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UGANDA
AGRICULTURAL SECTOR ASSESSMENT

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I. OVERVIEW

Uganda is a landlocked country in eastern Africa located just west of Kenya. It has a total area of just over 91 thousand square miles of which over 9 percent is water and more than 60 percent is suitable for cultivation. The population is approximately 14 million, 93 percent of whom are rural. About 90 percent of the people practice farming and/or herding as their major or sole occupation. Under current conditions in Uganda a large percentage of the non-farm population practice cultivation on a part time basis as a means of supplementing their primary source of income.

Uganda's population is divided into four large language groups and some 40 tribes. The country south of a line formed by Lake Kyoga and the lower Victoria Nile is occupied by Bantu speakers, north of the line are located two Nilotic and one central Sudanic speaking groups. The area south of the Lake Kyoga/Victoria Nile line is the better agricultural area, given current technology and infrastructure, and contains the country's political, administrative and industrial centers.

Tribal rivalries in Uganda have been pronounced. These rivalries have been within and between language speaking groups. They were exacerbated by the differential treatment accorded to various tribes by the British during the colonial period, religious rivalries and income distribution patterns. One consequence of this is that politics in Uganda have been particularly contentious with frequent periods of political instability.

From the agricultural perspective Uganda has two major assets. Over most of the country soils are reasonably good and rainfall is sufficient to produce at least two crops per year. There is also in much of the country an abundance of groundwater, both surface and underground. Except in the far north of the country the rainfall is bimodal with the long rains occurring during March to June and the short rains during October and November. In the area influenced by Lake Victoria some rain falls during the "dry" seasons permitting continuous cultivation. In the far north rain fall is confined to one long rainy season from April to November so there is only one cropping season each year. While there are, of course, variations in weather from year to year, serious drought over most of the country is very rare. Consequently, weather-induced risk aversion is less of a characteristic of Uganda farming than in most of Africa. However, cassava, which is grown everywhere in the country, is produced partly as an insurance crop.

For the most part, the area south of the Lake Kyoga/Victoria Nile line is the most productive agriculturally, with the richest soils and superior rainfall. The exceptions are the highland areas in the Northwest and along the border with Kenya which have good soils and abundant water.

A wide variety of crops and livestock are produced throughout most of Uganda. There are few crops which cannot be grown in Uganda with those which could not be grown satisfactorily being largely limited to deciduous fruits. Rainfall patterns currently limit most production of perennial crops to the area south of the Lake Kyoga/Victoria Nile line and to the north highlands areas. However, there is a potential for significant production of perennial

crops in part of the northern area, particularly if greater utilization is made of groundwater resources.

Agriculture in Uganda is largely characterized by simple production methods and complex mixtures of crops and livestock. The exceptions are herding in the Karamoja district in Northeastern Uganda, sugar and tea plantations, and to some extent, ranching. Most sugar and about half the tea in Uganda are grown on plantations which produce a single crop and use relatively advanced technology. There are a very limited number of stabilized ranching schemes and some other livestock enterprises near urban areas which mostly limit their production to one or two livestock products and are based on utilization of relatively sophisticated inputs. However, these agricultural endeavors involve only a small part of land resources and a smaller percent of the population.

Most peasant farmers will grow at least a dozen crops with a considerable amount of interplanting and keep from one to five varieties of livestock. Crop agriculture in the southern part of the country is dominated by the production of plantains (matoke) and coffee while in the north cassava, millet, sorghum and cotton predominate. Yet virtually every farmer in the south will produce cassava, two or more grains such as maize, rice, sorghum or millet and a variety of pulses such as groundnuts, beans, peas, etc. All of these crops will also be produced in the northern area. There are only three crops which appear to be regionally specific, plantains and coffee in the south and the northern highlands and sim-sim in the north. It is true that in some places in the south cotton will not grow well because the weather is too

cool or cloudy and wheat is limited to small areas in both the north and south but a large variety of crops are grown by farmers throughout Uganda.

Livestock keeping of some kind is also a general practice of Uganda farmers. Virtually every rural household has chickens and most will have goats, sheep, cows and pigs or some combination of these. However, except for the limited areas in the north where the oxplow is used, livestock raising and crop production are carried out separately rather than being integrated into one farming system.

Generally, the level of technology employed by peasant farmers is low and the number of purchased inputs limited. For most farmers the amount of land cultivated is restricted to that which the farm family can cultivate with hoes. There are, however, some exceptions. In the sandy soil areas of the north, the oxplow is used to plough the land for planting but rarely for cultivation or weeding crops. In some areas "joining up" or communal work is used to increase the area cropped and, particularly, in the "fertile crescent" bordering Lake Victoria the use of hired labor to increase the amount of land cultivated is practiced. Finally, in some areas of the country, the male head of household will often take more than one wife to, inter alia, increase the amount of land cultivated, in addition to hoes and limited use of plows and hired labor, the use of other purchased inputs is pretty much restricted to insecticides or vaccine for certain crops or livestock and seeds, though treated cotton seeds are provided to farmers at no cost. Because of the limited research that has been done for most crops in Uganda, insecticide use on crops has been mostly limited to coffee and cotton. In the livestock area

the use of insecticide sprays or dips for exotic or crossbred cattle is imperative and a wide variety of vaccines are required to control several cattle diseases endemic to Uganda.

All crops and livestock except such things as tea, cotton and coffee which require fairly extensive processing before being utilized are produced by farmers for sale and for home consumption. Each farmer expects to sell a wide selection of crops to various markets and to procure with the proceeds food produced on farm, other consumables, schooling for children and other items. The Uganda peasant is market oriented and produces crops and livestock in accordance with market opportunities.

One distinctive characteristic of the Uganda farmers is that most of them are members of a cooperative. The cooperative movement is a major force in Uganda and most farmers sell some farm product, usually coffee or cotton, to the cooperative where they are members. They also, in greater or lesser degree, buy farm inputs from the cooperative, save at a cooperative thrift society and borrow money from the cooperative. There are over three thousand primary societies with a membership of about one million in Uganda. Primary societies join together to form cooperative unions which transport, process and market crops and livestock for the primary societies and supply agricultural inputs. Additionally there are six national cooperative organizations which provide banking, procurement and transportation services to union and primary societies. Finally, there is an apex organization to provide education and information to members and represent members nationally and internationally.

II. UGANDA AGRICULTURE

A. Natural Resource Setting

Uganda is well endowed with natural resources. The country lies on the great plateau of east-central Africa, declining from an altitude of 2400 meters in the southwest to about 1300 meters in the extreme north. The lowest altitude is in the valley of the Albert Nile on the Sudan border while the highest is 5100 meters at the summit of the western Ruwenzori Mountain range. Mount Elgon sharing the eastern border with Kenya rises in fertile slopes to 4300 meters. The land is transversed by numerous streams and rivers and has several large lakes on its boundaries. About 78 percent of the land is potentially agriculturally productive. The equatorial location results in little seasonal variation in temperature. Because of the relatively high altitude the climate is not typically equatorial.

For much of the country, the rainfall pattern, in both quantity and distribution, has been the main influence on the type of agriculture practiced. The southern two-thirds, supporting the larger proportion of the population, has a bimodal rainy season ranging from 700 mm along the Lake Victoria shore to 700-800 mm as one moves to the west. The south-central ranching area of Ankole might be considered an exception with its 700 mm rainfall. One peak of precipitation occurs in April-May and the second in October-November; short dry spells occur in June-July and again in December-January. The dry periods are broken by occasional thunderstorms especially near Lake Kyoga and Lake Victoria. In the far north the rainfall season, generally lasting from April

to October, is followed by a dry season which limits perennial crop production. The driest portion of the whole country is Karamoja District in the northeast which is atypical of Uganda and is occupied by pastoral semi-nomadic peoples.

Compared with those of most tropical areas the soils are, on the whole fertile. The Lake Victoria zone, rightly named the 'Fertile Crescent' is among the most productive in Africa. Yet there are many contrasting soils in the country. The difference between the intensive agriculture of the lake shore areas and the lower productivity of the northeast is related to soils as well as to rainfall patterns. In general most of the north has less productive soils than the south, but there are important exceptions. Excellent soils occur in the foothills of Mount Elgon and the highlands of West Nile.

Forests occupy less than 8 percent of the land area of Uganda and forestry has a sizeable though not fully utilized potential. Through much of the southern and central portions of the country, small wood lots of mainly eucalyptus are observed. The older stands have been extensively used for firewood as most trees have a heavy stump regrowing with young growth. This evident use of the forestry resource has prompted recent attention to the issues of afforestation and alternative energy sources for domestic purposes.

Uganda's fishing industry is based on the exploitation of her numerous lakes, rivers and swamps. The potential for increasing the catch is tremendous. All along the shores of Lake Victoria and Lake Kyoga, the many small private fishermen ply their trade. For many of the men fishing is a supplement to their small farms scattered along the shores. Those who live at a

distance may fish for a week or two and then return home. But the deep water fishing potential of Lake Victoria has yet to be tapped, possibly for fish meal for the livestock feed industry. Fresh or dried fish is a major portion of the protein diet of many Ugandans, even more important than the abundant animal protein.

B. The Ugandan Farmer

The peasant farmers of Uganda live typically as single households consisting of a man, one or two wives and 3-10 children. The household farms 1.5-5.0 hectares with up to 1/2 lying fallow at any one time. Due to the favorable climate and year round growing conditions a large number of crops are cultivated, some in monoculture and others intercropped. The large number and variety grown by a single farm household is impressive. This variety of food crops has enabled the farm household to survive in adverse circumstances by allowing it to be completely independent for its food supply.

Table 1 lists the various food crops grown in Uganda according to their national importance in production areas.

TABLE 1
FORECAST PRODUCTION AREAS IN '000 HECTARES GROWN IN 1980

<u>Root Starches</u>		<u>Cereals</u>	
Plantains	895	Finger Millet	287
Cassava	311	Maize	266
Sweet-potatoes	240	Sorghum	182
Irish potatoes	11	Rice	11
		Wheat	4
<u>Legumes</u>		<u>Oil Seeds</u>	
Beans	256	Sesame (Sim Sim)	61
Groundnuts	108		
Cow Peas	42		
Field Peas	24		
Soyabeans	14		
Pigeon Peas	7		

Source: Ministry of Agriculture Statistics

As many of the crops are cultivated in association with other crops, the cultivated areas will be greater than the statistics show. Other food crops grown include taro root, yams, sugar cane, variety of vegetables, pineapple, amaranthis, pumpkins, sunflower. Farm households also grow tropical fruits such as papaya, mango, jack fruit, guava and some citrus as well as the usual farm domestic animals: cattle, goats, sheep, pigs and chickens.

Uganda's cattle population is concentrated in five areas: in the far north-east and the far southwest, in Teso and Lango just north of Lake Kyoga, and in western Buganda in a heavily cultivated belt near Lake Victoria. In the first two areas live Uganda's main pastoral peoples, the Karamojong and Bahima (the traditional cattle people of southern Uganda), and most of the cattle in these areas are the indispensable mainstays of the local pastoral economics. In Teso, and parts of Lango and Anchoi, a system of mixed or partially integrated farming is commonly practiced, and most of the cattle there are not central to the farmers' livelihood as among the pastoralists. In Buganda, and elsewhere, in the perennial crop zone, the economy is basically agricultural, so that livestock plays a supplementary role and is not integrated with the cropping system.

The agricultural practice in Uganda varies according to regions and is dictated by the climatic conditions and local tradition. Figure 1 shows a general distribution of the agricultural systems. The local system of farming will be described in detail accordingly. The Ministry of Agriculture has defined 11 ecological zones in the country according to major crops (cash or food) and ecological conditions (see Tables 2 and 3). We have chosen not to use this

much detail but describe more generally with the agricultural areas defined in broader terms.

TABLE 2

AGROCLIMATIC ZONES OF UGANDA

<u>ZONE</u>	<u>DISTRICTS</u>	<u>AGRICULTURAL SYSTEM</u>	<u>MODE OF LIVELIHOOD</u>
Zone I	Busoga/Budedi	Banana, millet and cotton system, with outliers of the main coffee-banana system.	Cultivation Dominant
Zone II	Bugisu/Sebei	Montane systems: Arabica coffee, banana (wheat and maize in Sebei).	Cultivation Dominant
Zone III	Teso	Teso systems: finger millet, cotton and cattle keeping (mixed agriculture).	Cult/Stock raising
Zone IV	Karamoja	Pastoral system - - cattle keeping also sorghum	Stock raising/ cult. (hunting & collecting).
Zone V	Lango/ Acholi	Northern systems: finger millet, cotton, tobacco (some mixed agriculture also).	Cultivation dominant

Zone VI	West Nile/ Madi	West Nile system: basic agriculture like Zone V but with predominance of cassava as staple food.	Cultivation dominant
Zone VII	Bunyoro/ Toro	Arabic and Robusta coffee and banana system, Montane systems: heterogenous agriculture but basically bananas, coffee, tea.	Cultivation dominant
Zone VIII	Ankole	Montane systems in the west: Pastoral to the east: Arabica and Robusta coffee, tea, bananas, cattle.	Cult/stock- raising & nomadic herding.
Zone IX	Kigezi	Montane systems but with larger annual crop acreage than other montane systems. Sorghum is major staple. Arabica coffee, tea.	Cultivation dominant

Zone X	Lake Victoria Crescent	Main Robusta coffee and banana system: Robusta coffee, bananas, tea cocoa, sugar.	Cultivation dominant
Zone XI	Northern Buganda	Western extension of the banana-millet- cotton system, but now largely taken up by big ranching projects.	Cultivation stock raising (fishing)

SOURCE: Berry, Leonard. East African Country - Country Profile No. 6:
Uganda. 1980.

TABLE 3

PRODUCTION COMPONENTS BY AGRO-ECOLOGICAL ZONE FOR THE AGRICULTURAL

SECTOR IN UGANDA

Agro-ecological Zones	Major Cash earning Activities	Food Activities with food cash-earning Potential	Subsistence food Activities	Location by Administrative District
I. High effective rainfall, high altitudes	Arabica coffee	European potatoes	Sweet potatoes	S. Kigezi
	Tea	Temperate vegetables, Dairy	Wheat	W. Ankole
	Pyrethrum	cattle, Bananas	Peas	Upper Ruwenzori) ⁺ Toro)
	temperate fruits			Bugisu)* Sebei)
II. High effective rainfall, middle altitudes	Robusta coffee	Bananas	Sweet potatoes	Masaka
	Tea	Field beans		Mubende
	Spice crops	Soya beans		C & S. Bunyoro
	Cocoa	Dairy cattle		E. Mengo)central W. Mengo) & south
		Maize		W. Busoga

III. Med-	Cotton	Sorghum	Finger	N. Kigezi
ium rain-	Tobacco	Sim-Sim	Millet	Lower Ruwenzori
fall,	Cashew	Field beans	Cassava	W&E Bunyoro
middle	Groundnuts	Beef cattle	Cowpeas	N. Buganda
altitudes	Maize	Dairy cattle	Goats	Acholi, Lango,
	Sunflower			Teso, Bukedi,
				E. Busoga
IV. Lower	Beef cattle	Sorghum	Cassava	Karamoja
rainfall,		Goats	Pigeon	N.E. Teso
middle			peas	
altitudes				
V. Areas	Sugar	Dairy cattle		Central &
with high	Rice	Poultry		northern
insolation,	Tropical	Pigs		areas
middle	fruits			
altitudes	High value			
	vegetables			

+ Same district

* Mt. Elgon area

SOURCE: Berry, Leonard. East African Country Profiles Country Profile No. 6:

Uganda 1980

1. Southern Perennial Crop Zone. The Lake Victoria fertile crescent is the main area of Uganda having the right combination of climate and good soils which has fostered the development of a productive banana plantation (matoke) farming system. This can generally be described as the 40-60 km strip along Lake Victoria including the towns of Mbale, Jinja, Kampala, and Masaka and outlying areas. A well-established and well managed matoke planting can provide the farming family with their basic starch requirements for a lifetime. Once the plot is established the only inputs required are weeding plus trimming of excess suckers and dry leaves. Mulching by coffee husks has proved very beneficial and is practiced by farmers who have an access to supply. One hectare of good matoke can yield up to 2000 mature bunches a year. At the average market price of 200-300 U.Shs. per bunch there is an active interest by many local entrepreneurs to establish commercial size plantings. Due to the bulk of this crop, transport is often difficult as it is usually done on the heads of men and women, on the back of bicycles and on any available space of buses, lorries or private cars. Even the smallest land holder will sell his excess of matoke.

The Ministry of Agriculture estimates that in the southern district of West Buganda the percentage of matoke grown as compared to total food crops rose from 22 percent in 1971 to 63 percent in 1980 showing the great increase in use of this staple.

There are at least three distinct types of bananas grown in Uganda.

1. The general starchy cooking type ranging in size, shape, and flavor, which is picked green (matoke).

2. The sweet eating banana again composed of many types ranging in size, shape and flavor.

3. The beer making type which is a small 'sour' banana. It is picked green and ripened over a smokey fire.

The matoke growing areas of Uganda have expanded in latter years to include areas of Mbarara and Kigezi districts as well as scattered plantings in the tea and arabica coffee areas near Kasese and Fort Portal. Matoke is such a preferred crop that it is grown at lesser productive locations at the expense of more adapted crops. Its popularity is easy to appreciate because of its ease of cultivation, harvesting and cooking.

Robusta coffee largely follows banana in its distribution around the country. Its promotion, however, has been due to factors different from those which have caused the expansion of banana. As the major non-food crop of Uganda, coffee growing, processing and marketing have been tied to the extensive cooperative movement. Development of rural electrification and roads services in many areas was parallel to increases in coffee production. In recent years coffee plantings have suffered from neglect and disease. Lack of pruning, cultivation, mulching plus weed competition and diseases such as coffee berry disease have lowered the quality and quantity of harvestible coffee. This neglect was mainly due to the absence of a reliable market in

Uganda and the inability to procure needed inputs, including labor. The recent increase in price has provided a stimulus for the harvesting and marketing of coffee beans, but the majority of the coffee plants are not in good condition. Many have lacked pruning and are overgrown with weeds. In areas such as Kigezi the coffee berry disease has caused plantings to be uprooted and in other areas coffee has been replaced by other crops.

The farmers of the matoke-coffee areas also grow a whole series of annual crops. Two or more crops a year are possible for many of the species and one may observe 4 or 5 annual crops growing at one time. The planting schedule varies from area to area. Millet, maize, beans and groundnuts are usually planted in September. Sweet potatoes are planted in August. In March/April a second crop may be planted depending upon the local conditions. It is difficult to generalize as to the particular mix of crops and the cropping patterns for the whole region. Sweet potatoes are found everywhere and taro are found in the wetter areas; often along the lower swampy lands. Maize and the ever-present cassava are often found interplanted. Beans and groundnuts make up the major legumes although soybean and pigeon pea are also grown. Sorghum is usually grown as a single crop, often after beans and maize, to be used in banana beer making. The sorghum grain is 'malted' which provides the yeast for brewing.

The total land area for the farm households in this zone varies in size from 1 to 5 hectares. Depending on the wealth of the family, the mix of crops grown and the availability of hired help, one half to three quarters of the land area is cultivated. At least one third of the cultivated area is planted in

perennial crops (including cassava). On farms of seven or more acres, a portion of the land is usually found in fallow. It appears that the practice of fallowing is a response to falling fertility and to the physical inability to cultivate more land. Medium-scale holdings from roughly 20 to 50 acres are also found in this zone. Land use in these holdings varies from dairy operations to rice schemes to large-scale production of fruits and vegetables.

The parts of this zone that are located in Buganda until 1975 fell under the Mailo Estate system of land holding, under which large grants of land were made in the early 1900s to members of the Buganda King's family and court. Over time this land was divided and sold, so that by the mid-1960s there were over 60,000 registered titles to land in Buganda. The land reform in 1975 abolished the mailo system and individual ownership of land. Those who had title were termed "lessees on conversion" and new leasehold titles were to be granted. This latter action has not yet occurred, and it is the general perception throughout this zone that individuals do own land outright. Thus, land sales, albeit untitled, are taking place in 1982; however, land prices are said to be high and only very wealthy individuals can afford to expand by this means. According to the Commonwealth Secretariat team, the population in East and West Mengo (Buganda) is said to have realized 82 percent of the carrying capacity of the land (see Table 4). Though land in this area is erroneously perceived to be prohibitively high in cost, it is indeed becoming dear in the sense of population density per unit of land.

The amount of intercropping on land in this zone varies. Coffee, matoke and sweet potatoes are usually the only crop in pure stands. Young matoke is

often interplanted with beans, groundnuts, squash or even maize, pineapple and cassava. Legumes are usually rotated and interplanted. Numbers of livestock vary, often consisting of several cows, goats and chickens. Goats and pigs may be tethered but chickens are never confined. As the amount of land for grazing varies with the location, so the size of herd and their management also varies. In general the areas of less rainfall west of the lake contain less land suitable for cropping and hence more devoted to grazing cattle. Cows milk is consumed in the home and is also sold but the milk of other animals is not taken.

Due to the shortage of inputs into the country during the past few years many households have not had adequate implements to carry out necessary cultivation. The large 2 kg. hoe is the tool of choice and is prized above all others. The customary use of the new heavy hoes is initial 'ploughing' by the men and the smaller, lighter, worn hoes are used by the wife and children for cultivation. The lack of an adequate supply of new hoes over the past few years has created a very serious problem for the farm family. Although the situation has improved greatly with the large importation of hoes and the restart of local manufacture, a large unmet demand still exists and farmers will most often cite lack of hoes and other hand implements as their greatest problem.

The major part of Uganda's sugar producing capacity lies within three large commercial estates in the eastern areas near Lake Victoria. Two of these, Kakira and Lugazi near Jinja, were nationalized in 1972, but the original owners have now returned to manage them, under a 51 percent government/49

percent private ownership arrangement. Both of these estates are in a run-down condition although some replanting and other rehabilitation activities have begun. Kinyala, near Masindi in the west, a newer plantation, is state-owned, having equipment in fairly good condition although some technical assistance is needed to complete installation. These three mills are traditionally supplied cane from their own plantations and outgrowers. However there has been a remarkable growth in small-holder cane production in recent years. Jaggery, a crude brown sugar, is made from this cane. It is consumed as a substitute for refined sugar or more commonly sold to be used in the production of the alcohol beverage waragi. It is estimated that 2000 such jaggery producing plants exist in the country.

TABLE 4

District	Estimated Net Migration to Other Districts 1959-1969*	Estimated 1981 Population as % of Maximum Potential Population on the Land	% of Total Land Area	% of Ugandan Population 1980
Busoga	52	94	7	15
Bukedi	-20			
East Mengo	99	82	9	17
West Mengo	129			
Kigezi	100			
Ankole	38	81	16	23
Masaka	42			
Teso				
Bugisu	-8	68	8	11
Sebei	2			
West Nile	-43			
Madi	7	57	8	6
Bunyoro	98			
Toro	74	41	20	15
Mubende	38			
Karamoja	9	37	12	3
Lango	-5	34	20	10
Acholi	30			

*A negative figure indicates out-migration.

Sources: Jeggle, T. Draft Paper on Agriculture, 1981.

Rehabilitation of the Economy of Uganda, Vol. II, p. 26.

2. Northern Farmers/Annual Crops Zone

Currently, the northern portion of Uganda is largely an annual crop zone except for highland areas in the far east and west. In the plains areas, the major area that will be dealt with in this section, the most important farm products are millet, sorghum, cassava, cattle and milk. The southern three-fifths of this area is characterized by a bimodal rainfall - long rains lasting from March to June and short rains during October and November - which makes possible the production of two crops per year. In the areas of Teso and eastern Acholi and Lango^{1/} which have generally sandy soils ground is broken and prepared for cultivation by oxplow. The major sources of calories are millet, sorghum and cassava, though maize is becoming a more important crop. Other important farm products are sim-sim, cotton, tobacco, groundnuts, sweet potatoes, cow or pigeon peas, cattle, cows' milk, goats, chickens and eggs plus a wide variety of vegetables and tropical fruits.

The northern two-fifths of the area, except for highland areas in the west, is characterized by one long rainy season lasting from about March to August with less than 700 millimeters of rainfall, and in some localities considerably less. Here crop variety is more limited, with cassava, millet and sorghum being the major suppliers of calories and more important components of the total diet than in areas to the south. Some sim-sim, tobacco and cotton are also produced. In this area, livestock herding becomes much more important, with the northwestern Karamoja area being largely limited to herding.

1/ See Map at front of paper.

While there are, for the most part, no serious problems of population pressure on the land, the high population density in Teso district is stretching the capacity of the land to support cultivation, grazing and at the same time allow traditional fallowing practices. Declining fertility and soil erosion are evidences of this problem. In this region, land holdings are fragmented, with two to three plots for each farm household. The total area cultivated varies from nine to fifteen acres in size, about half to two-thirds of which is cultivated. Only five to eight percent of the land is in perennial crops. There is also a substantial amount of communal grazing land. Land in Teso appears to be under some pressure, while land to the west in Acholi and Lango districts is rather sparsely populated, with only 34 percent of the potential now being exploited.

There has been a shift in the type of food crops that are presently being planted. This trend may be seen in the 1971-1980 comparison of plantings in Teso District (see Table below) where the shift has had nutritional as well as economic effects.

TABLE 5

Crop	<u>PERCENT OF TOTAL HECTARAGE OF FOOD CROPS</u>		
	1971	1980	Relative % Difference
Millet	43	26	-17
Sorghum	9	18	-9
Cassava	9	20	+11
Sweet Potatoes	2	10	+8
Groundnut	24	9	-15

Several factors have been effective in bringing about these trends. One major change has been the replacement of cotton production by food crops which proved to be more remunerative to the growers. The dramatic reduction of cotton grown in the northern areas, due largely to poor market conditions including non-payment to farmers on delivery of crop and inadequate prices plus lack of seeds and other inputs, has led to the current situation and it appears unlikely that cotton production will increase significantly in the near term.

In Mbal District, 18,000 bales of cotton were produced in 1971 while in 1980 production totaled only 980 bales. At the present time it is difficult to foresee a long-run future for cotton in these areas. Certainly the recently increased price and the improved buying practices by the primary societies have raised the interest of farmers but it is very doubtful that cotton production will ever reach past proportions. It may be with the evergrowing population that cotton production in Uganda will only be sufficient to meet local demands. The constraints of lowered land fertility, lack of inputs and pressure for land use are very great. However, it is possible with a greater use of rotations with legumes and use of inputs such as insecticides and some fertilizers a more efficient use of the cultivated land could be realized. This would increase total production.

Another major change in the region is the 15 percent decrease in acres planted to groundnuts. Given the nutritional and soil-enriching qualities of this crop, this drop in production is disturbing. The most frequently stated reason for the drop in production, which has been evident in many parts of

Uganda, has been a lack of seed. While this may be the case with some farmers, we believe the major reasons are far more complex. After discussions with many farmers and the Agricultural officials, it appears the major reason for the decrease is the increase in importance of the aphid transmitted, virus caused, groundnut "rosette" disease which can drastically decrease yields. Early infection will even cause sterility and complete loss of crop. With the loss of a crop the farmer would naturally require a new seed source. New resistant groundnut varieties are needed which can only come from major breeding and varietal selection work. New varieties coupled with improved management practices could help to reverse the downward trend.

With the decrease in cotton production, groundnuts and sim-sim are now the major crops supplying vegetable oil and fats to the diet. Sim-sim becomes more important in the more northern areas. Soybeans are also grown in some locations. There is an important need to promote the production of legumes and their use in rotation in order to maintain soil fertility and to improve nutrition.

Although cotton has been commonly perceived as the major 'cash' crop during the past several decades, the farmers plan on marketing at least some of all crops they raise. Milk and ghee are also marketed on a local level.

Karamoja District in the northeast of the country is uniquely semi-arid (substantially less than 700 mm rainfall) and is inhabited by pastoral semi-nomadic peoples. The effects of the recent drought as well as the marauding liberation armies, plus the general outbreak of lawlessness, have severely

affected production in this area. In 1963 Karamoja had an average of over 3 head of cattle per person. Today that ratio has dropped drastically with entire herds of many pastoralists either slaughtered or stolen.

Flue cured tobacco is grown in the annual crop zones of the north and west, primarily in Nile Province, where large areas of the crop have been damaged or abandoned for a variety of reasons. Some production also occurred in Bunyoro and Mubende and there is a substantial area of air-cured tobacco in Kigezi which has never entered the formal market but which is sold throughout Uganda and into Rwanda for pipe smoking and snuff. Local consumption will provide a limited continued demand for tobacco but this crop will have to compete with production of annual food crops.

3. Uganda Highlands/Montane Systems

The matoke systems are found in the high altitude regions of southern Kigezi, western Ankole, northwestern Toro and eastern Bugisu/Sebei (Mt. Elgon) districts. The altitude in these regions ranges from 2100 to 4500 meters. The farm systems are based on the production of bananas (except at the highest elevation), sweet potatoes, maize, beans and vegetables. Tea and arabica coffee are major high value crops. Wheat is grown by a few farmers in Mt. Elgon and Kigezi areas.

The vegetable growers of Kigezi produce two crops a year, of carrot, cabbage, leeks, onions, Irish potatoes, sweet potatoes and fieldpeas. With the September rain they plant on the hillsides and in the drier valleys but

November/December plantings are made primarily in the valleys. Vegetables can be grown anytime of the year. No fertilizer or manures are used and, as expected, lack of implements, seeds and chemicals for insect control are cited as most pressing problems by farmers in these areas.

There is no doubt that both the Mt. Elgon (Mbale) and Kigezi people are benefiting from the proximity to the Kenyan and Rwandan borders. Largely escaping the main thrust of the Liberation War and having access to more inputs have left a much more vibrant farm system in these areas.

In the Kigezi area vegetable seeds are very scarce, with cabbage seed often sold on the black market by the teaspoon for US\$20. Marketing used to be done by the vegetable cooperative union, but now most is sold to local buyers who come to the fields. Land is at a premium and most farmers have 3-4 smaller plots scattered over several hillsides. Their total land holding would rarely cover more than 2-3 hectares, which leaves little for fallowing. Hired labor is used, but is very expensive at the US\$150 daily rate. Few livestock are kept due to the land constraint. Some cattle are grazed communally with owners paying monthly herding fee of US\$400 per cow. A typical annual planting of food crops would be maize and beans interplanted in September/October. After beans are harvested the maize is allowed to mature while sorghum is planted. Next crop after the sorghum is sweet potatoes. Rotations are planned so the farmer has both maize beans and sweet potatoes growing at the same time. The sorghum is often the largest cash earner as it is processed (malted) and sold for brewing.

In the Mt. Elgon area, population pressure is less intense.

Land holdings are larger and more consolidated than in Kigezi. Matoke is the staple food crop, with maize and finger millet the grains grown in the area. Beans and groundnuts are also grown, as well as sweet potatoes, taro, Irish potatoes and a variety of fruits and vegetables, such as pineapples, pawpaw, tomatoes, onions, cabbages, and carrots. Arabica coffee earns farmers above average incomes. There is a general perception that expansion of land area cultivated would be difficult for most farm households both because land is scarce and heavy soils place real limits on the amount of land a family can cultivate with hoes. Shifting cultivation is not practical so farmers emphasize annual crop rotations and perennial crops. As in most of Uganda, interplanting is generally practiced.

Arabica coffee is grown primarily by some 140,000 farmers on the slopes of Mt. Elgon and in selected areas of Kigezi district and on the lower slopes of the Ruwenzori Mountain range. As compared to robusta coffee, arabica is grown on substantially smaller plots with more pure stands. Officially, marketed production has fallen drastically since 1972, but this probably reflects the incidence of smuggling over the nearby international borders rather than any significant decline in production. The closeness of the Kenya border to the Mt. Elgon growers and the Rwanda and Zaire borders to the Kigezi and Ruwenzori growers have also helped the arabica farmers overcome domestic shortages of basic tools, and with smaller plots, labor has not been as important as in robusta areas. Production is on the rise and could reach 10,000 tons in 1981/82. But lack of chemicals to control leaf diseases and the Antestia insects (up to 60 percent loss) were cited as problems.

Tea, introduced to Uganda in 1900, was, after coffee and matooke the third main perennial crop grown in this high altitude region. The majority of the tea now grown is largely in the west, particularly in Toro and Ankole districts where the combination of soils, rainfall and temperature provides excellent growing conditions. Before 1970, some plantations in Toro were achieving among the highest yields in the world realizing prices only marginally below those paid for quality Kenyan teas. Small-holder tea development began in the 1960's. In 1978, Uganda grew about 9,400 hectares of small-holder tea and 11,500 hectares of estate tea. During the mid-1970's, collection and processing services declined sharply and this, together with rapidly falling real producer prices and shortage of labor, led to an abandonment of 80 percent of small holder plantings and 90 percent of estate plantings. The present government is following a policy of returning the major estates to their former owners and the industry is showing signs of revitalization with some tea exported in 1981. Tea plants, although now badly overgrown and neglected, are being rehabilitated.

4. Central Uganda/Ankole-Buganda Region

This region lies between the perennial crop zone of Lake Victoria on the east and the western highlands of the Rwenzoris. Since the annual rainfall decreases as one moves west, it follows then that sharp distinctions between these zones are not evident along the periphery. The landscape is generally hilly with flat-topped hills in the northern parts giving way to rounded hills in the south. The rainfall is the typical bimodal pattern of southern Uganda but the quantity is not sufficient to support coffee production except in

wetter low lying areas and zonal edges. The soils range from sandy to peaty clays in swampy areas. A great deal of cotton was grown previously in the Buganda area but the major areas of production have moved to the northern areas. However, some cotton is currently being grown around the Kasese area. This is planted in Oct/Nov. as opposed to the July/August plantings of cotton in the north. Now the major food crops grown in the region are maize, beans, groundnuts and other pulses.

The Ankole district is primarily cattle ranching country with a number of large ranching schemes developed during the 1960's. The area includes settled ranching and dairying, communal grazing and mixed farming. Much effort was made in the past to promote cross-bred dairy herds with associated milk collection centers but many of these improved animals were lost during the past few years due to disease. The milk collection centers are not working and milk is marketed locally or made into ghee. Milk products are probably more plentiful in this area than any other in Uganda.

The area under cultivation in the Ankole-Masaka region is said to have expanded over the past ten years. Ankole is the outer ring of the matoke-growing area in terms of annual rainfall, and the matoke is not as productive as that of the zone nearer Lake Victoria. Landholdings for crop cultivation are 6 to 10 acres in size, with maize, sorghum, beans, groundnuts, sweet potatoes and various fruits and vegetables planted in addition to matoke. Due to the large amounts of land required for cattle grazing, farm households find their access to land for crop cultivation somewhat limited, given the need to farm extensively in this drier area.

5. The Organization of Agricultural Production and On-Farm Marketing^{2/}

Small-holder agriculture dominates the economy of Uganda and provides the major source of employment and income. The small-scale farming enterprise relies heavily, but not exclusively, on family labor. Medium- and large-scale farms are more dependent upon wage labor, but various means of augmenting the household labor supply are also frequently utilized by the small-holder, particularly for certain phases of production such as land clearing and harvesting. Although certain crops are grown strictly for cash income (i.e., cotton, coffee, tea and tobacco), most food surpluses are marketed. Almost all households sell or barter foodstuffs. Responsibility within the household for marketing varies, mainly according to the crop to be sold. Medium and large-scale farm enterprises generally have both retail and wholesale marketing outlets.

a. Production

In the past, labor for production activities tended to be divided according to sex and age criteria. Men were responsible for land clearing and destumping, tending perennial crops and harvesting cash crops. Women and children

^{2/}Data for this section were collected in interviews with farmers and Ministry of Agriculture staff over a three-week period in January and February 1982. As such they are indicative of trends in labor utilization, but are by no means claimed to be complete.

raised food crops--preparing the land, planting, weeding and harvesting. Tending livestock (other than swine and poultry) was exclusively a male activity. In the north central area, individual families cultivated plots close to their homestead, and worked communally on staple crop fields further away. In Teso, oxen were used to clear and prepare land. Household labor was regularly supplemented by hired labor in the perennial crop zone around Lake Victoria^{3/}.

These traditional patterns of labor among small-holders appear to have broken down considerably in most areas of the country. The reasons for the shifts are unclear, but it is likely that they are related to two aspects of the disintegration of the national economy: 1) the growth in the importance of domestically consumed crops as sources of income, and 2) the decline of opportunities for employment in the formal wage sector. The net effect of these forces on the small farm household appears to have been an increase in the fulltime participation by men in all phases of agricultural production, and a greater reliance upon women for significant contributions to household income. There are, of course, regional, economic and social variations in these trends (discussed below); nevertheless the family unit now represents the major source of labor for small-holder agricultural production.

Small-holder labor utilization patterns in the perennial crop zone area around Lake Victoria have shifted somewhat due to the past ten years' economic decline. Less time and attention is devoted to coffee, formerly the major income-earner. The number of hired laborers appears to have diminished,

^{3/} Area Handbook for Uganda, 1969, p. 243.

and workers are more frequently hired for a specific task rather than on a monthly or annual basis. Food crops formerly raised mostly for household consumption are now marketed to meet cash needs. This area also appears to have the lowest rate of total dependence on agriculture for income and subsistence. Many families have members working off the farm in the wage sector or as small entrepreneurs and are receiving remittances from these sources. This is to be expected, as several major urban or industrial centers are located within the fertile crescent.

The prevalence of off-farm employment, and the intensity of labor required at certain time periods to maintain the perennial coffee and matoke in addition to the production of annual crops has created a demand for hired labor, especially for the performance of certain tasks. Much of the land clearing and preparation and harvesting of row crops is accomplished by hiring labor. However, labor costs have escalated dramatically, at least in farmers' perceptions. For example, the minimum wage is USh/950 per month but the rate for land clearing (destumping), employing three laborers for two to three days' work, was quoted as USh/ 10,000. Hiring a tractor to plow land, on the other hand, cost USh/ 2,000 per acre. Wages for full-time laborers were found to vary: some were paid USh/ 300 per month with food and housing while others received up to USh/ 1,000 a month with food and shelter. In two instances of labor hired to keep cattle, the herdsmen were also given a daily ration of milk that was sold to add to their income. With the exception of some cattle keepers who came from tribes or areas specializing in cattle, labor-for-hire tends to come from the local area. In the past the perennial crop zone was a receiving area for immigrants from other more populous areas of Uganda such as West Nile and Kigezi, and from Rwanda. However, many of these workers appear to have

left the area^{4/}. As the Commonwealth Secretariat team pointed out with regard to the perceived rise in the cost of labor, "the scarcity of the labor supply and the associated increase in informal sector real wages in the rural areas is not fully revealed by rises in the rate per day or month as the size of the task also varies. In present circumstances, the standard task frequently requires only two-three hours to complete, so the laborers can work for several employers, or work the majority of the time on their own plots or engage in magendo trading and smuggling activities. The shortage of labor for crop and livestock production is caused primarily by the availability of these profitable alternative activities in the submerged informal sector of the economy" ^{5/}.

With the decline in availability of labor, the utilization of family labor in the perennial crop zone has increased. For fulltime farming, men were reported to share equally with women in all phases of annual food crop production, and women were found to be weeding, mulching and harvesting perennial crops. Men still assume primary responsibility for pruning coffee trees, but owing to both a lack of hand tools and lack of time many coffee trees are being neglected. The lack of time appears to be a matter of opportunity cost--it is simply more profitable and more reliable to devote labor to the production of annual crops. In some areas, coffee trees have been severely pruned or removed altogether; certainly very few new trees are being planted.

In cases in which the male head of household is employed off the farm the senior female household member takes charge of production, making the decisions and providing the labor with her children for all agricultural tasks. Often,

^{4/} The Rehabilitation of the Uganda Economy, Vol. 2, p. 38.

^{5/} Ibid. p. 8.

the farm income is used to hire labor. Resources for this purpose may also be supplied from the non-farm employment of other household members such as adult children. Inquiries into the demand for credit drew a number of positive responses. The most common proposed use for borrowed funds was to supplement available labor by either human or mechanical means.

Livestock in this region include primarily dairy cattle, pigs, goats, and chickens. Cattle are frequently tended by hired labor, whereas pigs, goats and chickens are cared for by women and children. Management of the latter three requires a very low labor input.

Labor is organized slightly differently on the medium-scale farms located throughout the perennial crop zone. Hired labor is imperative in these operations, as mechanization remains out of reach of those who did not invest in it some time ago. This is especially true since the floating of the shilling, as entrepreneurs believe that borrowing money now could be disastrous. Inputs and cash flow for chemicals, spare parts and other recurrent expenditures appear to present fewer problems to the medium-scale operators than to smallholders, though there are complaints about prices. Thus, at present, labor supply and capital costs represent a significant deterrent to expansion of medium-scale farms.

One other feature of medium-scale enterprise should be noted. In the far southern end of the perennial zone, there appeared to be a sizeable amount of what might be termed tenant farming. It might also be seen as an inverse form of the usual combination of off-farm employment and farming as a source of livelihood. Many farms are occupied exclusively by paid fulltime employees who do all the work. These farms then supplement the income (by providing for subsistence needs) of the employee who has a fulltime job in the wage sector, and support the worker or workers.

In the north central areas, land is farmed relatively extensively and the major crops are annuals; thus additional labor or more complex technology must be employed to augment family labor. The utilization of communal work and the oxplow reflect this heavy labor requirement. Communal labor was traditionally utilized on outlying fields for staple crop production. Labor was provided on a reciprocal exchange basis. Although the division between individual gardens close to the house compound and further staple crop fields appears to have ended, reciprocal exchange of labor is still utilized to overcome the constraint to cultivating larger areas than is feasible within the family unit. Reciprocal exchange in which work parties rotate between individuals' plots mainly to prepare ground or harvest is the common form of communal labor found in the region. In addition, work parties may be constituted by an individual on a fee-for-service basis. The fee is usually in kind -- "entertainment" (provision of food and beer) or a portion of the harvest--so it retains the communal character rather than being simple hired labor. The work parties are communal in another sense as well. They are made up of neighbors or community members in a pattern of mutual assistance not found among hired laborers.

In Teso on the eastern edge of the north central zone, the labor bottleneck has been alleviated by widespread adoption of the oxplow for land clearing and preparation for planting. The larger area thus planted will be weeded mostly by women working in communal groups and harvested using mixed communal labor. Except in the poorest households, those who do not own oxen or plows, or who lack male labor in the households, arrange to have their land plowed for a cash fee. The use of oxplows has expanded westward to some extent, and is found on a more limited basis in Acholi and Lango.

As for sexual division of labor in the north-central area, men tend to be responsible for the heavy work of land clearing and preparation whether by

hand or by plow. Both men and women plant and harvest the crops including cotton, and participate in household decision-making on what and how much to grow. Women do about three-fourths of the weeding. In all of these activities children assist whenever possible. Cattle, which are kept in large numbers by the Teso, are cared for by men, with small boys doing the daily herding. The two most notable recent shifts in the sexual division of labor in this region are the participation by men in planting, harvesting and, increasingly in weeding, and the growth in women's responsibility for the cotton crop. Women in this region now take part in decisions on quantities of cotton grown and in harvesting and marketing the cotton. This reflects to some extent the disincentive to cotton production brought about by adverse marketing conditions. Labor that was formerly devoted to cotton is now devoted to other crops, on which a higher return can be realized. As food production is traditionally women's work, they have gained economic status and the prerogative of decision-making in the trade off between labor for cotton and other crops.

Socially, the Teso are related to their north-eastern neighbors, the Karamojong, and have a long tradition of cattle-keeping. Cattle are an exclusively male domain, although women may milk the cows. Men train oxen for plowing and plow; and men and boys do the herding. Cattle are a very important aspect of Teso culture, and are used as a cash reserve and indicator of wealth as well as for sources of protein and draft animals.

To the west of Teso lies the Karamoja area peopled by pastoralists. Here, as in Teso, men tend cattle (this includes raiding other groups' herds), moving about with their animals in search of adequate grazing and water supplies. Women plant, weed and harvest annual crops near permanent homesteads. They

also milk the small part of the family herd left behind to meet household needs. Some oxplowing is done by the men, but the area planted is limited to what the women can weed and harvest ^{6/}.

Labor arrangements in the eastern high altitude zone (Mt. Elgon) are similar to those in the other perennial crop zones: coffee and matoke planting and tending (e.g., pruning and mulching) are dominated by males. Men also clear the land for annual crop planting and are reported to participate with the women and children in the household in all other phases of production. Women also take part in the coffee harvest. The extent of any use of hired labor in this area is not known, but there are indications that it is not used as much as in other regions. Tractors were hired in the past under a government subsidized scheme. However, at present, the tractors are not operating, and even those who have access to other sources of income report the use of family labor on their farms.

In the Kigezi high altitude zone, the hiring of labor is more common. The rate of USh/150 shillings per day (with or without meals) was quoted consistently as the cost of labor. As mentioned earlier, the "day" may actually be only several hours' work; nevertheless, this figure was the lowest cash price encountered in Uganda except for herding and other ranch labor. Monthly wage rates were USh/3,000 without food or shelter, and USh/2,000 if the worker were fed. Labor here as in other regions is mainly hired by the task, for example in heavy ground preparation. So, although a monthly figure was available, there was little indication that many farmers were actually employing full-time

^{6/} Area Handbook for Uganda, 1969, p. 86.

assistance. This southwestern highland region was the only area in which it appeared that some of the hired labor drawn from the local area was landless or near-landless.

The predominant source of labor in Kigezi is the family, with the typical division between male responsibility for the perennial crops and joint responsibility reported for annual crops. Vegetable growing assumes importance as an income source in this area and women and men may have separate plots expressly for this purpose, but all work together on staple food crops grown primarily for home consumption. Kigezi has been an area of out-migration for at least the past twenty years. Thus, many households have members working outside the shamba for that household, though they may still be engaged in agricultural labor. Some of the remittances are probably used to hire labor, however, it was noted that consumer goods (presumably from Rwanda) were in greater abundance here than elsewhere in Uganda, and with labor prices low relative to the rest of Uganda, most remittances may be devoted to other purposes. Another apparent consequence of the land shortage is the herding of goats, done by young boys.

Beyond the perennial crop zone is another semi-circular strip that encompasses the rest of Buganda and the Ankole region. Labor use by small-holders for perennial and annual crops closely parallels that of the inner zone. There is some reliance on wage labor. There appears to

have been a major shift in both land and labor use out of cotton and into crops such as beans, maize and groundnuts. Men now work alongside women in the production of all annual crops, rather than devoting themselves to cotton production.

Labor for the care of livestock in the Ankole region of this outer semicircle is provided by fulltime herders, many of whom are Bahima. Both male and female Bahima herd, although females do this only when they have no other source of income. Depending on the size of the herd, a cattle owner may hire a herdsman for the whole herd or may pay to have his animals tended in conjunction with several others' animals on a fee-per-animal basis. The fee may be in milk or in cash. Family labor, principally male children, may be used instead of hiring herdsmen for cattle keeping. Small-holder cattle are grazed on communal pasture and are kraaled at night. Milking is done by children and adult men, as there is a cultural bias against adult women performing this task.

The large ranching schemes in Ankole also employ labor. The government schemes are, of course, staffed by government employe:es paid according to the government wage scale. The schemes, whether public or private, are more capital-intensive than small-holder livestock production. The principal practice that reduces the labor requirement is the fencing of pastures, therefore eliminating the need for constant herding.

One final point on the sexual division of labor merits inclusion. Technology in most areas of Uganda is limited to hand-held tools. Both men and women use these tools in all phases of agricultural production, though the heavier work of land clearing, involving shovels, picks and axes, is done by men. As the level of technology rises, even slightly, its utilization is dominated by men. For example, oxplowing, tractor-driving and chemical-spraying are all done by men. The prospects for a shift away from sexual equality in control over the means of production as technology becomes increasingly sophisticated appear all too favorable at this writing. It would be appropriate for the government of Uganda to assure access by women to knowledge of the use of new techniques and to the means, such as credit, by which such advances can be utilized. As women are active participants in all phases of agricultural production, including decision-making, this is not simply a matter of ideology, but of economics in maximizing all of Uganda's productive resources.

The past ten years of economic and political disorder have had several effects on farm-level labor utilization. Labor has been shifted away from traditional non-food crops into the production of food crops as the main source of income. Although it has been widely reported that

many farmers retreated into subsistence agriculture^{7/}, recent observation indicates that cash needs may have diminished due to the unavailability of consumer goods, but farmers maintained their entrepreneurial stance and are marketing surpluses of whatever crops they produce. The generally neglected state of coffee plants in the robusta-growing areas and the disinterest in planting cotton evidenced in the north-central zone is testimony to these shifts in labor (not to mention land) use.

The traditional small-holder crops raised only for sale were predominantly the responsibility of the male household members. Through the early 1970s there were also expanding opportunities for off-farm employment. Thus, male labor had been devoted to activities other than food crop production. A

^{7/} Fleuret. Draft Background Paper . . . , 1980, p.6.

combination of factors during the Amin period drove many men to return to the farm and to downplay "cash" crop production in favor of the more remunerative food crops. Now, men report working jointly with women on all phases of agricultural production. As new opportunities arise, however, two possibilities exist that should be avoided if at all possible. The first is that certain food crops will become so profitable that men will take over their cultivation, as they have dominated production of other crops for sale in the past. This in itself is not a problem; however, the tendency has been for men to retain the income from sales of such crops, while women are left to provide for household food needs. As Fleuret^{8/} points out, women's economic status has implications for fertility and population growth: the importance of a women's economic role has a direct bearing on family size. At present, men and women are reported to share the income from food surplus sales, or to jointly determine its use. The second possibility is that women will once again become the "keepers of the hearth" as men return to the wage sector. While this is less likely, due to the Government's interest in becoming a food exporter, the implications for population growth are equally serious.

The change in the nature of hired agricultural labor is another feature of the period of Uganda's economic decline. This had a deleterious effect on the production of robusta coffee, for example, as the zones ringing Lake Victoria were major providers of full-time wage employment on farms. Many of these opportunities have evaporated due to the displacement of hired labor by family labor. The price of labor, relative to the income from coffee, skyrocketed

^{8/} Ibid, p. 56.

during the Amin period. So wage labor has been restructured into intermittent rather than full-time employment. Laborers are paid by the task. This way, in fact, make more economic sense than continual employment of labor, and is an aspect of the changed farm economy that should be investigated more thoroughly.

These are the major changes in labor use that have occurred over the past decade. As the economy is rehabilitated, new patterns may emerge or old ones may be revived. For purposes of economic development planning, however, considerably more information is needed on labor utilization as a factor in increasing agricultural productivity.

b. Processing

A limited amount of agricultural commodity processing is carried out on the farm for subsequent sale or for storage for home consumption. Processing at this level is generally limited to fairly rudimentary activities such as hulling, slicing, threshing, sorting, sifting and drying of grains, legumes or tubers. Almost all of this on-farm processing of foodstuffs is done by women and female children. Women also prepare fermenting agents for beer (generally millet in the north and sorghum in the south), and, where beer is made from a grain crop, prepare the beer as well. When bananas are used as the main ingredient for beer, men squeeze the juice for the bananas, as this is considered to be too strenuous a task for women.

The processing of certain crops, once considered an exclusively male activity, has become a joint or ~~all~~ female undertaking. Coffee is spread

to dry in house yards, as with any food crop, and women sort the coffee beans as they would a legume crop. Cotton undergoes little household processing other than being bundled for marketing. The drying or flue-curing of tobacco is still a male activity.

The importance of this division of labor in processing is twofold. First, often the same individual prepares the crop for marketing, sells the crop and retains the proceeds. This is particularly true of women who market small quantities to meet individual household needs and men who market cash crops. However, in some cases, such as coffee processing, women may contribute their labor to a marketing scheme dominated by men and must rely on good relations within the household in order to share in the returns. The second, and perhaps more important aspect of on-farm processing, is its relationship to seed selection for the following season. Particularly in the area of grains, seeds are selected as primary processing tasks are carried out. Thus, it is most often the female household members who in fact choose the seed.

This means that any research or extension efforts to improve yields using existing varieties must first ascertain selection criteria from the household member who actually makes the decisions and must subsequently address advice to that individual.

On-Farm Marketing

In the current state of the Ugandan economy, it is clear that what may once have been a useful distinction between food crops and cash crops is no

longer valid. Farmers in Uganda market any surpluses they produce, and food crops are often grown expressly for sale. The other distinction that has disappeared, if indeed it ever existed, is that between subsistence and commercial farmers. In Uganda today, it is rare to find a farmer who does not market something grown on the shamba. There is also fairly extensive bartering done, particularly in exchange of food between farm households.

There are three major means of marketing food crops: sales to individuals, sales to traders and sales to primary cooperative societies. Individual sales are exclusively of food crops, and can be transacted on the farm or at local markets. Frequently, sacks or tins of any surplus crop are placed by the roadside. These items are then sold either to individuals for their own consumption, or to "traders". Many of these traders may simply be people with transport who have enough capital to buy and sell food items on a fairly casual basis, as a supplement to other sources of income.

Farmers may also transport goods to market themselves. Small quantities are headloaded or bicycled to market, while larger amounts must be shipped by bus or truck. Separate fares are paid for each container of produce and for the human passenger. Typically, a gunny sack holding 90 kilograms of maize costs Ush/200 to transport by bus and the passenger fare is USh/150-200. Thus a bag of maize sold for USh/900 at the farmgate and sold for USh/1,500 in the market brings very little additional profit to the farmer. The efficiency of the larger sale is apparently attractive enough to warrant some sales by this means. Large-scale movements of food between regions, if reliant upon individual marketing, will probably remain at a very low level until transport costs

are reduced, however. The high transport costs also play a significant role in local price variation, as goods do not move easily from regions of surplus to regions of scarcity. This, in turn, affects farmers' decisions especially as to quantities and mix of crops in subsequent seasons.

Private full-time traders for food crops are mainly found in the two perennial crop zones ringing Lake Victoria and in the higher elevation zones. In these areas, population density is high enough to make such activities profitable. Traders buy bags or other quantities of harvested, processed crops. Some also negotiate for the yield of an entire field and then harvest themselves. Farmers in these areas may also take goods to small local shops for sale to shop owners. In Buganda this has been the means by which coffee has been marketed for the past two years, as the primary societies are unable to pay cash for coffee brought in. However, the private buyers were offering USh/28.50 to USh/30 per 60 kilogram sack of coffee, while the announced primary society price was USh/35 per sack.

Livestock are marketed in similar ways to food crops. Poultry are offered by the roadside as well as being transported to market by individuals or traders. Cattle, goats, sheep and pigs are generally bought from individual farmers by other farmers or traders who make a specific visit to the homestead for such a purpose. That is, they are not available by the roadside. Animals are rarely slaughtered for sale by small-holders. If an animal is slaughtered, it is generally for consumption on some festive occasion. Eggs and dairy products (mostly milk and ghee) are frequently sold, both by the roadside or from the homesite. While eggs are seen in the market, milk is rarely available

there. Many farmers, especially those who operate medium-scale dairy farms, have regular customers for their milk. The price for milk varies widely throughout the country, from USh/6 per liter in Ankole to USh/80 in Buganda.

Beer is another specialized category of marketing. As with livestock, it is never marketed by the roadside but is sold in markets or to those who run "drinking establishments". In areas in which beer is made from grains, the brewing and marketing of beer is a woman's activity and she may retain the proceeds. In areas in which beer is banana-based, women malt sorghum as a fermenting agent and sell that to the local bar owners. Banana beer is also sold by individual households, but it is sold in jerry cans to the bars, rather than by the calabash in a market. The proceeds from the sale of banana beer to bars are reported to be considered common income for use by the household to meet its needs.

The cooperatives are the third outlet by which small-holders market their products. Coffee in areas other than Buganda, is sold to primary societies exclusively. Cotton is also marketed this way. Small-holder tea is sold to cooperatives or private processors. In the recent past, there have been serious problems with the coffee and cotton marketing. Primary societies, heavily in debt from the period of Amin's misrule, have been issuing receipts for crops brought to them. Payment may be delayed by as much as three months. Although this problem is said to have been substantially resolved, farmers are risk-averse with respect to marketing and many of the cotton farmers in the north have been discouraged from planting cotton this year by the inability of

the societies to pay.^{9/} It will take some time, and some more positive experiences before farmers will be confident enough to market their coffee and cotton exclusively through the primary societies.

A few of the marketing cooperatives have begun to purchase food crops at market prices in order to establish food reserves (as the government desires). The reaction by farmers has been favorable although not overwhelming. The Dairy Marketing Board also has a pilot scheme for the purchasing of milk by cooperatives from small dairies for processing and resale. At present, only one milk collection center (in Kabale), through which a farmer can market milk, is functioning. The rehabilitation of the centers throughout Ankole and Teso would have a beneficial effect on the now very erratic pricing of milk due to its uneven distribution nationwide.

The major constraints to the marketing of food crops are high transport costs and the consequent gluts and scarcities that develop due to the distribution problem. This is as true for the medium-scale farmer as it is for the small-holder. The ensuing problem of shifts in amounts and types of crops produced as farmers seek a better return is an equally serious concern for agricultural development. Although these appear to be short term problems, they can have a major impact on the speed with which the national economy recovers. Perhaps even more germane to this recovery is the restoration

^{9/} The problem of non-payment was compounded by the distribution of old seed that germinated so poorly that many farmers had little to market in the 1981 season.

of confidence in primary societies for the marketing of coffee and cotton. Price increases by themselves are an inadequate incentive if the marketing outlet is unable to actually offer the price in cash. Although this may, again, be a short-term problem, it must be faced realistically, as it can seriously inhibit economic recovery.

III. UGANDA'S AGRICULTURAL INSTITUTIONS

In addition to a conducive physical environment, profitable technical innovations and an adequacy of basic infrastructure, there must be self-sustaining institutions such as agricultural research, extension, training, and cooperatives that provide technology, services and inputs at the time and place necessary to increase production and distribute agricultural commodities. Such institutions may be organized by government to render essential services to farmers or, as with a cooperative society, they may be formed to reap benefits from group action in support of individual action to promote development. All of these institutions have played a decisive role in Uganda's agricultural development so far.^{1/}

But as in every sector and sub-sector of Uganda's economy the needs simply to rehabilitate agricultural institutions are overwhelming. It would indeed be

^{1/} Land tenure (and laws pertaining thereto) is a critical institution in many developing countries. Historically Uganda has undergone several revisions of tenure. Under customary tenure, covering 70 percent of the land, trust rights rested with ruling chiefs but any citizen had occupancy and use rights and such land could not be withdrawn without consent of the customary occupier. Freehold tenures also existed outside Buganda to a limited extent. In Buganda, mailo land constituted land grants (under British rule) to the Kabaka, Chiefs and others in fixed amounts. It was a modified freehold leading to landlord/tenant relations. In 1975 Amin ordered a Land Reform Decree which in effect passed all land to the State. As land becomes increasingly scarce security of tenure could become a growing problem. See Appendix B.

easy to become inordinately discouraged by the sheer scale of the problem. At research stations, experimental farms, district extension offices, agricultural schools and institutes and even the college of agriculture at Makerere University there is a slow-down and in some case a complete disruption of activities while professional people and semi-professionals wait for tools, paper and supplies, transport, machines, instruments and spare parts. If the amount of waste generated by these conditions could be calculated it undoubtedly would be enormous. Salaries, such as they are, continue but there is no denying that the better part of work days is spent tending shambas (small farms), selling farm produce and operating outside businesses in an attempt to supplement salaries which have fallen far behind the prices of consumer goods.

Extracts from a statement from Arapai, one of the two "agricultural colleges" that grant agricultural certificates and diplomas, provide an example of current problems facing Uganda's support institutions. But conditions at this school may be somewhat extreme. All institutions have these problems in varying degrees and are functioning at only a fraction of their normal workloads:

The aftermath of Uganda's "economic war" and six months of liberation war left Arapai Agricultural College completely ruined and devoid of any agricultural activities. Progressive mismanagement of Uganda's economy under Amin made acquisition of simple school requirements impossible so that glass and instruments in the laboratories, vehicles, and feed for the pigs and cattle became things of the past. Finally at the time of liberation the farm was looted and most agricultural development programs ceased.

Among the things looted (some by Amin's retreating troops) were 57 dairy animals, 22 boran animals, 121 improved zebu cattle, 6 working oxen, and 15 exotic pigs. All stores in the workshop area, main farm, student center, student dormitories and teachers' homes were broken into and looted clean. Only a few items have been recovered from neighboring villages.^{2/}

In the face of extreme shortages (many dependent on foreign exchange for procurement), what priorities should be established for the rehabilitation and development of Uganda's institutions? It is noticed that other studies which have examined the problem focused on restoring each institution to its former status and perhaps moving on from there. Presumably the former orientation and goals of these institutions would be left intact. This view is easy to understand since, as noted above, even simple instruments needed for work are missing, but it leaves aside the profound changes that have occurred since the 1960s in the domestic and international economies. Nor would such an approach address the needs of Uganda's two million small farms and their operating families which in a very real sense are the most important institution of all.

F. The Basic Structure of Uganda's Institutions

As indicated the main emphases in this section will be to focus on Uganda's small farm operator and his family as the primary production institution and

^{2/} A statement from Arapai Agricultural College "Briefs to Visitors about Looted College Property," dated 28th January 1980.

to judge other institutions on how well they appear to meet the needs of the farm operator.

The farmer in Uganda functions within several administrative units such as the parish, the country and the district. However, since these were all conceived for the purposes of general administration, the problems pertaining to farmer needs were often made secondary. The country has therefore recently been divided into eleven agricultural development zones and 48 sub-zones. The idea is to view agricultural development from the perspective of similar ecological factors such as soils, rainfall, crop and livestock patterns, social composition and to group together those farmers whose farming practices and systems are relatively homogeneous. Since each zone and certainly each sub-zone will be a manageable unit, planning can be done much more comprehensively than heretofore. A Zonal Officer and an agricultural economist will be assigned to each of the eleven zones as they develop, but these two officers can call upon short-term staff and administratively can control the District Agricultural Officer and his staff. It is quite possible that Uganda's farm operators will be able to receive improved services under the zonal system.

Going beyond the operating farm family and his zonal setting, Uganda in the past boasted of having a strong agricultural institutional structure. Three departmentalized Ministries--Agricultural and Forestry, Animal Industries and Fisheries, and Cooperatives--have the responsibility of serving and supporting the nation's agriculture. Agricultural research for example is mainly under the Ministry of Agriculture while research on animal health is under the

Ministry of Animal Industries. Research on cooperative marketing would be supported by the Ministry of Cooperatives. Each Ministry also sponsors field extension staff and agricultural training programs as well as agricultural planning units. Ministries also are parent to but have only limited control over parastatals such as the Coffee Marketing Board, Lint Marketing Board and Produce Marketing Board. The Coffee and Lint Boards procure coffee and cotton for export and function as sources of revenue for government.^{3/} The Produce Board procures, stores and redistribut~~e~~s surplus food. Uganda's small operators supposedly receive service from this entire institutional complex.

2. Relevant Aspects of Small Farming

Other sections of this paper discuss Uganda's farm operating families in more detail. Here discussion is about operators' needs in terms of services and as a "demander" of institutional support.

Except for a handful of plantation scale estates and cattle owning areas, more than two million small farmers and their families make up 90 percent of Uganda's population. Because they are spread over the entire country,

^{3/} Although the actions of Marketing Boards are critically important to the production plans of small farm operators, they have been treated fully in other recent reports sponsored by USAID. For one such excellent report see: Robert H. Bates, Hahn and Kreeg, Reorganization of the Marketing and Processing of Crops in Uganda, University of California, Berkeley, November 17, 1981.

providing technological inputs and other services is an enormous task. The typical small operator family is a man, his wife, or wives, and 3 to 10 living children. Normally he has 1-1/2 to 5 hectares of land in cultivation at a time with additional land lying fallow given the usual practice of shifting cultivation. The nuclear family alone or frequently as a part of a volunteer group perform most farm labor though some small operators hire additional labor the availability and funds permitting. Many of the farmers interviewed during this study were barely literate and others were illiterate, yet all were aware of new prices and other programs announced by government and were planning accordingly.

There are other characteristics about farm operators in Uganda that relate directly to the kind of advice and services they require. For example, there is practically no limit to the variety of crops Uganda can produce. Cereal crops, pulses, condiments, vine crops, oil seed, pineapples and tree fruits, vegetables of all kinds and bush crops like coffee and tea are commonplace. Bananas (for cooking and eating), sweet potatoes and cassava are the most widely grown crops. In addition all farmers keep some livestock, some as much as four or five kinds. This wide variety in farm output taken in conjunction with the widespread practice of intercropping ought to be the major factor in determining the direction and scope of such institutions as research and extension.

In addition to opportunities in farm operations about which those manning institutional services should be aware, the 1970s brought economic crises in the international economy which are having a profound impact on farming

profitability and the composition of cropping patterns. Given the unfavorable trade position in which landlocked, non-oil producers like Uganda find themselves, agricultural research, rather than relying heavily on imported farm inputs as in the past, should employ every means to develop substitutes. Failing to do so insures that production costs will rise tremendously and adversely affect profit margins.^{4/}

The critical issue, then, is how should Uganda's institutions attempt to serve farmers during the 1980s? Is it simply a matter of reestablishing conditions of the 1960s by rehabilitating the research stations and training

^{4/} It would be useful to small farming in Uganda if one element of popular thought is corrected. This is the notion that small farm operators through export crops such as coffee and cotton are emerging from a subsistence way of life with little understanding of the commercial economy. There is little truth in these contentions. Uganda's farmers produce all they can given the conditions of human energy and work, and the resources available. Discussions with scores of farmers revealed no reluctance to market any and all crops they were able to produce in excess. They do not differentiate income from bananas from the revenue they receive from coffee. Comparative profitability will determine which product they will produce. Uganda is indeed currently dependent on certain crops to earn foreign exchange. However, whether farmers choose to earn their income from these crops or other crops is dependent on relative prices and costs of production. There is little or no evidence which indicates that future patterns of agricultural productions or exports of agricultural exports should be the same as those in past decades.

centers, providing transport, replacing equipment and supplies and offering refresher training? Or, should the 1980s be looked upon from a new perspective--a new baseline? This latter consideration arises because population has increased and land, while still available, is becoming less abundant. Moreover, the costs and price structures changed tremendously during the 1970s and in doing so have shifted profit margins and selection of farm enterprises. One might ask, for example, whether, in light of extremely high transport cost, ^{if} a land locked country like Uganda can afford to produce a bulky commodity like cotton for export. Brief examination of important agriculture institutions can assist Uganda and donors alike to consider questions like those.

Agricultural Research. By the early 1970s Uganda possessed, without doubt, one of the most elaborate agricultural research programs in Africa. Though crippled and barely operative in many elements the base structure is still intact.

TABLE I.

AGRICULTURAL RESEARCH STATIONS

UGANDAN CROPS - 1982

<u>TYPE</u>	<u>NUMBER</u>
Main Stations	3
Sub and Experimental Stations	9
District Variety Trial Units	60

As indicated in Table I there are three main research stations for crops. Two of them, Kawanda and Namulonge are located outside Kampala, and Serere is in

Teso District near Soroti. Present staff at all three stations number about 140 and are split in half between professionals and sub-professionals. The vast majority of the professional staff hold B.Sc. degrees. Research at all of these stations has been "on station" where work has concentrated on commodities such as coffee, cotton, groundnuts, sugarcane, tea, pastures and more recently on locally produced foods. Secondly, research also is conducted within disciplines such as plant pathology, soil science and entomology. Herds of animals on these stations also permit some animal husbandry research.

In addition to the main stations, nine sub-stations are found in Uganda. These stations test findings from the main stations for adaptation and confirmation in their particular areas. Findings are then supposedly passed on to 60 District Variety Trial units and other locations for final tests before release to farmers.

1. Makerere University. In addition to agricultural research conducted under government ministries, the Faculties of Agriculture and Veterinary Science at Makerere also engage in research at their own sites including the Animal Health Research Center at Entebbe. Because faculty members had limited funds, most research in past years was located on campus where so-called basic research was conducted in laboratories while applied research was done in controlled plots and covered such crops as forage and pastures, rice, soybeans, and other grain legumes as well as poultry (egg production) and experimentation with small tractors and other pieces of improved farm equipment.

The University farm, Kabanyola, located about 12 miles from the main campus, is organized to accommodate second year undergraduates and graduate students who reside at the farm to engage in practical farming and research problems. Much of the crops research was done at Kabanyola and two demonstration small holdings occupied by typical farmers and similarly equipped, were used for research and teaching purposes.

Although a National Research Council has attempted to coordinate agricultural research that is sponsored by the several ministries and Makerere University, success has been minimal. Moreover, the University currently has problems that are similar to those at other institutions. There are staff shortages, the Kabanyola farm is partly overgrown with bush, books and professional journals are extremely outdated. Laboratories are sitting idly by with scattered pieces of equipment and instruments, many needing repair.

2. Summary on Research. There were indeed many strengths to the organization and conduct of agricultural research during the 1960s. There was the presence of a research network from the Ministries to the districts, counties and even lower levels. Farmers in Uganda have had some experience with sprays, chemicals and other recommended practices. Commodity research efforts in coffee, cotton, animal diseases and livestock breeding (especially cattle) have yielded encouraging results.

On the other hand studies performed very early in the 1970s revealed a number of weaknesses. As rehabilitation and new research development occurs, old weaknesses such as failure to establish precise research priorities, lack

of coordination and consequent duplication, almost a void of social and economic research including marketing, a general absence of "on farm" research and the unavailability of reliable statistics are almost certain to reappear. Finally, the job of financing, administering and back-stopping such a huge research network is large indeed. The need in research is not simply to rebuild but to determine the appropriate structure, scope and direction of future research and then rebuild along those lines.

C. Agricultural Education and Training. As with agricultural research, Uganda had established a network of agricultural training institutions dating back to 1954 when Bukalasa Agricultural College was established. These training centers provide courses leading to certificates (2 years) and diplomas (3 years).

Five of the seven sub-professional Colleges are specialized around a particular subject matter. These are Agricultural Mechanization, Forestry, Veterinary Training, Fisheries and Cooperatives. Two somewhat larger schools of general agriculture are at Bukalasa near Kampala and Arapai near Soroti.

Student enrollment at these schools ranges from 75 to 240. Normally, the students are secondary school graduates (A level) and the range of progress depends on grades earned. Examination results after two years determine whether a student is entitled to a third year of training and the earning of a diploma or whether he/she is terminated at the certificate level. Most graduates flow directly into government service, into the Ministry of Agriculture and Forestry or other Ministries, or into the districts, counties and

sub-counties as part of Ministries' field staff. Beginning ranks for these officers are decided automatically/^{based} on whether they hold a certificate or a diploma.

Another type of agricultural training in Uganda is that offered by District Farmer's Institutes (DFIs). These centers were established mainly to provide short courses for practicing farmers, sometimes including females. There are 16 such DFIs in Uganda, eleven of which have "Cooperative Wings" where farmers also can come for five-day courses in cooperative principles and responsibilities of members. DFIs under normal circumstances would have sleeping and dining facilities, a small experimental farm and a few simple teaching aids, but most of the Institutes deteriorated during the Amin period and were looted during and following the war. The short courses offered by DFIs were popular among farmers. The Uganda Government desires to rehabilitate them.

Towering over all agricultural education in Uganda (and indeed for East Africa generally) has been Makerere University. The Faculties of Agriculture and Forestry, and Veterinary Medicine have provided professional staff to all agricultural institutions in Uganda. Whereas the quality of graduates surely has been reduced as a result of past chaotic conditions, the College of Agriculture nonetheless is still functioning. It is obvious that after 10 years of having the Faculty cut off from the outside world in every respect and the deterioration of facilities the University is urgently in need of assistance.

One may ask whether, and to what extent, graduates from Makerere serve the needs of small farm operators. Trips around the country provide considerable evidence on this point.

1. Makerere graduates serve as professional agricultural staff throughout Uganda and in spite of ravages by the military regime they are among the most knowledgeable officials in Africa on tropical agriculture.

2. The University has the historical prestige to make a strong comeback, and with a full recognition of small operator problems in the 1980s could indeed be a powerful force in agricultural development.

3. One of the glaring needs in Uganda is the provision of data and professional advice having to do with agricultural economic and rural social research among farmers. Makerere University through its Faculty of Agriculture and Faculty of Social Science can quickly begin to fill this need.

D. Agricultural Extension

Agricultural extension, i.e. providing advice and guidance to Uganda's farm operators, is perhaps the most useful test of institutional performance. Ideally, training, research and extension should be coordinated, and the latter two functions must be mutually supportive with forward and backward linkages between national research stations and the farmers they are to serve. If the network performs well, problems identified by farmers become the substance of research and extension activities. Extension personnel should be the two-way messengers, the interpreters and the articulators of farmers' problems. They must be able to convey to the research scientists the nature of the farmers' problems and in turn carry answers and solutions back to farmers. Moreover, the extension agent should have knowledge of where critical farm inputs are to

be found and how the farmer can have access to these inputs. Extension personnel in Uganda do indeed have an essential role to play. On the other hand, nobody is more useless than an extension agent with nothing to extend.

In spite of stresses and strains under the Amin Government, agricultural extension officers continued to be posted. They now number almost 2400 including more than 750 officers holding university degrees. However, at the present time they are largely inactive.

The Ministry of Agriculture and Forestry is the parent body of all crop extension activities while the Ministries of Animal Industry and Fisheries and Cooperatives and Marketing support their respective field staffs. Using the Ministry of Agriculture as an example, Zonal Officers who are now being posted in Uganda's eleven agricultural zones hold the highest rank among field staff. Directly under them are one or more District Agricultural Officers (DOAs) who cover Uganda's 32 agricultural-based districts (Kampala gives 33 total districts). The DOA staff ordinarily consists of 70-80 officers of varying ranks at District, County, sub-County and Parish levels. A general problem heretofore is that agriculture extension personnel performed administrative duties first and agriculture duties secondarily. Nonetheless, Uganda's extension in the past was using many extension methods that have been approved elsewhere, such as visual aids, women's organizations and farm Youth Clubs, District Farm Institutes (DFIs) for farmers' classes, trials on farmers' fields and field days where farmers met and exhibited their products. Like most institutional functions in Uganda, the extension service is stalled with very limited activity at present. One extension officer said:

"During the last years of Amin, research results stopped coming so we had nothing new to extend but we continued going out to help farmers. However, vehicles wore out and were not replaced. Our last three vehicles were looted and have not been replaced. With no research information, no films, no vehicles, and other supplies we had no way of going to the field."

As indicated, a potentially good extension service already exists in Uganda. Obviously a critical need is to get research results flowing as well as other information and advice that farmers need. As in other institutions, the extension service while restoring its transport, equipment and other needs, should plan its programs on the basis of problems in the 1980s not the 1960s--a time that is often referred to. In this regard, by referring to studies made before the Amin takeover, it was noted that in the past the extension service had little success in changing farmer practices. As with research, the recommendations dealt with particular crops, and were not on a farming system that took the farmers' needs and viewpoints into account. The technology being offered was often not relevant to the farmers' problems nor was there any economic or social research to be extended.

E. Agricultural Cooperatives

There is a long history of local and informal cooperative effort in Uganda which continues by custom among groups of families in performing tasks like land preparation or tree clearing. The organized system of cooperatives presently in Uganda date back to 1920 when farmers near Kampala organized the

"Buganda Growers Cooperative Union." In 1946 the Uganda Government gave recognition to the marketing societies and others that had been created through the "Cooperative Societies Ordinance of 1946." Registration of societies began shortly thereafter, including by 1948 "The Uganda Growers Cooperative Union", the first cooperative union to be registered. Over the years since 1946, Uganda has boasted one of the best organized cooperative systems in Africa. By 1978 the number of registered societies of all kinds reached 3054, with a membership of over one million.^{5/}

1. Co-op Structure and Organization

The basic cooperative organization in Uganda is the Primary Society or more precisely, the members who form these societies. Any ten persons can form a primary for legitimate purposes. Presently there are over 3000 registered primary cooperatives. Most of them are engaged in the marketing of agricultural products like coffee, cotton, tea, cattle and fish. Others handle commodities such as handicrafts.

For administrative and development planning purposes, Uganda is subdivided into 33 districts (including Kampala). In each district primary cooperative

^{5/} For more data and details on cooperatives, see recent studies such as: Haldore Hanson and Team, An Assessment of the Agricultural Sector of Uganda (see especially working paper No. 1, prepared by International Agricultural Development Service (IADS) for AID, 1980. And, Newton J. Guderyon and Donald Crane, Training and Technical Assistance Requirements of the Ugandan Cooperative Sector, ACIDI, Washington, D.C., Sept. 1981.

societies have joined to form a District Cooperative Union whose purpose is to transport, market and process the produce that members deliver to their primary societies. The District Unions are under the management of a policy committee, the nine members of which serve three-year terms and must then be replaced. At District annual meetings each cooperative society is represented by one or two persons depending on size of membership. Each representative is permitted one vote.

The 33 District Unions are, in turn, served by six national cooperative organizations in business fields such as banking, transport, wholesaling of consumer items, farmer inputs and processing. A cooperative "apex" body, "The Uganda Cooperative Alliance" (UCA), whose function is to prepare and provide educational materials for primary societies and their members. UCA also serves as an advocate for Uganda's cooperatives with respect to government, other local parties and external bodies.

2. Cooperative Activities: A rather typical example of cooperative activities in Uganda is provided by coffee growers near Mbale in east-central Uganda District:

a. The farmer picks his coffee berries then uses a pulper, ferments the pulped berry in water, then washes and dries the beans and delivers them to his cooperative society where he is supposed to be paid in cash on the basis of grade, at an administratively announced price.

b. Transport from the District Union picks up coffee from the primary society and delivers it in bags to the processing plant. All coffee in excess of the processing plant's operating capacity is placed in standby warehouses.

c. Coffee is weighed while still in trucks and placed in giant silos. Processing consists of removing the outer skin from the beans, polishing, further drying, rebagging and transporting to shipping sheds.

d. However, when the beans are processed and ready for shipment, the marketing agent becomes the Coffee Marketing Board, a parastatal, and the coffee is no longer controlled by cooperatives.

3. Problems: As a result of mismanagement during the Amin regime and the following years of unsettled conditions, the cooperatives have many difficult problems. The need for materials, supplies, transport, paper, spare parts, and inputs across the board is almost unlimited. Without some of these supplies routine work breaks down. Cooperative officers like others become demoralized. Some do what they can while others simply wait for "something to happen."

In the case of a product like coffee (or cotton), a cash flow problem arises anytime there is a stoppage anywhere along the line. If, for example, the processing plants break down for need of spare parts (a frequent happening), the sale of coffee for export slows down and the movement of funds through the system from the cooperative bank to the Coffee Marketing Board to the District Union to the primary societies, slows down and may come to a stop. Farmers,

i.e., cooperative members, may then be given chits in lieu of cash. Such outcomes are very unsatisfactory and may greatly affect farmers' future production plans and more surely his marketing plans. In the past, this caused coffee by the thousands of tons to be delivered from Uganda across the nearby border with Kenya where it was sold for cash. Additional problems faced by cooperatives relate to the heavy debt structure accumulated during the 1970 to 1978 period.

While cooperatives function somewhat outside the institutional links of research training and extension, the movement is nonetheless more directly critical to farmers' welfare than almost any other institution at this time. It is through the cooperative society that the farmer receives much of his inputs and markets a substantial part of farm output. Unless the cooperations' functions are performed in a timely and efficient manner, farm production and marketing are severely hampered.

F. Agricultural Planning

The future direction of institutional development in Uganda will in large measure be determined by one institution, the Agricultural Planning Office in the Ministry of Agriculture. In discussions with planning staff one is immediately impressed with their knowledge and grasp of the agricultural situation in Uganda. But like other organs of government, the planning unit is short of supplies and materials, transport and it requires technical assistance to fill several key staff vacancies. In addition, the Planning Unit needs to have current data as the basis for developing plans for future development. Such

data does not now exist and it is essential that an agricultural census be completed in the shortest possible time.

The planning division of the Ministry is largely responsible for the agricultural zonal structure that is now gradually being installed beginning in the South and East and moving progressively until all eleven agricultural zones are staffed. For the first time a qualified agricultural economist will be posted in zones in established positions. This alone should begin to improve the planning capacity of the Ministry and provide better guidance for policy to government and those services that support small farm operations.

G. Brief Summary on Institutions

Though Uganda has a development potential that is better than many African countries, it currently has a staggering problem of rehabilitation before the economy can begin to expand. Institutions can play a decisive role in this process and in any case care must be taken to make sure that these institutions add to economic growth rather than being passive or even negative influences.

The test that should be applied to each institution such as research, agricultural education, extension and others, is how they will meet the needs of Uganda's small farm operators and their families during the next decade. This will require, no doubt, a systems approach to agriculture. Makerere University will have to find a way to coordinate and be mutually supportive of the several relevant ministries and their programs, and vice versa. There should not be University-fostered research without a clear reading of farmers'

needs based on economic and social investigations as well as biological investigations. The question that must be asked, for example, is how does a proposed research program relate to a whole system of agricultural research? The same can be asked of training, agricultural extension, and marketing. In the past farmers simply have not benefited commensurately with the institutional effort that was expended. This should be corrected.

Finally, while the destruction of the past decade has caused significant deterioration of all agricultural institutions, it has also provided the opportunity to restructure, alter, and re-orient the agricultural institutional complex. This should be done with care and at the greatest possible speed.

IV. THE AGRICULTURAL ECONOMY

The agricultural economy of Uganda has been subjected to the same kind of degradation as the rest of the economy over the past decade. In many respects the peasant farmer has fared better than others in the economy. This does not by any measure mean that he prospered. He simply lost less than some others. The relevant period for looking at what happened to agriculture during the last decade is 1971 to 1978. The crop of 1971 is the last one to be unaffected by policies of the Amin Government. The data for the years 1979-80, a two-year period of economic disorder with many adverse effects on agriculture, is unreliable for purposes of economic analysis because production data is severely distorted due to drought conditions in most of the country.

a. Crop Production

During the period from 1961 to 1970, the Uganda economy grew at a rate of about 9 percent per annum. In contrast, during the period 1971 to 1978 the economy declined at a rate of about 1 percent per annum. The decline from 1978 to 1980, a period of war, political disorder and drought, was 9 percent in 1979 and 7 percent in 1980. The effect of the drought in these two years is demonstrated by the decline in production in what the Ugandans erroneously designate as non-monetary agriculture.^{1/} The decline in output in this

^{1/} All agriculture except crops produced primarily for export and/or estate agriculture are included within the "non-monetary" category.

portion of Uganda's agriculture was 9.3 percent in 1979 and 11.2 percent in 1980. This decline took place in the production of crops for which price increases were at least keeping pace with inflation. While production was to some extent adversely affected by a shortage of basic inputs such as hoes and plows, most of the decline can be attributed to the drought.

The most significant change in agriculture during the 1971 to 1978 period was the change in the structure of agricultural output. The data indicate that the production of five crops decreased dramatically, while for the remainder of the crops output remained about the same or increased. The data do need to be treated with some caution as in some cases indicated production changes may more nearly reflect marketing changes rather than output changes. This is particularly true with respect to coffee which was particularly susceptible to smuggling or to storing by the producer. However, the physical evidence does clearly show that there was a definite decline in production even though it was probably less than the data show.

TABLE I

CROPS PRODUCTION 1971 TO 1978000 TONS

CROP	1971	1972	1973	1974	1975	1976	1977	1978
Coffee	175	184	213	198	137	156	156	121
Cotton	76	76	79	50	31	25	14	20
Tea	18	24	22	22	18	15	15	11
Sugar	141	121	68	40	23	18	12	8
Tobacco	4	5	4	4	4	3	2	1
Beans	221	236	170	169	325	337	252	291
Cassava	2416	2650	2131	2349	2992	2037	2993	2928
Cowpeas	45	62	50	63	56	31	32	31
Field Peas	11	15	8	13	12	15	11	13
Millet	650	594	643	571	682	567	576	561
Groundnuts	250	234	212	199	194	176	192	187
Maize	421	500	119	429	570	673	566	594
Pigeon Peas	38	48	31	45	25	36	40	42
Sim Sim	30	28	30	30	39	33	38	40
Sorghum	348	419	389	546	467	390	343	356
Sweet Potatoes	1426	1224	1232	1786	1953	2001	1658	1688
Irish Potatoes	N/A	N/A	N/A	166	221	345	267	293
Plantains	7734	9262	9293	8880	9107	8138	8531	8855
Rice	N/A	N/A	N/A	15	16	29	21	26
Wheat	N/A	N/A	N/A	8	14	12	13	14

The five crops for which output declined markedly are all crops which are not to any great extent consumed on the farm and which require processing off the farm in order to move through the marketing system. Two of the crops were produced solely or mostly for domestic consumption, sugar and tobacco, one was produced largely for export market but also had a substantial domestic market, cotton and the other two crops--tea and coffee--were produced for the export market with domestic consumption being incidental.

There were multiple reasons for the decline in output of these five crops. Prices for these crops were controlled and set at levels which were low in relation to prices paid for other crops and in relation to the general rate of inflation. Additionally, in the case of coffee, the price in Uganda to the producer was significantly lower than in neighboring countries and this encouraged smuggling. The data show that during the period 1974 to 1978, the prices for four of the crops increased as follows: cotton, 203 percent; coffee, 180 percent; tea, 53 percent and tobacco, 53 percent. During the same period, inflation in the country as measured by the low income consumer price index, was about 350 percent and the price increases for crops without price controls were about the same. While the price of sugar also failed to keep pace with inflation, other factors, cited below, would probably have meant sugar production would have declined at any price.

It does need to be noted that, while the decline in output of these five products had a significant negative effect on the economy as a whole due to a reduction in foreign exchange availabilities as export earnings declined and imports of items such as sugar and cotton needed to be increased, there was

not a corresponding negative effect on the incomes of peasant farmers. As the relative prices of such crops as cotton, coffee and tobacco and tea decreased, farmers simply switched production to crops whose prices were increasing and thereby managed to fairly well sustain their incomes. There was, of course, some indirect negative effect on the welfare of peasant families, as declining foreign exchange availabilities decreased supplies of imported consumer and producer goods with consequence increased prices to consumers.

In addition to price there were other negative influences on production that probably were more important than price in depressing output. Certainly in the case of estate-produced sugar and tea two factors were more important --management and labor supply. Estate production and the processing of sugar and tea were managed by Asians in Uganda until their expulsion in 1972. There was not a sufficient number of trained Ugandanmanagers or technicians to replace the Asians and output began to decline sharply. At the same time wage rates failed to keep pace with price inflation and a work force to operate the labor intensive sugar and tea estates could not be maintained. Workers returned to their farms in Uganda or their native country or engaged in more lucrative black market activities.

Other important factors adversely affecting production of coffee, tea, cotton and tobacco were the partial disappearance of market opportunities, the unavailability of essential inputs and the lack of transport and the decline of agricultural support institutions. Certainly in the case of tea and cotton the decline in market outlets was a major factor in causing production to decline. For tea, the inability of tea factories to process tea because of

mismanagement and labor shortages led to the disappearance of the tea farmers' markets and led to the neglect of trees by small-holders. All cotton produced in Uganda is sold by peasant farmers to cooperatives which process the cotton and sell it to the Lint Marketing Board. Cotton marketing was limited by two factors. First, because of a shortage of foreign exchange, supplies needed to maintain cotton gins were not available, machinery broke down and ginneries were forced to operate substantially below capacity or to close down. Second, because, for a variety of reasons, the cooperatives were losing money and piling up debts, the primary societies which purchased cotton from the farmer were unable to pay cash on delivery of cotton to the primary society. All former cotton farmers interviewed during the period of this study gave failure to receive cash payments at the time of delivery as the primary reason for stopping production of cotton. Failure to receive cash at time of delivery was also a factor contributing to the decline in coffee production and marketing but was apparently less important than in the case of cotton.

During the 1974 to 1978 period two developments led to a reduction in quantity of farm inputs available to producers. First, industrial output declined in Uganda between 1974 and 1978 and by over 25 percent and production of agricultural inputs was particularly hard hit. The output of hoes declined by over 75 percent from nearly 1.2 million pieces to less than three hundred thousand pieces. Fertilizer production declined by 99 percent, from over fourteen thousand tons to less than fifty tons. Second, during the same period losses in foreign exchange earnings led to sharp decline in imports of agricultural supplies and equipment. Particularly damaging to crop production was the unavailability of chemicals and equipment needed to control coffee

diseases. Finally, during the same period transport facilities used in marketing farm produce and delivering farm supplies declined. All forms of transport were affected. Bicycles are widely used in Uganda to transport produce from farms to markets. Imports of bicycles and spares declined sharply and over the 1974 to 1978 period, the production of bicycle tires and tubes in Uganda declined by 90 percent. Truck and bus transport declined as inputs of vehicles and spare parts declined and roads deteriorated because of a lack of maintenance. Finally, rail transport which was of major importance to cotton and coffee marketing dropped off sharply with the breakup of the East African Railways. Not only did Uganda lose a substantial amount of rolling stock, but transport from Uganda to Mombasa Port became a foreign exchange cost which Uganda could ill afford.

With the onset of the War of Liberation in 1979 followed by drought and the lack of firm economic policies under the interim governments, the economic deterioration accelerated with adverse effects on crop production. Agricultural inputs virtually disappeared and, combined with the onset of the drought, this led to the further decline of all crop production. The agricultural system very nearly ground to a halt. Cooperatives were unable to function, transport of agricultural products was mostly limited to head loads, exports plummeted as production of cotton, and coffee dropped sharply and coffee smuggling increased, imported agricultural inputs disappeared and black marketing became a way of life for many Ugandans who normally provided support services to agriculture. By the time elections took place in December of 1980, the peasant farmer was becoming desperate as tools used to cultivate the land--the hoe and the plow--wore out and no replacements were available.

Skyrocketing prices for domestically consumed crops brought no tangible benefits to the farmer for there were no consumer or capital goods available on the market.

Following the elections, the new government began consultation with the International Monetary Fund and in May 1981 instituted economic reform designed to halt the decline in economic activity, including agriculture, and set the stage for rehabilitation. The reforms included floating the shilling which immediately devalued a thousand percent, abolition of administered prices except that minimum prices would be guaranteed for tea, coffee, cotton and tobacco and prices of petroleum products and utilities would be set by the government. Prices for petroleum products were increased sharply and producer prices were increased dramatically for tea, coffee, tobacco and cotton. Wage rates were increased with the largest increases being at the minimum wage level, interest rates were modified to stimulate saving and government revenues and expenditures were adjusted to produce a surplus on recurrent account. In addition, government announced it would divest itself of many of the parastatals by selling them to private owners or returning them to original owners. The first manifestation of this was the return of the Asian groups, the Mehtas and the Mhadvanis to take over 49 percent interest in their sugar and tea estates and provide needed management technical expertise. The economic reforms coupled with increased availability of foreign exchange from external donors and the end of the drought brought about a halt in the decline of agricultural production. This has set the stage for agricultural rehabilitation and expansion as Government, hopefully with the assistance of the donor

community, begins to deal with new price deterrents to crop production and marketing.

B. Livestock and Livestock Products

During the 1974 to 1978 period only a small segment of the livestock industry was adversely affected by the economic decline in the country. Production by specialized poultry, egg and milk producers supplying their products to the urban markets declined sharply as imported supplies, equipment and spare parts became unavailable due to foreign exchange shortages and as the transportation system deteriorated. Many of these enterprises were forced out of business. Additionally there was some decapitalization of cattle ranches because equipment and supplies necessary to maintain the ranches were in short supply. From 1974 to 1978 the size of the national herd increased by almost 25 percent with increases in all components--cattle, sheep, goats, pigs and poultry. With the onset of the War of Liberation, subsequent looting and the drought, the situation in livestock was sharply altered. While accurate data are not yet available there was a sharp decline in the size of the national cattle herd which may have been as great as a 20 percent reduction. There was also probably some decline in sheep, goat and pig numbers. The major cause of the decline in cattle numbers was the unavailability of drugs for animal care. For a three month period during the war no drugs were available for killing ticks on cattle and nearly all of exotic and crossbred stocks on cattle ranches and improved dairy farms died from East Coast fever. The continuous shortage of vaccines and the absence of transport for veterinary officers during the period from 1979 to the present led to outbreaks of a

variety of diseases such as Contagious Bovine Pluetopnemonia, Rinderpest, Hoof and Mouth Disease and others. The effects of these outbreaks compounded, particularly in the north, by drought has wreaked havoc on the cattle population. The Ministry of Animal Industries and Fisheries is simply unable to cope with the situation unless financial resources are made available to import adequate supplies of chemicals and vaccines and to provide essential extension and other support services. Decapitalization continues to be a serious problem for all segments of the cattle industry.

C. Pricing and Marketing

Price adjustments in coffee, tea and cotton made by the government have been undertaken by assuring that a portion of the increased local currency price of these crops resulting from devaluation is passed along to the farmer. This indeed was a necessary step and should act as a stimulant to production but additional adjustments are needed in the marketing system which will provide additional incentives to production and increase net returns to the cotton, tea and coffee industries. In their study of marketing and processing of crops in Uganda, Bates et al. concluded that "the price system has not been employed to generate price supports for farmers" but instead "it is a way of accumulating surpluses from agriculture. It is a form of taxation."^{2/} While some adjustments in the share of the world price of

^{2/} Robert H. Bates, Robert W. Hahn and John G. Kreag, The Reorganization of the Marketing and Processing of Crops in Uganda. Mimeo, University of California, 1981, p. 14.

cotton, coffee and tea going to the farmer have been made, further changes are required. Under the current system the farmers' price is set first, coffee at 50 percent of the estimated world price and cotton at 71 percent of the world price. To this is added the set price paid for processing, the costs of the Lint Marketing or Coffee Marketing Boards and the remainder goes to the government. The problem with the current pricing and marketing system for coffee and cotton is that it is too structured and rigid. Two parastatals are responsible for pricing and marketing coffee and cotton, the Coffee Marketing Board and the Lint Marketing Board. The current systems operating under the direction of these two boards does not encourage efficient behavior nor provide incentives to increase production quality. Both boards are monopoly buyers and sellers of their respective commodities where costs appear to have little relation to the services they perform. For example from 1975 to 1978 the amount of cotton handled by the Lint Marketing Board decreased by five-sixths yet its costs of operations remained constant. Current law requires that the government fund any losses incurred by the Boards so that the Treasury bears all risks associated with fluctuation in receipts from marketing coffee or cotton.

There appear to be three major problems associated with Coffee Marketing Board operations: (1) secrecy of its pricing and sales decisions on world markets so that it is difficult for farmers to know if they are getting a fair share of the world market price; (2) lack of incentives to be efficient result in the cost of marketing and processing being determined by the least

efficient; and (3) a failure to maximize revenue because there are no incentives to maximize production.^{3/}

The Coffee Marketing Board has the right to purchase and sell all coffee produced in Uganda. In doing so the Board uses contract sales rather than auctions and transports the coffee to Mombasa for delivery to the buyer. It is likely that the Board could increase its net revenue by selling at auction in Kampala and letting the buyer pay all transport costs. This system would also assure that full knowledge of Board sales would be available to the public. Prices paid to farmers and processors are set by the Board. Prices could be determined by market prices with a floor price for producers. This would encourage quality production and allow processing costs to be determined by the most efficient processors. Efficiency of operations could also be increased by abolishing the Board's monopoly position with respect to reprocessing coffee and letting cooperatives and private processors compete for the business. All of these measures should contribute to increased marketing and processing efficiency, produce greater net resources and provide larger revenues to government.

The Lint Marketing Board has a monopoly on the purchase and sale of cotton lint and seed from cooperative unions who in turn have a monopoly on buying cotton from primary societies and ginning it. The Board is also responsible for setting and maintaining quality standards and operating several parastatal soap and edible oil plants. The major current problem with the Lint Marketing

^{3/} Ibid., p. 34.

Board is that cotton production has declined over 90 percent yet costs of the Board's operations have remained close to what they were during peak production periods. All cotton buyers must place their orders with the Board and then procure the cotton at a set price from a ginnery designated by the Board. For performing this unnecessary service, the Board is paid a commission of 12 percent. The Board's procedures discourage competition and efficiency at all levels within the industry and produce large overhead costs which reduce net revenue to producers and processors. There is little that can be done to increase efficiency in the industry as long as production remains at current low levels. With a revival of cotton production and ginning capacity, the Lint Marketing Board should probably divest itself from the role of selling agent and limits its functions to quality control, export promotion and similar undertakings, including the monitoring of competitive sales.

From the late 60s until 1977, the law required that all agricultural crops other than tobacco, cotton, coffee, tea and sugar be sold to the Produce Marketing Board which set prices for each commodity. Recognizing a de facto situation, the government in 1977 abolished the price fixing authority of the Board and no longer required that agricultural products be sold to the Board. The Board's functions are now limited to buying farm produce for government institutions, holding stocks for emergencies and licensing grinding mills and the inter-district transfer of food. The last two functions limit competition, restrict the free movement of food supplies through the country and exacerbate price differentials. There is no evidence that there are any savings realized from having the Board purchase food for the government institutions and it appears desirable that the Board rid itself of this function as well as the two described above.

The Board can serve a useful function in maintaining small stocks of food for local emergency situations but should not incur the heavy expense of attempting to maintain large stocks to deal with massive crop failures.

There is one important function that needs to be performed in Uganda that might be properly undertaken by the Produce Marketing Board. Over the medium to long term, Uganda has great potential for substantially increasing its production of a wide variety of crops. Realization of this production potential is essential for economic growth. Yet there are real marketing problems that need to be resolved if returns from production are to be maximized. Two markets need to be developed. First, alternate methods for processing agricultural products need to be developed as a means of expanding demand for the production. Second, the number and volume of crops exported needs to be expanded. This includes shipments overseas but more important is the development of markets in nearby countries. Uganda is bordered by Kenya, Tanzania, Zaire and Sudan, all of whom have or are developing chronic food shortages. This market needs to be exploited. It would appear to be a useful function for the Produce Marketing Board to do the research, studies and promotion necessary to develop these markets. Private firms can then be assisted through such institutions as the Uganda Development Bank to invest in the business opportunities developed by the Produce Marketing Board.

The important role played by cooperatives, particularly in marketing coffee and cotton and supplying agricultural inputs, was noted earlier in the paper. However, the cooperatives are currently facing severe economic problems. First, the cooperative unions are burdened with a highly excessive

debt structure. On top of incurring very heavy debts when purchasing cotton gins and coffee processing plants, the co-op debt structure was greatly expanded during the Amin years as banks were directed to lend funds to cover operating losses of cooperatives. It is questionable whether under the best of conditions the cooperative unions can support the current debt structure and it may be necessary for some of the loans to be written-off. Second, cooperative primary societies are often unable to pay farmers cash at time of delivery of commodities or within a reasonable period of time. This causes farmer to withhold products from the market or to move out of production of the commodity. The reasons for primary societies not having cash to pay for crops include the limits placed on weekly cash advances by the banking system to the cooperatives; breakdowns of processing machinery leading to delays in processing which in turn delays receipt of payments by the cooperative unions who then cannot provide funds to primary society to pay farmers; and with declining production and marketing of farm products such as coffee and cotton, decreased throughput at the cooperative unions causes them to operate sufficiently below capacity to incur operating losses and further reduce the amount of cash which can be passed to the primary societies. In addition, security from robbery has been a problem but has been rapidly diminishing over time. Solutions to these problems can come only as increases in farm production and a steady flow of imported and locally manufactured supplies and equipment enable cooperative operations to reach profitable levels.

D. Medium Scale Enterprises

While the major engine of growth in agriculture is going to continue to be the small-holder, there is also going to be some growth in privately owned

medium-sized crop and livestock enterprises. This will include specialized production of quality commodities for sale in urban areas and export abroad to specialty markets, particularly in Europe, meat production by stabilized ranchers, crop production for food processing plants and industrial plants which process agricultural products and manufacture and distribute farm inputs. The development of new enterprises of this kind and the sale of parastatals to private owners are consistent with current policies of the government. Growth of this part of the agricultural production and marketing system will continue substantially to diminishing the role of parastatals to the Uganda economy and increasing investment in the private sector.

E. Further Developments

Changes which have occurred in the world and African economies will affect the course of agricultural development in Uganda. Most important are the increases in the cost of energy and transport and the associated worldwide inflation which has increased the cost of manufactured farm inputs.

The increased cost of energy will force Uganda to develop means of utilizing energy other than fossilfuels to increase agricultural output. Certainly there does not appear to be a major role for tractors and tractor-drawn equipment in new farming systems which will be developed. The increased costs of transport have and will continue to lessen the value of bulk commodities for export over long distances. Similarly, increased transport costs mean that returns to processing which increases the value and decreases the bulk of agricultural commodities will increase. It also means that there will

be increasing returns from developing nearby markets. In this situation it appears improbable that it will be economic to develop cotton exports to previous levels.

The increased costs of imported agriculture inputs will mean that alternative methods for increasing production will become economically more viable. The payoffs from minimizing production losses through improved cultural practices rather than eliminating losses with imported insecticides will inevitably increase. The use of rotations and green manuring may make a greater contribution to increasing net revenues than importing chemical fertilizer.

All of these things mean that Uganda's agriculture will need to be restructured and redirected in the future. There is no going back to patterns of the 1960s, for much changed during the 1970s in Uganda and in the world at large. What is needed now are the research, studies and strategies that will enable agriculture in Uganda to develop and prosper given the economic realities of the 1980s.

V. STRATEGY

The basic principle underlying the strategy presented here is that the future development of agriculture must be solidly grounded in small-holder agriculture. However, it also recognizes that the essence of development is change not only in technology and the wealth of the nation but in the structure of the economy and the society.

The potential for expansion of agricultural production is good. Uganda is well endowed with the physical resources essential for productive agriculture, reasonably fertile soil and adequate water resources. While Uganda had developed a stock of physical and human capital which provided a solid foundation for development, events of the past decade have led to substantial decapitalization of that stock of physical and human capital. Initiation of a development program in Uganda therefore requires that the decapitalization process be halted, that stock of physical and human capital be rebuilt consistent with future development requirements and then new development activities be launched.

Uganda has initiated a four step plan to set itself once again on the path of development. The first step, a far reaching program of economic reform has been launched with the active support of the International Monetary Fund. The second step calls for rehabilitation activities over a period of two years which will stabilize the economy. This will be followed by two years of

renovation and expansions which will provide the foundation of development. The final step will be the initiation of a development plan.

The agricultural strategy set forth below is consistent with Uganda's plan. The major thrust is to rebuild and expand the physical and human capital within the agricultural sector in a way which is supportive of Government's economic reform plan. The five step agriculture strategy is structured in priority order with respect to the importance of the component and its time sequence. It is a strategy for U.S. assistance to the agriculture sector over the next five years, it is not a strategy for agriculture development in Uganda.

Components of the Strategy

1. Recapitalization of Small-holder Agriculture. This first priority strategic component is a continuation and expansion of assistance to rehabilitate the agricultural economy. It is supportive of Government's rehabilitation activities and will assist in bringing about the expansion of agriculture output that is necessary if the economic reforms are to produce desired results.

Fixed or variable capital items and supplies would be provided to operators of small farms in order to increase output of crops or livestock; to marketing organizations which collect, process and distribute farm products; and to firms and organizations which manufacture and distribute farm inputs. The intention is to provide the replacement tools, equipment and supplies necessary to

achieve acceptable levels of productivity from existing production and marketing units.

2. Institutional Support. Assistance provided to agricultural institutions will be directed to restoring the physical and human capital of the institutions and to expanding the capacity of the institutions to provide support to the agriculture sector. However, in providing support to institutions, the strategy calls for it to be done within the context of a restructuring and redirection which will make it possible to deal effectively with the development problems and opportunities of the 1980s. Two different methods will be used to carry out the institutional support strategy.

a. Because restoring and developing the supply of agricultural scientists and professionals and the quality of national agricultural support institutions is of primary importance to the entire agricultural support system, the first step in implementing the institutional support strategy will be to rehabilitate the capability of the country to produce well-trained scientists and other professionals and to conduct relevant agricultural research. While the strategy is to rehabilitate capacity it is not to restore the same institutional structure and operations that existed prior to the Amin period. Rather, the strategy calls for establishing a restructuring and redirection plan and then assistance necessary for recapitalizing the human and physical elements of the institutions.

b. The second part of the institutional support strategy will be to assist in the rehabilitation, restructuring and redirection of the agricultural

field support system. The method of implementing this strategy will be to select one or more zones in the country and assist in making the entire support system an effective instrument for supporting agricultural development.

3. Private Enterprise. Assistance to private enterprise will be directed to rehabilitating and expanding existing enterprises and to starting new ones. The objective of this strategic component is to support the current government policy of emphasizing the growth of private enterprise as a major engine of development. Under this strategy, assistance would be provided to private enterprise in developing medium-size crop production and livestock farms and ranches, firms marketing and processing agricultural products and businesses manufacturing and distributing farm supplies and equipment. Agencies and institutions which provide support to private enterprise would also be assisted. The intent of this strategy is to develop agro-industry as an important segment of the agricultural system.

4. Human Capital Development. Development ultimately depends on the human resources available to carry it out. Under the agricultural strategy for Uganda, human capital development at the farm level will be supported through the assistance provided to field-level agricultural support systems. Assistance to human capital development under this component of the strategy will be directed to upgrading personnel already trained. Because over the past decade Ugandans at all levels of education have been isolated from the intellectual and scientific developments in their fields of endeavor, there is a pressing need for them to be brought up to date if they are to make useful contributions to development. The training provided will for the most part be

short-term refresher training in-country, at international institutions and in a variety of institutions and organizations in the United States. People who have already completed the normal educational process will be provided the refresher training necessary for them to function effectively in today's world. In implementing this strategic component, the USAID will coordinate closely with the Uganda Institute of Public Administration.

5. Strengthening Farmer Organizations. Under this strategic component, assistance will be provided to improve the functioning of farmer organizations which are intended to increase farm output and increase farm income. In the Uganda context, this means assistance to agricultural cooperatives. In the past, the cooperative system in Uganda has largely been structured to market coffee and cotton and to supply farm inputs to coffee and cotton producers. In the future it is highly probable that the agricultural production will be restructured in a way which will significantly reduce the absolute importance of cotton and the relative importance of coffee as agricultural products. Changes in the structure of agriculture will include changes in produce mix and farm input systems. The objective of this portion of the strategy is to increase the effectiveness of the cooperatives in marketing farm products and supplying farm inputs while the cooperative system changes its operations in accordance with the changing structure of agricultural production.

FARMER INTERVIEWS

Tabulated results on each zone are summaries of interviews taken in that zone.

FARMER QUESTIONNAIRE

1. Cropping pattern (including fruit & vegetables) and animals.
 2. Intercropping/rotation.
 3. Division of labor (including communal labor & hiring of labor). How much is hired labor paid?
 4. Household composition.
 5. Land area and area cultivated. Is following a regular practice? Is new land available? Is the land titled?
 6. What happens to crops and livestock (consumption/selling)? Who sells the crops? Who keeps the money? Where are goods sold? What are transport costs?

What is bought (e.g., salt, meat, fish, milk, ghee)? If ghee is not bought, what is used for cooking oil?
 7. Prices of crops.
 8. Yields on cotton, coffee, maize or sorghum/millet, tobacco, simsim, etc.
 9. Cotton practices: Planting time, insect problems, use of chemicals. (Alternative: Coffee - is pruning being done, etc., any plans to plant new trees?)
 10. Method of cultivation (plow/hoe/tractor). How many hoes owned? Was new hoe purchased last year? Is he/she a member of a primary society?
 11. Is farmer aware of this year's price for cotton/coffee? Did he/she last year? If not, why not?
 12. What are the insect and disease problems on all crops?
 13. Does the farmer ever borrow money (take a loan)? What for? From whom? How is it paid back (i.e., with interest)?
 14. Who makes beer? What is it made from? Who drinks the beer? Who sells the beer? Who keeps the proceeds?
 15. Does anyone in the family work off the shamba (e.g., in town, in the army)?
 16. How far is it to water?
 17. What is used for household cooking fuel? If fuelwood, is it easily accessible? Is it ever purchased? If so, what is the price? Is charcoal ever made? Ever purchased? If so, what is the price?
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FARMER INTERVIEW SUMMARIES

AREA: Outer Ring of Fertile Crescent: Ankole/Esat-West Nengo

1a. <u>CROPS GROWN</u>	2a. <u>INTERPLANTING</u>	3. <u>DIVISION OF LABOR</u>	4. <u>HOUSEHOLD COMPOSITION</u>	6a. <u>DISPOSITION OF CROPS & LIVESTOCK</u>	6b. <u>HOUSEHOLD PURCHASES</u>
millet sweet potatoes beans matoke coffee cassava groundnuts sugar cane	maize/millet beans/matoke	Land clearing F	1M+1F+3 F children (1 F child married)	-sell sorghum, beans, groundnuts, sugar cane through traders. F keeps money but decides jointly w/M on expenditure -sorghum dried, sifted and sold in tins	salt } regularly soap } meat } rarely sugar }
		Planting M-coffee/P + children-food			
		Weeding F + children	5a. <u>LAND AREA</u> fragmented, quantity unknown		
	2b. <u>ROTATION</u> 1. millet/maize 2. sweet potato 3. fallow 1. cassava 2. fallow for 1-2 yrs.	Harvesting M-coffee/P + children-food	5b. <u>AREA CULTIVATED</u>		
1b. <u>LIVESTOCK</u>				-land available, especially in swamp	

Abbreviations: M=Male(s), F=Female(s), hh=household

7. CROP PRICES	8. CROP YIELDS	9. COTTON/COFFEE PRACTICES	10. CULTIVATION METHOD	12. INSECT/DISEASE PROBLEMS	15. HOUSEHOLD MEMBERS W O/F-FARM EMPLOYMENT
sorghum-Sh.250-300/ tin groundnuts-Sh.400/tin beans-Sh.300/tin tin=20 liters (?)		(M responsible for coffee & not present at interview)	hoe	millet-too many weeds groundnuts-insects eat from underground chickens-Newcastle's disease	M works as civil servant
			How many hoes in hh?		
			4		
			Hoe bought last year?		
			yes-1 last yr., 1 this year	14. BEER	16. DISTANCE TO WATER
		11a. AWARE OF CURRENT PRICE?		Brewing F	½ ml. to water
		11b. CROP SOLD LAST YEAR?		Selling	
		11c. WHY NOT?	13. USE OF CREDIT	F sometimes (M gets proceeds)	17. COOKING FUEL Source
				Ingredients	papyrus
				bananas	Availability
					excellent
					Price

FARMER INTERVIEW SUMMARIES

AREA: Perennial Crop Zone: Manaka/West Mengo

1a. <u>CROPS GROWN</u>	2a. <u>INTERPLANTING</u>	3. <u>DIVISION OF LABOR</u>	4. <u>HOUSEHOLD COMPOSITION</u>	6a. <u>DISPOSITION OF CROPS & LIVESTOCK</u>	6b. <u>HOUSEHOLD PURCHASES</u>
coffee (robusta) maize matoke cassava groundnuts beans soybeans Jackfruit mango avocado sweet potato papaya cabbage tomato onion carrot lettuce pumpkin pineapple simsim sweet bananas sorghum greens	matoke/cassava maize/beans	Land clearing	M+F+4 children @ home (3 children away) MFF10 children MFF49 children	-sell groundnuts, beans, soybeans, coffee -sell sorghum for beer brewing	salt soap meat fish milk-Sh,50/liter
	2b. <u>ROTATION</u>	Planting	5a. <u>LAND AREA</u>		
	1. maize/beans 2. soybeans 3. sweet potato 4. fallow for 6 mos.	M+F+children	10-12 acres 3 acres 5 acres		
1b. <u>LIVESTOCK</u>	-land not fallowed	Harvesting	5b. <u>AREA CULTIVATED</u>		
cattle goats chickens		M+F+children	5-6 acres		
			-no new land available -land available but very expensive		

Abbreviations: M=Male(s), F=Female(s), hh=household

7. CROP PRICES

groundnuts-Sh. 700/
small* tin
-Sh. 3,600/
sack (unshelled)
beans-Sh. 1,200/sack
soybeans-Sh. 1,600/sack
maize grain-Sh. 700/sack
beans-Sh. 350/small
tin

*small=20 liter(?)

8. CROP YIELDS

9. COTTON/COFFEE
PRACTICES

-no pruning & no
new tree planting
-M sells coffee to
primary society
-M was selling coffee
to private trader under
primary society price,
but when society began
paying cash, M switched
to society

10. CULTIVATION
METHOD

hoe

How many hoes in hh?

3
3
4

12. INSECT/DISEASE
PROBLEMS

egg-eating mites
coffee berry disease
sweet potato-leaf caterpillar
sorghum-stalk borers

15. HOUSEHOLD MEMBERS W/
OFF-FARM EMPLOYMENT

-2 children are
teachers away from
home
-2 children working
in Kampala hotel,
send remittances
-1 child teacher,
lives @ home
-M employed as local
chief

Hoe bought last year?

no-available in
market for Sh. 600

no-none available

yes-2 @ Sh.150 ea. from

13. USE OF CREDIT

none

11a. AWARE OF CURRENT
PRICE?

yes

11b. CROP SOLD LAST YEAR?

yes
yes

11c. WHY NOT?

14. BEER

Brewing

Selling

-F sells to drinking
place
-M or F sell to drinking
place

Ingredients

banana & sorghum (fermenting
agent)

-F makes waragi

16. DISTANCE TO WATER

-near to water (less
than 1/2 mi.)

-1/2 mi. to water from
Lake Victoria

17. COOKING FUEL
Source

wood
homemade charcoal
Availability

plentiful

Price

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FARMER INTERVIEW SUMMARIES

ARCA: Montane Zone: Mt. Elgon/Kigezi

1a. CROPS GROWN	2a. INTERPLANTING	3. DIVISION OF LABOR	4. HOUSEHOLD COMPOSITION	6a. DISPOSITION OF CROPS & LIVESTOCK	6b. HOUSEHOLD PURCHASES
beans sweet potato matoke tomatoes cabbages onions cassava maize Arabica coffee Irish potato peas sorghum pumpkins cowpeas papaya avocado cauliflower leek sweet banana	maize/sorghum/beans	Land clearing M F+children -no need to clear land in Kigezi, no new land -hired labor: Sh.3,000/mo. (without food), Sh.2,000/mo. (w/food), Sh.150/day planting M+F+children for grains, M, F separately grow vegetables M+F F only(M in business) F+children F+hired labor @ Sh.150/day	1M+2F+12 children 1M+2F+10 children 1M+2F+6 children F, widow, 9 children w/1 married son @ home 1M+2F+6 children F, widow, 1 M child @ home	-sell matoke, vegetables -sell sorghum for beer (malted) -sell maize, sweet potato, cabbage, tomatoes, onions, peas -sell malted sorghum to traders -Local buyers come and buy whole vegetable crop. Buyers then take produce to roadside for transport from Kigezi to Kampala.	groundnuts cooking oil meat fish salt sugar soap ghee
DAO reports: wheat	2b. ROTATION 1. beans/maize (maize & bean seed broadcast together, then sorghum interplanted) 2. sorghum 3. sweet potato 4. fallow	Weeding M+F+children for grains, separately for vegetables M+F F(M in business) F+children F+hired labor @Sh.150/day	5a. LAND AREA 1/2 acre *5 acres (fragmented) 5 acres (fragmented) 5-7 acres (fragmented)		
1b. LIVESTOCK cattle chickens goats 10 large-scale dairies reported in Kigezi area	1. beans/maize 2. sorghum 3. Repeat 1 & 2 1. cabbage 2. potatoes	Harvesting M+F+children for grains, separately for vegetables M+F F(M in business) F+children-labor hired @ Sh. 1,000/mo. when cash avail. F -F hires herders for 2 cows @ Sh.400/cow/mo. -M does all spraying of vegetable crops	5b. AREA CULTIVATED *3 acres(?)		

Abbreviations: M=Male(s), F=Female(s), hh=household

7. CROP PRICES	8. CROP YIELDS	9. COTTON/COFFEE PRACTICES	10. CULTIVATION METHOD	12. INSECT/DISEASE PROBLEMS	15. HOUSEHOLD MEMBERS W OFF-FARM EMPLOYMENT
matooke-Sh.100 matooke-Sh.300 malted sorghum-Sh. 3,000/20 ltr. tin maize-Sh.500/20 ltr. tin (approx. 15 kg.) sweet potato-Sh.1,300/sack sweet potato (dig yourself)-Sh.100/bed cabbage-Sh.30-40 2 tomatoes-Sh. 20 onions-Sh.30/bunch peas-Sh.300/basket malted sorghum-Sh.2000/basket cabbage-Sh.20 maize-Sh.1,500/90 kg. bag (grain) sorghum-Sh.2,500/sack (partly malted) -Sh.4-5,000/bag (malted)	sorghum-6 90kg. sacks/acre (good yr.)	-M harvests coffee -Kigezi area: vegetables as cash crop in addition to arabica coffee. Vegetables sprayed when chemicals available. Two crops grown/yr.- one on dry hill-sides, one on wet bottom land.	hoe How many hoes in hb? 3 4 (1 ea. F, 2 for M) Hoe bought last year? -yes-from subcounty headquarters -hoes bought in 1979 -magendo price-Sh.600	maize-stalk borers peas-insects beans-disease -insects sweet potato-leaf caterpillars DAD reports: tomato fungus storage pests coffee-antestia cauliflower-aphids cabbage-aphids carrots-caterpillars peas-aphids beans-insects eat leaves & fruit withers	-M w/business in Mbale -1 M child works as bricklayer -4 M children working in Masaka, Mbarara & Kampala
		11a. AWARE OF CURRENT PRICE?		14. BEER	16. DISTANCE TO WATER
		yes		Brewing	very close ½ mi. to spring ¾ mi.
		11b. CROP SOLD LAST YEAR?	13. USE OF CREDIT	Selling	
		yes		Ingredients	17. COOKING FUEL Source wood wood & charcoal Availability scarce (2 respondents) fuelwood close by F hires labor to make Price charcoal
		11c. WHY NOT?			

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FARMER INTERVIEW SUMMARIES

AREA: North: Acholi/Lango/Teso/Bunyoro

1a. CROPS GROWN

cotton
millet
simsim
beans
maize
groundnuts
sorghum
pigeon peas
sweet potato
cassava
pineapple
mango
orange
sweet banana
pumpkins &
pumpkin greens
gourds

1b. LIVESTOCK

cattle
goats
chickens
ducks
pigeons
sheep

2a. INTERPLANTING

cotton/beans
millet/pigeon peas
simsim/pigeon peas
simsim/beans
maize/cassava
millet/cowpeas
groundnuts/cassava
sorghum/millet

2b. ROTATION

1. cotton/beans
2. millet/pigeon peas
3. simsim w/same pigeon peas
4. sorghum
5. fallow for 3 yrs.

1. beans
2. groundnuts/cassava
3. millet
4. land fallowed 1 yr.

1. cotton or maize
2. simsim
3. maize/groundnuts or simsim/maize
4. land fallowed 1 yr.

3. DIVISION OF LABOR

Land clearing
-M cuts trees, then F & children join M
-group labor (paid w/meal & beer)
-F because M lame
-hired labor-Sh.1,000/acre (new land)
(old land) -Sh.700/acre
Planting
M dir, F & children sow
M & Fs
M & F (cotton)

Weeding

cotton: everyone
food crops: F & young F
cotton: M & young M
M+F
M+F hoe weeding; F hand weeding

Harvesting

-cotton & millet: everyone
-simsim: F harvest, M carry & prepare threshing area
-wives & other F harvest
-M+F
-communal labor most common
-piecework also done for fee (paid in advance)
-harvesting millet-beer prepared as refreshment
-employ labor for specific task: F for millet, M for cassava & cotton
-communal labor for harvesting paid w/part of harvest

4. HOUSEHOLD COMPOSITION

1M+2F+7 children
1M
1M+2F+6 children
1M+1F+4 children
1M+1F+4 children
1M+1F (elderly)
1M+2F+20 children
1M+1F+3 children

5a. LAND AREA

10 acres
3 acres
5 acres

5b. AREA CULTIVATED

5-6 acres

-new land available } Lango
-no new land available } Bunyoro
close by } Teso
Acholi

6a. DISPOSITION OF CROPS & LIVESTOCK

-sell milk
-sell food surpluses & in dire straits food ordinarily reserved for home consumption
-F & M sell irrespective of market. If F sells, she keeps money. If M sells, money is given to wives & decisions on expenditures made jointly.
-sell live animals, also meat; animals slaughtered to pay school fees or meet other domestic needs
-sell chickens, goats & sheep when not enough chickens. Eat goat/sheep only on festive occasions
-sell cassava, simsim, groundnuts, maize
-sell anything in surplus. F sells, keeps money, but spending determined jointly
-sell chickens

6b. HOUSEHOLD PURCHASES

fish
meat
salt-Sh.100/kg.
rice-Sh.150/kg.
soap-Sh.100/piece
-Sh.600/long bar
salt-Sh.120/kg.
soap-Sh.350/long bar(?)
sugar-Sh.160/kg.
drought area:
simsim
sorghum
millet
seed for millet, maize, etc.
for variety:
simsim
pigeon peas
groundnuts
meat-Sh.100/kg.
fish
milk-Sh.30/liter
salt-Sh.150/kg.
salt-Sh.80/kg.
soap-Sh.600/long bar

Abbreviations: M=Male(s), F=Female(s), hh=household

7. CROP PRICES

milk-Sh.20/liter
 maize-Sh.10/kg. (posho)
 simsim-Sh.5/cup
 cassava-Sh.200/20-ltr.
 tin (sliced)
 maize-Sh.200/20 ltr.
 tin (grain)
 simsim-Sh.400/20 ltr.
 tin
 groundnuts-Sh.300/tin
 (unshelled)
 -Sh.600/tin
 (shelled)
 chickens-Sh.250

8. CROP YIELDS

simsim-6 sacks/acre
 maize-2 90kg. sacks/
 acre (grain)
 simsim-50 kg./acre
 maize-20 sacks/acre
 (good yr.)
 simsim-6 sacks/acre
 sorghum/millet-6 sacks/
 acre

9. COTTON/COFFEE PRACTICES

-not growing tobacco because co-ops not buying
 -problems marketing cotton, lack of Langi hoes for cultivation
 -ascribe cotton slump to changes in "law"
 -will try cotton this year because there is a new government
 -no one buying cotton, seed didn't germinate, will grow cotton next season because one's clothes must come from cotton
 -planted cotton but seed didn't germinate

11a. AWARE OF CURRENT PRICE?

yes no
 no no

11b. CROP SOLD LAST YEAR?

no
 no
 no

11c. WHY NOT?

co-ops not buying

10. CULTIVATION METHOD

hoe
 ox-plow

How many hoes in hh?

1 plow in area
 1 hoe M, F each
 3 hoes
 3 hoes (1 broken)

Hoe bought last year?

yes - locally made @ Sh.150
 yes - from market @ Sh.150

13. USE OF CREDIT

none

12. INSECT/DISEASE PROBLEMS

cotton -weevils
 -worms that attack roots
 maize-stalk & ear borers
 termites
 monkeys
 cotton-lygus
 -leaf-eating insects
 groundnuts-rosette
 birds
 wild pigs

no chemicals or sprayers available

chemicals for cotton available @Sh.40/small packet, but sprayer unavailable

14. BEER

Brewing
 F

Selling

F (keeps money for school fees)
 M-banana
 F-maize/cassava } F keeps money from both

Ingredients

millet (fermenting agent)
 maize
 sorghum (fermenting agent)
 cassava
 bananas

15. HOUSEHOLD MEMBERS W OFF-FARM EMPLOYMENT

-family members in army & 1 office mgr. in town; some remittances
 -son in army; son-in-law in civil service

16. DISTANCE TO WATER

-Water a big problem. Farthest person from water is 10 miles. Bore-hole close by is silted up.
 -2+ mi. to water
 -1/2 mi. to water

17. COOKING FUEL Source

wood; charcoal
 F looks for wood, M makes charcoal
 Availability plentiful

Price

charcoal - Sh. 200/sack

10-

FARMER INTERVIEW SUMMARIES

AREA: North: Acholi/Lango/Teso/Bunyoro

1a. CROPS GROWN

cassava
groundnuts
simsim
beans
maize
millet
sweet potato
cowpeas
papaya
mango
pineapple
sugar cane
cotton
(Laborers on large farm-Lango)
cabbage
tomatoes
carrots
cassava
fir trees
millet
sorghum
maize
sweet bananas
papaya
sweet potato
groundnuts

1b. LIVESTOCK

chickens
goats
cattle
sheep

DAO reports: turkeys
pigs

2a. INTERPLANTING

DAO reports: maize/beans
rice maize/cassava
cashew millet/pigeon peas
cotton cotton/beans
millet groundnuts/cassava
sorghum

2b. ROTATION

1. cotton on fresh ground, interplanted w/beans
2. millet/pigeon peas
3. sorghum, still with pigeon peas
4. simsim
5. fallow up to 3 yrs.

3. DIVISION OF LABOR

Land clearing
-communal labor if in a hurry-paid for with meal & beer
-M+F together w/children old enough

Planting

M+F
M dig holes & F + children sow

Weeding

F
M+F
M+F+children

Harvesting

-if good harvest, reciprocal labor exchange w/neighbors & relatives
-M+F
-M+F+children

-group work preparing cassava flour

-laborers on large Lango farm paid Sh.950/mo.

-two types of communal work-reciprocal exchange & fee-for-service (rotating thru all fields vs. specific task)

4. HOUSEHOLD COMPOSITION

1M+1F+1 child
1M+1F+7 children
1M+2F+8 children
1M+1F+4 children
1M+1F+12 children
1M+1F+1 child
1M+1F+1 child

5a. LAND AREA

7 acres
12 acres
15 acres
5 acres
8 acres
*6 acres

5b. AREA CULTIVATED

8 acres
*3 acres

-new land available
-new land not free, for sale or rent from someone whose land is idle

6a. DISPOSITION OF CROPS & LIVESTOCK

-sell anything in surplus
-sell beer
-sell cotton (sold by M) through primary society
-F sell if market is near & small
-M sell if market is big & far
-goats & cattle sold live @ auction or @ home to livestock buyer
-chickens & eggs sold to buyers to take to Kampala

6b. HOUSEHOLD PURCHASES

fish
salt-Sh.100/kg.
meat
milk
soap-Sh.4-500/long bar

Abbreviations: M=Male(s), F=Female(s), hh=household

7. CROP PRICES	8. CROP YIELDS	9. COTTON/COFFEE PRACTICES	10. CULTIVATION METHOD	12. INSECT/DISEASE PROBLEMS	15. HOUSEHOLD MEMBERS W OFF-FARM EMPLOYMENT
chickens-Sh.4-600 ea. cattle-Sh.10,000-20,000 ea. milk-Sh.40/liter cassava (dried)-Sh.900/sack @ roadside, Sh.1,500/sack @ market (Sh.400 transport cost)	maize-10 90kg. sacks/acre (good yr.) -7-8 90kg. sacks/ac. (bad yr.) cotton-1,000kg./acre (good yr.) -4-500kg./acre (bad yr.) maize-20-30 90kg. sacks/acre (Unshelled?)	-won't grow cotton this year as co-op didn't buy cotton last year & seed was bad -problem w/storing cotton as co-op wasn't buying -seed was available -lack of hoes for cultivating cotton	hoe ox-plow	groundnuts-rosette beans-wilt maize -stalk borer cotton-lygus -weevils -monkeys all crops-monkeys vegetables-insects	-some, some send remittances -brickmaking part-time by 4 farmers
			How many hoes in hh?	chemicals unavailable	
			2 (small) 2 (small) 7 5 } all very worn 4 5		
			Hoe bought last year?	14. BEER	16. DISTANCE TO WATER
			-none available through co-op -none available	Brewing	-2 mi. or closer
		11a. AWARE OF CURRENT PRICE?		F	
		yes			
		11b. CROP SOLD LAST YEAR?	13. USE OF CREDIT	Selling	
		no	none	F	
		11c. WHY NOT?		Ingredients	17. COOKING FUEL Source
		no co-ops were buying		millet } sorghum } fermenting agents cassava maize	Availability close by Price

7. CROP PRICES

matooke-Sh.150-200/bunch
 maize-Sh.800/sack (ears)
 sw. pot.-Sh.1,000/sack
 coffee-Sh. 2,000/sack
 milk-Sh. 30/liter
 matooke-Sh.1,500-2,000/
 50 bunches; Sh.10,000/
 truckload
 groundnuts-Sh.4,000/sack
 (shelled)
 -Sh.1,000/sack
 (unshelled)
 onions-Sh.15,000/1/2 acre
 beans-Sh. 2,000/sack
 matooke-Sh.300/bunch
 maize flour-Sh.600/50 kg.
 sack

8. CROP YIELDS

maize-20 sacks ears/
 acre (good yr.)
 -10 sacks ears/
 acre (bad yr.)
 cotton-10 sacks/acre
 (good yr.)
 -6 sacks/acre
 (bad yr.)
 sorghum-20 sacks/acre
 (good yr.)
 -10 sacks/acre
 (bad yr.)
 maize flour-50 kg. sack

9. COTTON/COFFEE PRACTICES

-Buganda, n. of Kampala:
 Picks, dries & hags
 coffee. Sells to traders
 who take 10kg. commission
 from 60 kg. bag, thus price
 is Sh.28.50/sack
 - can't store coffee due to
 insects; needs cash
 -prunes coffee with pang
 -takes coffee to store for
 credit to pay graduated
 tax. Store takes 5kg.
 from 60 kg. bag
 -Jinja: coffee sold to
 co-op, delay of 1 1/2 mos.
 in cash payment
 -will plant new trees this
 year

10. CULTIVATION METHOD

hoe
 How many hoes in hh?
 3
 15
 5
 1
 3

12. INSECT/DISEASE PROBLEMS

-yellow leaves on
 coffee-cured by
 pruning
 -maize-stalk borers
 (use sprayer-uses
 insecticides when
 available)
 -bananas-worms in
 stalk
 -small rodents
 (mongoose?)

15. HOUSEHOLD MEMBERS W OFF-FARM EMPLOYMENT

-M & 12 child working
 in Kampala
 -M works as bicycle repair-
 man, earns at least
 Sh.2,000 per week

Hoe bought last year?

no-price Sh.800
 yes

(price in market
 near Kayunga:
 W. German hoe-Sh.750
 Chinese hoe-Sh. 400)

13. USE OF CREDIT

Buganda:
 -never borrow money
 -paid cash for land
 Jinja:
 -borrow from brother
 w/no interest charge
 -borrow from friends &
 pay interest

14. BEER

Brewing

M

Selling

M (keeps money for
 school fees, hiring
 labor, meat, fish)

Ingredients

bananas
 sorghum

-10 Jerry cans sell
 for Sh.4,000
 -bar owners come to buy

16. DISTANCE TO WATER

-shallow well on shamba
 -1 mi. on 1 holding;
 1/2 mi. on other
 -1/2 km.
 -1/2 mi.

17. COOKING FUEL Source

wood

Availability

no problem

Price

Sh. 100/bundle

11a. AWARE OF CURRENT PRICE?

yes (coffee)
 no (cotton)

11b. CROP SOLD LAST YEAR?

yes-to trader (coffee)
 no (cotton)

11c. WHY NOT?

-didn't grow cotton due
 to "insecurity" (no mar-
 ket?) & low return-thinks
 cotton is being discourag^d
 in Buganda
 -cotton too time-consuming;
 beans take less time to
 mature

LAND TENURE IN UGANDA

Introduction

At least 70 percent of the land in Uganda is occupied under customary tenure rights. Other land lies in urban areas, in which the value and ownership of the structure is more important than the land; and land vested in individuals through long-term leases. This situation is the result of a 1975 land reform decree that abolished all forms of freehold tenure, and vested ownership of the land in the state. Little is being done to monitor the granting of leases. Further, it is evident that many Ugandans are unaware of the decree, and consider themselves owners of parcels of land. As land is a key agricultural asset, donor assistance programs should take account of the rather fluid situation that now exists in Uganda.

Background

In 1975, under then-President Idi Amin, a land reform decree was issued. This decree entrusted all land to the state, with individuals able to enter into a tenancy arrangement by applying for a long-term lease. The decree's major impact was on land held under the mailo system in Buganda. The mailo system was the outcome of a settlement in the year 1900 between the British government and the Kabaka, ruler of Buganda. The Kabaka was allowed to grant large tracts of land to his relatives and other retainers, and those already on the land in customary tenure status were required to pay a ground-rent and tribute to the mailo owner. There were also small land grants made in Toro and Ankole that were rescinded by the 1975 decree; however, these were minor by comparison with mailo land.

Land Reform Decree of 1975

The land reform decree states that mailo owners became "lessees on conversion" and that their customary tenants in effect became sublessees from the time of the decree. The lessee on conversion may submit a five-year development plan for his land to the Land Commission, and, if it is approved, can then evict his customary tenants. According to the law, if the improvements specified in the plan have been made at the end of the five-year period the lessee on conversion (or a leaseholder in any other part of the country, for that matter) can obtain a ninety-nine year lease on that land. The improvements to the land are owned outright by the lessee, but the state retains ultimate ownership of the land (and any mineral rights). In theory, customary tenants on land not "subleased" should all be given leases to their holdings as well, for periods of forty-nine or ninety-nine years.

In practice, two phenomena were noted. First, the Land Commission and local land boards have only begun to function since November 1981. Some leases were apparently granted under the Amin government, but it is evident that very few have applied for leases. The Commissioner for Lands confirms that the leasing process is a reactive one - a prospective lessee must apply for the lease and have the land surveyed. The Land Commission will not itself undertake to issue leases without the application by the lessee. As the entire process is not well publicized, those with access to information on the leasehold process, the money for the various fees and a development plan represent the majority of the applicants. The danger here should be obvious. Large acreages can easily be accrued by those with the knowledge and the capital to do so. The Commissioner also confirmed that very little follow-up or even initial checking on claimed acreage is possible, due to lack of transport.

Surveyors are vulnerable to bribes. And the cadastral survey is "rolling", so there is no clear picture of land tenancy at any one point in time; thus changes over time are harder to detect.

The second problem is that those who bought land and received title to it prior to 1975 are still under the impression that they own the land. They are, in fact, expected to apply for long-term leases on the basis of their old titles and improvements already made to the land. This is so poorly understood throughout the country, though, that even holders of large developed acreages often do not apply for leases on what they consider to be already theirs. The Commissioner for Lands stated that no publicity is to be undertaken on the 1975 decree because publicity might, in effect, add to the confusion.

The second point should not prove as much an impediment to development as the first, since any improvements, such as buildings or water systems, are considered to be owned by the lessee and can be bought and sold. On the other hand, in areas like Buganda where new land for farming is very scarce but some farms are no longer in production, there is land being bought and sold though no formal titling takes place. If the government were to more strictly enforce the 1975 land reform decree, the informal land market would cease, or at least diminish, and presently unused or abandoned farm land could be put back into production at a considerably lower cost. As long as the concept of private ownership of land persists in the minds of the Ugandan citizens, there will continue to be an informal market in land and some land will remain out of production while awaiting "buyers". The buying and selling of land also diverts some resources that could be devoted to more productive enterprises.

Role of Donor Assistance

The land adjudication system does not now have the ability to undertake the task before it. Problems include transport needs for the local land boards, dearth of public information, lack of training for land board members, inability of Ministry of Lands, Water and Mineral Resources staff to process the numbers of leases that would be required to assure title to all land users in the country, and no attempts or plans to initiate any sort of land use planning for Uganda. Without adequate planning and supervision of the process, Uganda's land law allows for the possibility of a few large, prosperous holdings and a large number of landless laborers.

Outside assistance cannot address all of the problems set out above. There is some urgency in assisting the government to better plan for the future use of its land as part of the development process, though, and to better monitor the granting of long-term leases for optimal and just use of one of the nation's most precious resource. This is a key issue in economic development and an area in which the U.S. could play a major role without devoting major resources to the effort by supplying short-term training and technical assistance at both the local and national levels.

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