. Demand for wheat flour was estimated at 19,000 mt. in 1991 with expectations that it would grow. Most of the maize mills are less than five years old; a number of older mills are being rehabilitated. The mills are located mainly in urban areas; smaller mills are located in rural areas of the country. The per capita consumption of maize is estimated to be 10 kg. per month.

### Constraints and Prospects

Investment opportunities currently available are mainly within the processing, distribution and marketing systems to increase supply countrywide and for export.

Storage facilities at all levels, ie. farm, village and regional/national, are considered inadequate in Uganda. Commercial farmers rent store rooms, whilst traders generally rent space for short periods in stores of limited capacity and low quality. Due to lack of proper storage, private institutions frequently buy only small quantities of produce. Therefore opportunities exist to establish the following facilities:

- i) National storage facilities/depots these can be used for long period storage of surplus produce and to handle for export.
- ii) Central/regional depots to serve as the main collection and distribution centres for the domestic market.
- iii) Buying centres/depots - these can be located as near as possible to the production centres, serving as collection centres for produce intended for transfer to the national level and central/regional depots.

Shortage of storage facilities is a major constraint in the country; for example, Kampala has a deficit storage capacity of 25,000 mt. while Mbarara, one of the major food supply areas in the country, experiences a shortage of 15,000 mt. and Apac, 14,000 mt. This situation is compounded by the lack of processing facilities near the areas of production.

The Uganda food market system is influenced by organisations of farmers' associations, government companies, private enterprises, individuals and GOU. Both the Co-operative Movement and the Produce Marketing Board (PMB) have been forces behind agricultural marketing in the country. The Co-operative Movement provides an institution for effective food marketing with the participation of farmers, while PMB provides substantial infrastructure for food collection, storage and distribution.

GOU restrictions and controls on trading and prices have been lifted as part of package measures to liberalise the food marketing operations in the country eg. licenses for the food trade are issued in the country on payment of a specified fee.

Currently the country is exporting processed food products such as maize flour. The intention is to expand and open up new markets, legalise border trade, and active participation in PTA and GATT. Table 10 below shows the various food items exported during 1993. This data reflect commodities exported officially through the normal channels. However, serious attention is now paid to the cross-border and regional trade the majority of which is unrecorded.

Table 10: Food Exports 1993

	Qty (Kg.)	Value (US\$)
Fresh fish	922,069	677,742
Frozen fish	1,269,429	1,872,138
Fresh fillets	881,679	1,131,314
Cod fish	17,300	22,550
Dried fish	1,145,488	991,431
Smoked fish	339,796	324,849
Rice (Gargo or brown)	81,620	18,849
Rice (semi-milled)	18,500	6,688
Maize	30,529,081	3,871,268
Millet	1,285,254	189,507
Sorghum	20,700	4,625
Cereals	281,803	81,711
Maize fl.	2,540,452	287,548
Cereals for other flours	615	615

Potatoes	1,461	904
Shielded vegetables	305,936	113,172
Tomatoes	12,980	8,621
Garlic	22,714	9,523
Beans	14,208,649	114,235
Other vegetables	151,366	114,235
Cassava roots	182,500	15,933
Other tubers	9,227	5,198
Sugar beet	304	274
Other preserved vegetables	30,600	8,787
Oranges	153,500	3,639
Lemon/limes	975	676
Other citrus fruits	239	160
Bananas	1,814,406	162,043
Apples	2,938	2,009
Stone fruits	1,462	711
Pineapples	137,483	73,012
Mangoes	19,166	14,627
Other fresh fruits	27,898	18,955
Dried fruits	45,538	30,006
Jam/marmalades	402	364
Fruit paste	1,600	160
Roasted nuts	191	76
Other raw sugars	526	224
Raw jaggery	103	103
Honey	1,765	1,747
Coffee husks and skins	4,141,693	69,899
Unroasted Arabica	10,327,380	17,181,397
Unroasted Robusta	94,966,255	83,207,486
Extracts, essence of coffee	702,464	435,266
Tea	7,224,663	5,249,871
Pepper (not ground)	220,308	196,966
Vanilla (not ground)	3,783	176,000
Ground vanilla seeds	1,037	1,738
Nutmeg, mace & cardamons (not ground)	70	99
Ginger (not ground)	130,686	120,967
Ground ginger	91	77
Unground saffron	2,000	1,051
Oil cake of soyabean	64,100	12,000
Oils from cotton seed	2,974,000	148,973
Simsim seed oil cake	4,950	1,200
Food 'nix	15,260	2,136
<b>TOTAL FOR FOOD AND LIVE ANIMALS</b>	<b>121,059,456</b>	

Source: Customs Department

Though the country exports food, there are certain food items which are not manufactured or grown in the country but are needed for nutritional requirements, such as salt

and wheat and as inputs for food industries. Some of these food items supplement the limited supply from domestic industries eg. edible cooking oil and cooking fat imported during period of strife.

Many of food items which are imported are also available locally in the country. Import of such food items is now being discouraged. In addition, imported foods tend to undersell the local produced commodities because some of them are subsidised in the countries of origin.

**Table 11: Food Imports 1993**

	Value US \$
1 Live animals other than fish	376,882
2 Meat and meat preparations	351,217
3 Dairy products and birds eggs	887,011
4 Fish	4,377
5 Cereal and cereal preparations	6,599,175
6 Vegetables and fruits	294,780
7 Sugars, sugar preparation and honey	5,942,052
8 Coffee, tea, cocoa, spices and products	42,338
9 animal feeds (milled cereals)	68,002
<b>TOTAL (FOOD AND LIVE ANIMALS)</b>	<b>15,671,425</b>

Source: Customs Department

#### FRUITS AND VEGETABLES

##### Past Trends, Constraints and Prospects

There are a number of large scale enterprises processing and preserving fruits and vegetables; banana juice and beer are also processed using traditional methods. There are four well established enterprises in this subsector viz:

- Masaka Food Processors, a Co-operative Union and the longest established.
- RECO Enterprises, located in Kasese South-Western Uganda
- Elgonia Industries Ltd, located in Tororo Eastern Uganda.
- Megatrends Ltd, located in Kampala Industrial area.

These enterprises produce bottled pineapple juice, passion fruit juice, dried fruit, jams, dried papain enzyme extracted from pawpaw, tomato ketchup and chili sauce. Most of the products are sold on the local market other than dried fruits and papain powder which is exported.

Present production is far below the existing potential. Investment opportunities exist to establish factories for canning pineapple and producing frozen or aseptic fruits juice concentrates from tropical fruits such as passion fruit, mango, pineapple and pawpaw.

The principal constraint facing the Uganda fruit and canning industry is uncertain availability of appropriate raw materials. The growing of fruits and vegetables is largely rain-fed and availability is seasonal. The problem is exacerbated by the remoteness of many cultivation sites, and the absence of an adequate transport infrastructure for efficient movement of highly perishable produce.

If the problems associated with the supply of raw materials can be resolved, the prospects for the fruit and vegetable canning industry appear extremely bright.

## SUGAR

### Past Trends, Constraints and Prospects

Sugar is produced in three enterprises in Uganda.

- The Sugar Corporation of Uganda is a joint venture between GOU (51%) and Mehta Group (49%). It had 8,890.34 ha. as at 1994, when production was as follows:

Crushing	430,000 mt.
Can recovery	8.9%
Sugar production	38,000 mt.

- The Kakira Sugar Works - also a joint venture between GOU (30%) and East African Holdings, the Madhvani Group (70%). The area under sugar cane is 12,130 ha. Production as at 1993 was 2,500 tc. cl.; the number of cut-growers is 584. An area of 1400 ha. under can is owned by out-growers.

- Kinyara Sugar Works, wholly owned by GOU, is in the final stages of rehabilitation and has not resumed operations. The total area under sugar is 7,250 ha. The first crop will be processed early 1996.

All the three companies manufacture a total of sugar from sugar cane under integrated farm/factory ownership. By-products from the manufacture of sugar are bagasse and molasses. Bagasse is burnt as a fuel in factories. Some of the molasses are converted into alcohol and confectionery.

At present, all the sugar produced is sold within the domestic market, however, production is not yet sufficient to satisfy the domestic market. Approximately 37 % of the Uganda market requirements was met by imports in 1994.

Uganda enjoys a sugar quota of 5000 mt. p.a. under the ACP/EC agreements, which has not been utilised for many years. This opens an opportunity to export surplus sugar in future. Other investment opportunities include;

- The sugar currently produced is "plantain white" sugar which is not equivalent of the refined white sugar used in industries eg. soft drinks and others. Therefore, there exists an opportunity to refine sugar to meet the requirements of local industries.
- Sugarcane by-products can be utilised in many downstream operations.
- Production of ethanol from molasses for use in blending petroleum.
- Manufacture of paper from surplus bagasse. The production/manufacture of paper and particle board from bagasse is also feasible.

## BEVERAGES

### COFFEE

#### The Resource base

Coffee is Uganda's largest single foreign exchange earner. The coffee industry is at present based entirely

on small holder production which forms the backbone of the industry. Robusta and Arabica account for 90% and 10% respectively.

The production system is characterised by traditional low output technology; dense cropping and intercropping are wide spread. The area planted under coffee covers about 273,000 ha. including 33,000 ha. of arabica. In order to increase production and improve on quality, the GOU's owned research station (Kawanda) has produced six improved robusta clones which are being multiplied and distributed to farmers in different locations.



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fired pusher type reheating furnace of 10 ton/hour discharge capacity which is the process bottleneck, resulting in a maximum capacity of 50,000 tons per annum on three-shift basis.

In the case of SRM/Casements of the ALAM Group, the rolling mill was put into operation in 1988, feeding the reheating furnace with imported billets. SRM became the source of input material for Casements, thereby substituting a major part of imported semi-finished products. Flat products still have to be imported.

PABCO, a company specialising in the processing of aluminium and mild flat products applying the deep drawing method, also plans to advance its production to the primary input materials. In the near future, the company intends to import aluminium billets to be processed in an extrusion process to be installed. By exploiting this highly productive method, aluminium profiles of complex design and even aluminium tubes can be manufactured, thereby diversifying the product mix, extending the range of processing and enhancing the level of technology in the subsector. Aluminium profiles offer a wide scope of application, e.g. window and door frames, ladders, bathroom furniture, sanitary ware and fittings, crates, gardening equipment, instrument frames, control panel frames, mobile fitting frames, bicycle frames and rims.

It should be mentioned at this point that Casements is considering the setting up of an extrusion press for the manufacturing of aluminium profiles too, emphasizing the growing demand for this product. In contrast, hardly any competition does exist in the small-scale metal working industry, mainly in the manufacture of spare parts, and repairs. This is also due to the very high demand for the products and services in this field.

MC Industries, Kampala, can be singled out as an example of a successful small-scale company with some modern facilities available but bad working conditions (e.g. bad lighting, crowded working area) which contributes to inferior product quality. Technically advanced measuring equipment for engine maintenance and repair has been acquired, but simplest material testing gadgets are lacking. MC is able to market all its products and services but still can not satisfy the big demand.

Another striking example in this respect but with even worse working conditions and obsolete equipment is the Busoga Growers Co-operative Union Workshop at Jinja.

People there try to make up for this by improvising to procure scarce tools and consumable (e.g. turning tools, welding electrodes, welding filler materials). In spite of this situation, the workshop's existence is justified by

the urgent need of spare parts and repairing capacity for agricultural implements and the mere absence of competition in this field.

GM Co. Ltd is presently the country's only vehicle assembly plant with a capacity of 490 commercial vehicles and 360 trailers per year, with about 40% available for export. Originally set up as a joint venture between the local Spear Motors and a German company, it is now completely under local ownership. In addition to vehicles, GM is licensed to manufacture agricultural implements.

As to Chillington, the company was equipped with obsolete production equipment of low productivity. Right from the very beginning second-hand machinery probably written off by the parent company was supplied and installed. No attempt to modernize the machinery had been made. In spite of this, comparatively good quality products were offered to the market during the sixties and early seventies. Input materials were procured mainly from Britain but also from the then operating EASCO.

At present, another attempt at production has failed because the steel grade delivered by SRM did not comply with the specification (Cu and P content too high resulting in brittleness during hot shaping). The entailing shortage of input material forced the management to introduce part time working.

With regard to Kilembe Mines, most of the work going on now concerns the rehabilitation of the maintenance workshop and the foundry as well as the setting up of a plant to process the huge pyrite heap into cobalt. Since there is already a skilled-manpower potential both for the foundry and the maintenance workshop, restructuring of the company's operations in this once mining area should focus on the existing training facilities to be upgraded into a Foundry Development and Maintenance Centre with the capacity to manufacture spare parts for metal working industries. This would create employment and maintain jobs in this area taking advantage of the available skilled manpower. At the same time its contribution to the industrial development of this region should be obvious.

#### **Constraints and Prospects**

With regard to manpower development, it should be noted that most of the employees had never had any professional training prior to entering the industry. Product quantity and quality oriented wage incentives are missing. Lack of properly trained personnel is evident in most factories and at all levels. Workers are not adequately motivated to improve their vocational skills through say, after job training. The low level of wages is definitely a result of

improper training. Product quantity and quality oriented wages are rare. Especially welders need to undergo re-training.

There is lack of financial resources which affects the normal running of business. It is difficult for many companies to mobilise working capital either through borrowing or by selling their products due to poor management and accountability. The absence of a viable financial market worsens this situation. Furthermore, bank interest rates are prohibitively high. The present scarcity of money is partly caused by the Government's tight monetary policy to curb inflation. On the other hand, heavy borrowing leads to loss of independence in decision making with regard to business planning.

The following technical constraints can be observed:<sup>6</sup>

- use of outmoded production equipment;
- complete lack of quality control at every stage; no quality certification;
- missing working instructions and standards at company level and national level at large;
- absence of material testing facilities including metallography;
- lack of research and development (R & D) activities;
- inadequate design facilities;
- no independent institution to control and oversee adherence to technical standards and quality specifications;
- lack of spares for sophisticated equipment, in particular measuring gadgets;
- insufficient interaction between technical colleges, university and industry concerning practical training;
- short supply of offers to plant engineers and technicians to further develop their skills through seminars organized by professional associations;

The market for metal products is an expanding one. The demand for processed steel in particular is growing with the recovery of the economy, although consumption is still very low by any standards, amounting to 2.4 kg per capita as of 1994. Steel per capita consumption is empirically related to national technological progress. A threshold figure of 50 kg per capita is recognized as necessary for a country to take off technologically.<sup>7</sup>

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<sup>6</sup> Ministry of Trade and Industry; Indicative Industrial Plan 1993-1998

<sup>7</sup> Cumisiriza, Restructuring and Turnaround Plan for Ert Africa Steel Corporation, 1992

Projection of production based on the likely operational performance of the three steel mills is shown in Table 23 below.

**Table 23: Projection of Production of Crude Steel & Semi Finished Steel (thousand tonnes)**

**Crude:**

Year	1991	1992	1993	1994	1995	1996	1997
SRM	3.0	10.9	14.5	20.0	20.0	20.0	20.0
SEMBULE	-	-	-	3.0	10.0	15.0	35.0
EASCO	-	-	-	-	15.0	20.0	25.0
Total	3.0	10.9	14.5	23.0	45.0	55.0	80.0

**Semi Finished:**

Year	1991	1992	1993	1994	1995	1996	1997
SRM	2.70	9.90	13.2	18.2	18.2	18.2	18.2
SEMBULE	-	-	-	8.5	16.4	29.3	46.8
EASCO	-	-	-	15.0	20.0	22.5	25.0
Total	2.70	9.90	13.2	41.7	54.6	70.0	90.0

**Source:** Arkwright, Report on Casement Group 1992

In this report, consumption is defined by that steel that is processed in the country, comprising imports and local production.

**Consumption in thousand tonnes:**

Year	1991	1992	1993	1994	1995	1996	1997
Crude Steel	4.64	12.6	17.8	42.8	60.0	77.0	99.0
Semi-finished	19.2	26.9	30.7	57.3	77.6	98.0	122.0

A potential for expansion of steel consumption exists in substituting part of the indirect supply. Machinery and transport equipment constituting the largest import item, attention should be directed at establishing and promoting related industries, in the following areas:

- manufacture of structural metal products, tanks, reservoirs and steam generators;
- metal working service activities;
- manufacture of general purpose machinery;
- manufacture of special purpose machinery.
- manufacture of domestic appliances;

- manufacture of bodies for motor vehicles, manufacture of trailers and semi-trailers;
- manufacture of transport equipment.

It is obvious that the manufacture of complete vehicles for instance is out of discussion. But a start could be made by assembling, whereby locally manufactured components gradually replace imported ones. Such assembly industries could pose a challenge to the local supply industry (high quality, just-in-time delivery). Subsequently a higher demand for steel arises as reflected below:

**Steel Demand in thousand tonnes**

Year	1993	1994	1995	1996	1997
Semi-finished	30.7	63.3	90.0	117.0	150.0
of which plate & sheet	7.0	14.5	25.8	34.0	43.0
tubes, alloy steel	5.5	6.7	8.5	11.0	14.0

Source: Arkwright, Report on Casements 1992

Comparing the demand with the projected production from the three steel mills by the year 1997, it becomes clear that a deficit of about 60,000 tons has to be covered either through imports or by creating an additional steel making/rolling capacity, particularly for the manufacture of flat products and alloy steel.

Taking into consideration the growing demand for flat products, further investment in the steel industry should concentrate on the installation of the equipment required, i.e. hot strip and cold strip rolling mills, picking lines and annealing furnaces as well as slitting lines. All this is not available.

Investment opportunities do exist in the following classes in the metal working subsector:

Manufacture of structural metal products, tanks, reservoirs, steam generators and tools, especially the manufacture of:

- prefabricated buildings, predominantly of metal;
- service gates, piers, jetties, slide valves, tubes and pipes for water irrigation;
- a wide variety of finished metal products by forging, processing, stamping, roll-forming;
- cutlery and hand tools, made of stainless steel and alloy steel;
- forges and anvils, vices, clamps; and
- saws and saw blades, knives and cutting blades.

Manufacture of machinery and equipment and machine tools, especially the manufacture of:

- pumps, compressors, taps, cocks and valves;
- lifting and handling equipment, ladders, cranes, mobile lifting frames;
- unit air-conditioners;
- packing and wrapping machinery;
- agricultural and forestry machinery, harvesters for cotton and fruit;
- machine tools for working metal, wood and stone, for stamping or pressing, forging machines, of simple design;
- presses, crushers used to make fruit juices and wine;
- machinery chiefly employed by the grain milling industry;
- sewing machine needles, hammer mills;
- concrete or mortar mixers, crushers and screens, shaking tables;
- domestic appliances, non-electric water heaters, cooking appliances and plate warmers, roasters, grills, frying pans, other cooking appliances.

Investments in these areas would lead to greater diversification not only of the products but also of the steel grades needed for the manufacture. This again would give impetus to widen the scope of the steel grades locally produced. Increasing division of labour in the industry entails greater interdependence resulting in better business relations in terms of delivery promises and quality. In the transitional period, Government should take certain steps ( for example investment incentives, lower taxes on local products, easier access to working capital) to strengthen the competitiveness of local products against imports.

**F: NON-METALLIC MINERAL PRODUCTS (BUILDING MATERIALS)****The Resource Base**

Uganda is well endowed with the non-metallic minerals required for the development of a cement industry, including limestone and clay. Most of the surface of Uganda is underlain by pre-cambrian rocks which have undergone varying degrees of metamorphism. However, the Western Rift Valley is characterised by about 3,000 m. of undistributed sediments. The tertiary period saw intrusions into the rocks of Eastern Uganda of alkaline and subvolcanic complexes. Much of the surface of Uganda has been deeply weathered, hence creating a thick layer of residual soil, masking the geology.

Limestone is a major raw material for the manufacture of portland and cement in Uganda. Limestone is also used in retractors, paper mills, concrete and road metal, sugar croaks, calcium carbide works, and animal feeds. Deposits are found at Muhokya, Dura, Hima, Busanga, Tororo, Buda and Moroto. The Tororo (carbonatic limestone) and the Hima (sedimentary limestone) deposits are exploited for producing cement in plants located near the deposits.

Clay is mainly found in low, swampy areas of Uganda. Quality greatly varies according to the source of the rock. Substantial deposits are found near Kampala, for example Kajjansi, Namanve, Nansana and Kisubi. The department of Geological Survey and Mines with the assistance of East and South Africa Mineral Resources Development Centre is evaluating clay deposits in Uganda to establish their commercial viability.

Glass sand is found around the shores of Lake Victoria. Most prominent locations include the Dimu sands, near Masaka, Nalumuli and Nyimu bays near Kampala. More than 100,000 mt. of good quality glass sand (99.05% SiO<sub>2</sub> and 0.05% Fe<sub>2</sub>O<sub>3</sub>) have been identified. Very high SiO<sub>2</sub> deposits are found at Bukakata. Government of Uganda, through United Nations Industrial Development Organisation (UNIDO) is seeking to assess the commercial viability of these glass sands to produce sheet glass, table ware and laboratory glass ware.

Gypsum deposits are found in Kibuku and Muhokya in Kasese and Lake Mburo in Mbarara. There is an estimated 29,000 mt. at Muhokya, 1.2 mio mt. at Kibuku and 80,000 mt. at Lake Mburo. Gypsum is utilised in cement manufacturing ceramics (as a mould) and sanitary ware making.

Marble occurs in Karamoja, Dura River and Kasese. Quantities are, however, not yet established. It is a potential raw material for making terrazzo, concrete



block and ceramics. Karamoja based marbles are of very high quality, and are regarded as a major opportunity to be exploited.

With regard to Pozzolans and alternative cementitious materials, a research has just been completed to determine their performance in mixes with lime, lime and portland cement and with portland cement alone. It is not yet known whether these findings will result in any commercial use. It has been found out that though the degree of pozzolanicity may be adequate, the alkali content of the finished cement is not reduced sufficiently for use in the heavy construction projects.

Potassium feldspar occurs in association with caoline at Mutaka Analyses of samples of raw materials variously quote 66% feldspar containing 10.2% K<sub>2</sub>O and >90% feldspar with 13% K<sub>2</sub>O.

#### Past Trends

#### CEMENT

Cement manufacturing is dominated by one company - the Uganda Cement Industry (UCI). This company owns two cement plants in the country, namely Tororo Cement Factory and Hima Cement Factory.

Tororo Cement plant was commissioned in 1952 to supply cement for the construction of the Owen Falls Dam in Jinja. Machinery and equipment at Tororo plant (as of now) are in bad conditions. Cement production is not on continuous basis but in batches. It is difficult to ascertain the number of shifts per day due to frequent breakdowns. Plant authorities estimate the operation to be 10 days in a month.

The Hima Cement plant commenced production in 1970, producing ordinary portland cement. The state of the Hima plant, machinery and equipment is good, though only one production line is working.

A breakdown of UCI's stockholders is as follows:

- Uganda Development Corporation (UDC) 51%
- Uganda Crane Industries Ltd (Subsidiary of UDC) 33.9%;
- Development Finance Company Ltd. 9.8%
- Talcot Ltd. 1.8%
- Universal Asbestos Co UK Ltd. 1.8%
- Bukedi District Administration 0.2% and
- Others 1.8%

Note: The UDC is state owned, the rest are private companies.

Domestically produced cement is marketed and sold through the parent company - UCI. Cement sales for Hima are mainly confined to Kampala (capital city), central region and western region, whereas Tororo cement is all sold in Eastern Uganda. Current production of cement in the two plants is not adequate for the local market. Demand has outstripped supply in the ratio 3:1. The construction activities especially in the private sector that has taken place in the past six years have been largely sustained by imported cement from neighbouring countries.

In 1994, the share of cement imports to total imports was 2.8% worth US \$ 11.9 million. Even when production levels in these plants improve, demand in the local markets cannot be satisfied. Table below indicates the past estimates of cement consumption from 1986-1993

**Table 24: Cement consumption 1986-93**

Production	Domestic Imports	Cement sumption (Tons)	Total
1986	11749	-	-
1977	16376	-	-
1988	15908	71275	87183
1989	14677	111757	126434
1990	15912	130655	14667
1991	26245	-	-
1992	26403	101143	127546
1993	36706	131000	167706

**Source:** Customs and Exice Dept.

#### **Constraints and Prospects**

The Uganda cement industry faces no input constraints. The availability of substantial untapped reserves of raw materials in many parts of the country provides it with a

firm basis for expansion. Capacity utilization of the industry is still very low largely due to operational constraints which constraints include:

- inadequate supply plant and interrupted supply at the Tororo plant.
- obsolete machinery and equipment at the Tororo plant
- low working capital and big debts are not attractive to financial institutions for further lending.

The prospects are perceived to be broadly favourable with the domestic market expected to continue to absorb growing quantities in the coming years as Uganda's economic development proceeds, and export markets, especially within the PTA, also believed to have a substantial scope for expansion.

## CERAMICS

### Past Trends, Constraints and Prospects

As with the other non-metallic rocks and minerals there is as yet no available national inventory of the country's clay deposits.

A UNIDO 1992 study found that raw materials exist which are suitable for fine ceramic manufacture. The firing temperatures for making glazed wall tiles were specified and in making sanitary ware higher content of grog was recommended to be blended in to allow for the presence of iolite in the selected clay.

Some of the clays were reported to be refractory, such as washed Buwambo kaolin and raw Mutaka kaolin, and to fire at temperatures equivalent to SC 33 or somewhat higher. Among the suggested possible refractory products were:

- siliceous fireclays
- medium grade fireclays
- high grade fireclays, from washed kaolins and fired grog
- insulating fireclays, which incorporate sawdust.

Kyanite is recorded on the Uganda Mineral Map as occurring at two locations in Nebbi District not far from the border with Zaire.

Several of the shallow clay deposits being worked for brick and tile making have clays which are somewhat refractory. Firing tests in 1977 on the clay at Butende Brick Works 16 km NE of Masaka found that at 1140°C the firing shrinkage was 5%, the colour yellow and a report then to the Company

advised that 'the higher the temperature the better the bricks'. Lime producers such as Equator Lime, though, are lining their kilns with ordinary fired clay bricks without surveying the various types available for those that have the best refractory properties.

Among other local industries consuming refractors are Hima (and Tororo) cement plants, East African Steel Corporation and SRM Ltd. in Jinja, Sembule Steel Mills in Kampala, the 30 or so foundries including Notay Engineering Industries and URC Nalukolongo.

UNIDO has details of a process recently developed by Prof. Sobek which achieves within one plant the hardburning of magnesite for refractory by carrying out the two stages in tandem, one on top of the other.

There is information in a recent report on the kaolin deposits at Namasera Hill, Buwambo Hill, Kilembe, Migade, Mutaka and Kisai Hill, Koki. Probably the best occurs at Mutaka, on the border of Bushenyi and Rukungiri Districts, where it has good brightness and low iron content and has been used on a small scale e.g. by African Ceramics Ltd.

A 1993 estimate by the Ministry of Trade and Industry suggested that the Uganda market for kaolin was then 25-30,000t/y. The present and potential consumers are the six paint manufacturers Associated Industry of East Africa (AIEA) for 'vim' scoring powder, in paper by Papco Industries, Jinja, Bata Shoes, some by Uganda Pharmaceutical and for the project by Sunrise Ceramics Mbarara as well as by African Ceramics.

Kilembe Mines Ltd. is making use of its own deposit, which contains at least 0.5 mt of 33% kaolin, in formulations for its own paints. The mineral is worked using water monitors and the slurry flows into sedimentation tanks where alum is added for flocculation of the kaolin before extracting the water in a filter press and final drying with firewood.

There are estimates that at least 75% and possibly as much as 90% of the brick production is by the informal sector. It uses a version of 'slop' moulding, one brick at a time, drying in the open or with minimum protection from the rain, and firing in tall field 'kilns' constructed out of 10,000 to 50,000 bricks covered with mud on the outside, and usually with two or sometimes four fire holes where wood is burned. The constraints associated with these operations are many and include:

- lack of awareness of the mining rights that can be made available to brick makers and others,
- destruction of the forest cover
- increasing consumption of fuel for transport - which is not their own - to bring in wood from 10 km or

- further afield,
- excess water in the moulded brick causing long drying times and poor shape,
- loss of production through rain damage,
- inability or unwillingness to invest in drying sheds, fuel wood plantations or other improvements due to lack of security of land tenure,
- unsold production through producing without receipt of an order and then failing to attempt any form of marketing,
- lack of knowledge or assistance to make improvements, try alternative moulding systems, fuels and kilns.

There is also a need for on-site extension services to be provided with hands-on training and advice, by visiting technical personnel to specific enterprises.

Uganda is fortunate to have adequate deposits of clay with near ideal mineralogical composition, plasticity, drying and firing behaviour for the manufacture of extruded wirecut bricks and pressed roof tiles and possibly floor ('quarry') tiles as well.

The current commercial success of the few mechanised brick and tile plants shows strong contrasts. The operation of the plants at Butende and, it is understood, its more advanced sister company Butema Brick and Tile Factory at Butema in Hoima District, are almost models for the industry at their level of production. They have good quality products, appropriate imported plant, adherence to the maintenance schedule and adoption of improvements in kiln design and operation with reduced fuel-wood consumption - though the transport distance and cost of wood remains an increasing problem.

The situation at Uganda Clays Ltd. and Gobbot Ltd. at Kajansi - subsidiaries of UDC Ltd. - is in marked contrast to the previous plants. The raw material is acknowledged to have near optimum moulding and drying shrinkage properties for brick and tile manufacture, except for the patches of medium grained sand that occur in the nearby deposit which has reserves for 70 years if and when production expands to around 100t/d. In its favour, Uganda Clays is able to make good use of alternative fuel, in this case coffee husks for the supply of which it invites annual tenders. These are burned via automated feeders located along the top of the continuously fired (Hoffman) kiln.

African Ceramics Co. Ltd, another subsidiary of the UDC, located north of Mukono has since 1985 made some tableware for the domestic market using national materials except for imported gypsum moulds and glazes.

The mix used has been based on silica sand from Diimu, kaolin and potassium feldspar from Mutaka and a ballclay from near Mukono. The moulded products have two firings, bisque and gloat, in electric kilns imported from the UK. The Company has suffered from unreliable power supply,

lack of working capital and uncertainty over its future ownership and until these problems are dealt with the factory remains idle apart from care and maintenance.

The existence of a high plasticity, white-firing ball clay, as at Mukono and possibly elsewhere is, together with high-silica, low iron content quartz sand, low-iron alkali feldspar and white-firing kaolin, an important factor for the future development of a ceramic industry in Uganda. So also is the improving power supply.

Currently, demand for glazed ceramic wall and floor tiles especially, and also sanitaryware, is rising steeply with importers purchasing from Italy and Spain and some from Kenya. This is despite the import duty, sales tax and withholding tax which cumulatively can amount to 53% or even 65% it is claimed. Importers estimate the Uganda wall and floor tile market in 1994 as being 30,000m<sup>2</sup> and it could increase by between a third and two-thirds in a year or so. The sale of ceramic bathroom/toilet sets, mostly from India and consisting of up to eleven components, is around 350-400 a year.

## CONCRETE PRODUCTS

### Past Trends, Constraints and Prospects

This product group covers the manufacture of concrete or plaster articles for use in construction, such as tiles, flagstones, bricks, boards, sheets, panels, pipes and posts

Although product group 2695 covers the manufacture of the above products, it should be noted here that this report covers only the manufacture of concrete products used in construction.

Concrete is a construction material composed of cement, sand, gravel, water and other inert materials such as expanded slag and vermiculite. enterprises manufacturing concrete products in the country include:

<sup>4</sup> Uganda Chamber of Commerce. Quarterly Report April 1993.

<sup>5</sup> Uganda Chamber of Commerce; Quarterly Report April 1993.

- Arapai Concrete industries
- Roko Construction
- Muyenga Rock
- Kiwa Industries
- ZBR Ltd.
- Larco Concrete Products Ltd.
- Turn-key Construction Co. Ltd.
- Muyenga Block Factory
- N.K. Tiles Ltd.
- Crown Tiles
- Kattambwa Block Factory.

Concrete products manufactured in the country include:

- blocks, slabs, pipes, flower boxes, kerbs, culverts, roofing tiles, fencing posts, window seals, ventilators, drainage pipes, feeding troughs, ridges.

Among the industries Larco Concrete Products is the oldest having started its first production in 1958; while Crown Tiles located in Jinja is the most recently established (1992 as the first year of production).

Most of the plant and machinery items used are old.

The low level of income in the country leads to low demand for concrete products. The public then opts for cheaper alternatives. This is mainly so in the case of tiles, ridges, and blocks. Due to the high price of cement which is a major component in concrete products, products are rendered uncompetitive. The public opts for iron sheets for roofing and clay products for walls.

Some firms face the problem of lack of working capital. This problem makes it difficult for firms to procure raw materials.

High commercial bank interest rates make it difficult for firms to borrow money to maintain their working capital, replace old machinery and to expand.

On many occasions, operations of the firms stop due to power failure. Many of the firms do not own generators and even if they did, the products produced would be very expensive and therefore uncompetitive.

**G: LEATHER AND FOOTWEAR****Resource Base**

Uganda has a population of about 5.3 million cattle, 3.2 million goats and 700,000 sheep. The slaughter rate is about 20% for hides and 40% for skins which implies that about 800,000 hides and 1 million skins are available per annum. This raw material is scattered all over the county with the highest numbers (50%) originating from Western Uganda.

Slaughtering, flaying and drying methods in the country are very poor which leads to poor quality hides and skins with flay cuts, gorges and putrefaction. However, the quality of Ugandan hides and skins is generally acknowledged to be intrinsically superior to, for example, the Kenyan equivalent, ie. being thicker and with better grain.

With improved economic growth resulting from well designed and implemented economic liberalisation policies, it is expected that incomes for the general population will increase and hence increased take off rates for hides and skins.

**Past Trends**

The leather sector in Uganda is not yet well developed and only two tanneries are in existence. Leather Industries of Uganda (formerly Uganda Leather and Tanning Industries Limited before privatisation) is the biggest of the two and makes finished leather for the local market and exports wet-blue semi-finished leather. The second tannery, Alhamed Hides and Skins processes only up to wet-blue stage for export. There are other potential investors who have already obtained licences and are planning to invest in the tanneries in the near future. Two of them have already brought machinery in Kampala and are in advanced stages preparing for production by early 1996.

The combined tanning capacity of the two existing tanneries is 900 and 1200 skins per day which is equivalent to about 8.46 million square feet per annum. As a sector, this represents about 3% of export earnings which is 0.15% of GDP.

The principal products include finished leather for shoe uppers, lining and soles, bag leather and upholstery leather. The different types include plain and moccasin leather, haincell prints, light and heavy prints, suede and split linings.

Total sales between 1988 and 1993 averaged 325,750 square feet with finished leather sales as 272,000 square feet and wet blue sales as 107,000 square feet. Table 18 below



shows the sales performances and the percentage share of each type of product per year:-

**Table 25: Sales Performances and Percentage Share for Different Types of Leather.**

Year	Wet blue sales sq.ft.	% of total	Finished leather sales sq.ft	%of total	Total Sales sq.ft
1988	0	0	283,277	100	283,277
1989	80,236	30	190,358	70	270,594
1990	-	0	131,155	100	131,155
1991	-	0	127,435	100	127,435
1992	160,137	27	435,395	63	595,532
1993	80,922	15	465,585	85	546,507

Source: UNIDO, Kampala.

The sector has been exporting wet blue leather to U.K., Holland, Italy, South Korea and India in the past and did not establish a stable and consistent market. Currently, exports go to Italy where a stable market will be established. Unfortunately, the company is not able to meet its export orders due to lack of working capital. A contract worth about US\$ 250,000 is now outstanding due to lack of working capital.

At full practicable capacity the two companies are able to produce about 7 containers of wet blue leather per month which is equal to 280,000 square feet.

The companies have not yet gone into exporting finished leather due to the limited finishing capacity and poor finishing methods. Working on 3 shifts at the full practicable capacity. 1,124,542 sq.ft of finished leather can be produced per annum from 25% of the wet blue.

Taking into account competition from imports of finished leather from the neighbouring countries imports of second hand leather products and leather substitutes like synthetics, the companies share on the local market is estimated at 15%. A UNIDO economic survey 1993 put the local demand for leather in Uganda at 3.5 million sq.ft and this demand is growing at around 10% per annum as more small scale shoe workshops and other leather converters are coming.

The production of foot wear in Uganda is in the hands of three medium size firms situated in Kampala, and very many small scale producers stream all over the country.

The three firms - Kanungu Shoe Industries, DAS Ltd and Bata Ltd employ up to 15 people (with the exception of Bata which employs about 60 people) and produce, on average of 13400 pairs of shoes annually. They are undercapitalised and produce poor quality shoes due to the poor tannery leather. All their products are consumed locally and there has not been any shoe exports from Uganda. The small scale shoe manufacturers produce about 408,800 shoes annually from enterprises manned by one to two people using rudimentally tools and equipment.

The GOU with assistance from UNIDO has instituted a project to help promote the leather and footwear industry. One of the of this project is to train small scale shoe producers in modern techniques. It is hoped that at the end of the project, technology for shoe production will improve and, depending upon availability of support in the importation of modern equipment, shoe production will increase. Local shoes production satisfies about 25% of total demand, about 30% is satisfied through imports (new shoes) and the rest is met by imports of second hand shoes.

As for other leather goods, it is only the sport balls which are being produced in Uganda. About 18,700 balls are produced annually by one firm and consumed locally.

#### **Constraints and Prospects**

The major constraints affecting leather industry include;

- poor quality of raw hides and skins
- constant breakdown of machines due to poor maintenance
- low capacity utilisation
- shortage of working capital
- high debt/equity ratio
- lack of management information systems
- competition from low priced imports and leather substitutes plus second hand leather products
- stiff competition on world market demanding high quality leather at low cost
- restricted local market due to low purchasing power and lack of leather converters
- high sales tax on finished leather.

Opportunities and prospects for the sector arise from:

- Availability of good markets in the EEC;
- Stable world prices;
- Conducive government policy on exports;

- Available good quality hides when properly dried and flayed;
- Closure of many tanneries in Europe due to different problems;
- Availability of export credit finance from Bank of Uganda but with a lot of bureaucratic delays.