AGRICULTURAL DEVELOPMENT PLANNING

AND POLICY IN UGANDA

by

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F I G U R E

ABSTRACT OF THESIS

The rate of economic development of an agricultural country such as Uganda is closely linked and mainly dependent on the rate of progress of the agricultural sector. The processes involved in transforming agriculture from semi-subsistence to commercial farming are such that during the transition stage, there is an urgent need for research into economic, social and political problems of allocating scarce resources of capital, foreign exchange, skilled and managerial labour to development projects in such a way as to lead to the maximum attainment of development objectives. The efficiency of agricultural development planning and the relevancy and suitability of policy measures adopted are the main determinants of the rate of agricultural progress as well as the rate of general economic development. Hence, the study was designed to review agricultural development planning and policies in Uganda in order to illuminate deficiencies, highlight successes and to suggest improvements.

In chapter one, the study describes the main characteristics of the Uganda economy and indicates the leading role which agriculture has played as a major determinant of gross domestic product. Agriculture is the main source of food, raw materials, export earnings, personal incomes, government revenue and provides a market for non-farm products. Agriculture also offers employment opportunities for the ever increasing population.

In the second chapter the study analyses resource endowment and shows how factors such as land, labour, capital, management, institutions and government policies have affected the rate of agricultural development. The analysis has revealed that the agricultural sector still contains a large quantity of resources whose potential is not yet exploited to the full.

Chapter three which uses the material in the first two chapters, gives an analytical framework within the study of specific plan periods in chapters four to seven is carried out. The chapter discusses the main elements of comprehensive agricultural planning which include formulation of general sectoral objectives; analysis and determination of resource endowment; formulation of agricultural development strategy; selection and evaluation of investment programmes and projects; compilation of the agricultural sector plan and formulation of the implementation measures.

Chapter four is a case study of the Worthington Plan (1947-1956), chapter five concentrates on the Five-Year Capital Development Plan (1955-1960) whereas chapter six is the case study of the First Five-Year Development Plan (1961/62-1965/66). The analysis of the planning periods include objectives and strategy of the plans; resource availability and allocation and agricultural policy measures and schemes. The main schemes studied include mechanical cultivation; pilot schemes; agricultural extension, education and research; farm planning; co-operative group farms and agricultural credit and subsidy schemes.

Chapter seven presents the case study of the Second Five-Year Development Plan (1966-1971) which as the first serious attempt at comprehensive sector planning warrants the critique of the agricultural sector plan. The discussion covers the projection model; agricultural sector targets; resource allocation to capital formation, auxiliary services, education and crop programmes and agricultural policies and institutions.

The case studies of the planning periods in chapters four to seven have revealed that agricultural sector planning is still deficient in some elements of comprehensive planning. The main weaknesses include lack of explicit sectoral objectives and a strategy for development consistent with resource endowment. There appears to be a general lack of proper selection and evaluation of investment programmes and projects needed to form the agricultural sector plan which is consistent both within itself and with other sectors of the economy.

Resource allocation to the agricultural sector has been generally inadequate and not commensurate with the emphasis which the sector deserves. The plans have also lacked comprehensive agricultural policies containing adequate price and production incentives and effective implementation measures. The need for improvement in the planning machinery to ensure effective co-ordination between the planning, finance and executive ministries and other organisations has been stressed. And, since, the agricultural sector plan can only be implemented through the efforts of hundreds of thousands of small farmers, the implementation measures must contain ways and means of stimulating the enthusiasm of the farmers in order to solicit their total commitment to the development plan.

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CHAPTER I

AGRICULTURE AND ECONOMIC DEVELOPMENT OF UGANDA

Introduction:

The problem of underdevelopment has been brought to the notice of many people both in developing and developed countries. This universal awareness of the problems faced by the developing countries and the great concern for economic development have been enhanced by improved means of communication which have brought into play the forces of international demonstration effect. The attainment of political independence has increased the urge of the people in the developing countries to try to raise their supply of goods and services so as to catch up with the levels of living and general well being of the developed countries.

The magnitude and gravity of the problem of underdevelopment has induced economists to search for the causes of underdevelopment, examine obstacles to economic development, establish pre-requisites, formulate growth models and indicate the path and policy instruments for accelerating the process of economic development. In the growing literature on the process of economic development, the importance and dominant place of agriculture has been recognised. This will become even clearer when the history of Uganda's development is traced, for it is said that:

"Uganda offers an example par excellence of an under-developed country; its economy answers perfectly to the text-book description of a low income country." 1/

The salient characteristics of the Ugandan economy which are of agricultural significance will be described below.

The agricultural development as indeed the general development of Uganda is very recent and started with the coming of the Europeans. Uganda being a non-maritime country was never visited by the European until late nineteenth century. The first European, Speke, visited Uganda in 1862 and Sir Gerald Portal claimed it a British Protectorate in 1894. No stable administration was established until 1900 when Sir Harry Johnston, a Commissioner of the Protectorate made agreements with the rulers of the former Kingdoms.

Thus the agricultural development of Uganda starts with the coming of the Europeans since before that time the economy of Uganda was wholly subsistence agriculture requiring simple investment in form of hand implements and human labour. And because of the long distance over rough terrain, no international trade in agricultural products existed. Some small trading was

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1/ GHAI, D.P. Taxation for Development. A Case Study of Uganda. East African Publishing House, Nairobi, 1966, p.13.

was carried on by the Arabs, mainly in ivory and slaves, the slaves acting as the carriers of the ivory to the Coast. But it was with the establishment of the British rule, the ending of religious conflicts, the building of the railway which brought the country into effective contact with the outside world and the introduction of export crops that the process of economic development was really started. According to R. Oliver, the missionary movement was relatively most powerful during the early years of contact and that:

> "While the embryo administrations were engaged in the prosaic tasks of establishing law and order, providing communications and wrestling with the most elementary problems of taxation and justice, the missions, already fledged, were directing great popular movements in religion and education, were introducing western medicine and promoting new and revolutionary economic activities" 1/

and K. Ingham states that:

> "it was the desire to relieve the Imperial Government of financial responsibility rather than any positive policy of development and exploitation which aroused official interest in the economic growth of the Protectorate" 2/

1/ OLIVER, R. The Missionary Factor in East Africa, Longmans, Green & Co., London, 1952, p.289.

2/ INGHAM, K. A History of East Africa, Longmans, London, 1962, p.225.

Other factors which favoured the economic development of Uganda were the need to open up markets for industrial products and to find sources of raw materials such as cotton whose markets were buoyant and prices were rising. 1/

Characteristics of the Uganda Economy:

The Ugandan economy is dominated by the agricultural sector which contributes more than 50 per cent of the gross domestic product. Table I-1 shows the growth of the gross domestic product at factor cost by industry at current prices between 1954 and 1966. 2/ The monetary gross domestic product increased from £93.0 million in 1954 to £168 million in 1966, an increase of some £75 million or at the rate of 5.1 per cent per annum. The agricultural product in the monetary sector increased from £51.3 million in 1954 to £67 million in 1966, an increase of £15.7 million, representing an average increase of about 2.3 per cent per annum which is less than the overall rate of growth of the monetary sector.

The percentage share of agriculture in the monetary economy which was 55 per cent in 1954 gradually decreased to a low figure of 38 per cent in 1965 and nearly 40 per cent in 1966 indicating

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1/ EHRLICH, C. "The Uganda Economy 1903 - 1945" in Harlow, V. (Ed.) History of East Africa, Vol.II. Oxford University Press, 1965, p.399.

2/ The official statistics on gross domestic product by industry starts with 1954.

T A B L E I - 1

GROSS DOMESTIC PRODUCT AT FACTOR COST BY INDUSTRY (CURRENT VALUE) *

(£'000)

Monetary Economy	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966
Agriculture	51,342	53,626	49,883	54,739	50,949	50,937	49,539	48,688	44,026	57,440	60,531	56,890	67,019
Cotton ginning, coffee curing, sugar manufacturing	3,826	4,249	4,631	4,919	4,276	4,218	3,880	4,165	3,572	5,678	5,748	5,502	5,597
Forestry, Fishing and Hunting	1,416	1,506	1,883	1,785	2,005	2,054	2,303	2,031	2,428	2,390	2,395	2,442	2,656
Mining and Quarrying	858	1,071	1,140	1,463	1,580	2,030	2,232	2,305	2,611	2,778	5,297	7,260	6,461
Manufacture of Food Products	1,509	1,374	1,364	1,482	1,492	1,277	1,235	1,294	1,278	1,256	1,725	1,919	2,102
Miscellaneous Manufacturing	3,797	5,403	5,699	4,649	4,493	4,564	4,810	4,969	4,927	5,450	6,198	8,549	9,887
Electricity	999	1,193	1,483	1,752	1,929	1,777	1,939	2,214	2,463	2,728	2,921	3,285	3,802
Construction	3,926	4,343	5,356	3,912	4,191	3,833	3,899	3,550	3,908	3,453	3,482	4,594	4,579
Commerce	11,765	12,910	13,514	14,706	13,719	14,057	14,392	14,516	14,458	18,382	19,553	20,993	24,281
Transport and Communication	3,671	4,334	4,189	4,628	5,252	5,551	6,187	5,887	5,815	6,166	6,161	6,539	7,306
Government	2,319	2,995	3,388	3,737	3,664	3,899	4,165	4,232	4,901	4,623	6,012	6,494	6,986
Local Administrations	947	1,265	1,560	1,777	1,907	2,144	2,364	2,402	2,357	2,384	2,859	3,237	2,763
Miscellaneous Services	5,238	6,372	7,024	7,768	8,130	8,454	10,516	11,560	11,548	12,089	13,976	17,477	19,796
Rents	1,409	1,626	2,091	2,504	3,135	3,187	3,354	3,357	3,636	3,756	3,930	4,330	4,778
Total Monetary Economy	93,022	102,267	103,205	109,221	106,720	107,982	110,815	111,170	107,928	128,597	140,788	149,511	168,013

* Source: Uganda Government: Statistical Abstracts.

TABLE I - 1 (Continued)

GROSS DOMESTIC PRODUCT AT FACTOR COST BY INDUSTRY (CURRENT VALUE)*

(£'000)

Non-Monetary Economy	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966
Agriculture	34,998	36,676	36,886	34,851	37,725	36,457	36,357	39,871	42,611	40,730	47,263	63,769	55,140
Forestry and Fishing	2,642	3,246	3,585	3,917	4,219	4,530	4,953	5,372	6,127	6,598	7,056	9,524	10,025
Total Non-Monetary Economy	37,640	39,922	40,471	38,768	41,944	40,987	41,310	45,243	48,738	47,328	54,319	73,293	65,165
Grand Total	130,662	142,189	143,676	148,569	148,664	149,969	152,125	156,413	156,666	175,925	195,107	222,804	233,178
	Percentage of Monetary G.D.P.												
Agriculture	55.19	52.44	48.33	49.84	47.74	47.17	44.70	43.80	40.79	44.67	42.99	38.05	39.89
Cotton ginning, coffee curing and sugar manufacture	4.11	4.15	4.89	4.48	4.01	3.91	3.50	3.75	3.31	4.42	4.08	3.68	3.33
Forestry, Fishing and Huting	1.52	1.47	1.82	1.63	1.88	1.90	2.08	1.83	2.25	1.86	1.70	1.63	1.58
	Percentage of Total G.D.P.												
Agriculture	66.06	63.51	60.39	60.29	59.65	58.27	56.46	56.62	55.30	55.80	55.25	54.15	52.39

some degree of diversification and the relative expansion of other sectors. For example, the manufacturing, commercial and miscellaneous services sectors which accounted for 5.7; 12.6; and 5.6 per cent respectively of the monetary gross domestic product in 1954 increased their shares to 7.1, 14.5 and 11.8 per cent respectively in 1966. The share of the manufacturing sector which together with the processing of agricultural products accounts for over 90 per cent of the gross output of the industrial sector, has been steadily increasing as has general industrial development.

The agricultural product in the non-monetary economy has increased from about £35 million in 1954 to £55 million in 1966, an increase of some £20 million or 57.1 per cent, representing an average growth rate of 3.9 per cent per annum. Agriculture accounts for nearly 90 per cent of the non-monetary gross domestic product which formed 28.8 per cent of the total gross domestic product in 1954 and 27.9 per cent in 1966. This shows that there is still a high proposition of subsistence production and the total contribution of agriculture, both monetary and non-monetary has decreased from 66 per cent in 1954 to 52 per cent in 1966. At constant 1960 prices the percentage share of agriculture in the gross domestic product has slightly decreased from 58 per cent in 1954 to about 54 per cent in 1966. (Table I.2).

Unlike many other developing countries, Uganda does not possess large mineral resources and the only important mining

T A B L E I - 2

GROSS DOMESTIC PRODUCT AT FACTOR COST BY INDUSTRY *

(Monetary and Non-Monetary at 1960 Prices)
(£'000)

Industry	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966
Agriculture	68,373	69,436	71,694	75,919	76,143	83,593	85,896	81,991	82,733	92,432	97,523	99,458	103,399
Cotton ginning, coffee curing, sugar and food manufacture	5,449	5,671	5,876	6,632	6,189	5,360	5,115	5,717	5,572	7,488	8,083	8,076	8,328
Forestry, Fishing and Hunting	5,692	6,000	6,480	6,578	6,719	6,866	7,256	7,360	7,592	7,622	7,846	7,943	8,477
Mining and Quarrying	939	1,197	1,321	1,661	1,980	2,145	2,252	2,469	2,776	2,892	3,217	3,084	3,018
Miscellaneous Manufacturing	3,071	4,700	5,986	5,275	5,080	4,706	4,810	4,839	4,612	4,584	4,664	5,466	6,321
Electricity	635	899	1,098	1,367	1,664	1,788	1,939	2,031	2,140	2,399	2,339	2,688	3,270
Construction	5,242	5,696	6,666	4,801	4,988	4,329	3,899	3,524	3,702	3,270	3,148	4,027	3,687
Commerce	9,367	10,722	11,371	12,980	12,601	13,153	14,392	14,707	15,073	17,750	18,829	20,525	21,678
Transport and Communications	3,742	4,411	4,413	4,757	5,147	5,458	6,187	6,064	5,861	6,399	6,714	7,209	7,863
Central and Local Governments	6,087	6,428	6,759	6,956	6,498	6,867	6,529	6,213	6,209	5,548	6,548	6,204	6,542
Miscellaneous Services and rents	10,236	11,429	11,959	12,306	13,231	13,311	13,870	14,231	13,974	14,350	15,285	17,943	18,829
TOTAL	118,803	126,589	133,614	139,255	140,240	147,376	152,125	149,146	150,244	164,734	174,196	182,623	191,406
G.D.P. in £ per Capita	20.7	21.5	22.1	22.5	22.1	22.6	22.8	21.8	21.4	22.9	23.6	24.2	24.7
	Percentage of G.D.P.												
Agriculture	57.6	54.9	53.7	54.5	54.3	56.6	56.5	55.0	55.1	56.1	56.0	54.5	54.0
Cotton ginning, coffee curing, sugar and food manufacture	4.6	4.5	4.4	4.8	4.4	3.6	3.4	3.8	3.7	4.5	4.6	4.6	4.4
Forestry, Fishing and Hunting	4.8	4.7	4.8	4.7	4.8	4.7	4.8	4.9	5.1	4.6	4.5	4.3	4.4

* Source: Uganda Government. <u>The Real Growth of the Economy of Uganda 1954-1962 and Statistical Abstracts</u>.

activity is for copper in the foothills of the Rwenzori mountain. The value of mineral exports reached the highest value of £8.3 million in 1965 or 11.5 per cent of the value of total exports. In the normal course of development, the structure of an economy undergoes substantial change which results in the relative contribution of agriculture to total output and employment declining and that of manufacturing increasing. These changes come about as a result of changes in the resource ratios as capital accumulation and technical progress not only change the input-output coefficients but also the product mix. These changes have gone so far that in most developed economies the contribution of agriculture to gross domestic product is usually less than 10 per cent and even in those developed countries in which agriculture still plays a major part, such as Denmark and New Zealand, the agricultural contribution to the total output is less than 20 per cent.

Table I - 3 gives the industrial origin of the gross domestic product at current factor cost for some African countries for 1966.[1]

Only two of the countries, Libya and Zambia, did agriculture contribute less than 10 per cent of the gross domestic product mainly because of their large mining sector, petroleum in Libya and copper in Zambia. The contribution made by the manufacturing industry in Zambia was about the same percentage as that of Uganda,

T A B L E I - 5

GROSS DOMESTIC PRODUCT BY INDUSTRY AT CURRENT FACTOR COST, 1966. (Percentage) *

Country	Agriculture	Mining	Manufacturing	Ratio of Agriculture to Manufacturing
Burundi	72.4	N.A.	4.1	17.1
Tanzania	53.5	2.6	5.9	9.1
Ethiopia	63.7	0.3	7.3	8.7
Sudan	50.7	0.1	6.5	7.8
Uganda	58.5	2.4	9.4	6.2
Nigeria	51.3	4.8	8.3	6.1
Liberia	28.1	30.9	4.8	5.9
Ivory Coast	40.9	0.5	11.8	3.5
Kenya	35.7	0.4	13.1	2.7
Algeria	19.0	23.7	7.2	2.6
Libya	4.4	55.4	2.8	1.6
Congo (Kinshasa)	30.8	8.2	20.9	1.5
Zambia	9.5	37.2	9.0	1.1

* Source: The Table derived from United Nations, Economic Commission for Africa : _Economic Conditions in Africa in Recent Years,_ (E/CN.14/435) Addis Ababa, 1968, Table 6.

being 9 per cent of the gross domestic product. Of all the countries studied, the agricultural contribution to gross domestic product was greater than 30 per cent in 23 countries, greater than 40 per cent in 14 countries and greater than 50 per cent in 11 countries. 1/

The most important factor which has influenced the growth of the Uganda economy has been changes in the value of total exports of which agricultural products accounted for 97 per cent in 1949 and 79 per cent in 1966. Table I - 4 shows the growth of monetary gross domestic product, exports, government expenditure, gross capital formation and retained imports for 1946 - 1966 period.

As can be seen from Tables I - 4 and I - 5 the economic growth of Uganda during the period was fast between 1946 to 1952 and slowed down considerably after 1952 and suffered serious retardation between 1957 and 1962. After 1962, the economy resumed its rapid expansion under the impact of an abrupt rise in export earnings. The importance of total export earnings is clearly demonstrated in Table I - 5 which shows that during the early years of the period, the percentage of total export earnings to monetary gross domestic product increased from 54.2 in 1946 to a maximum of 61.5 per cent in 1951, then decreased gradually

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1/ United Nations, Economic Commission for Africa: Economic Conditions in Africa in Recent Years, (E/CN.14/435) 1968, p.19.

TABLE I - 4

[redacted] OF THE UGANDA ECONOMY: 1946 - 1966 * 1/

(£'million)

Year	Monetary G.D.P.	Exports	Government Expenditure	Gross Capital Formation	Retained Imports
1946	21.4	11.6	N.A.	N.A.	6.1
1947	24.6	13.6	4.5	N.A.	7.5
1948	30.3	17.1	6.5	N.A.	10.4
1949	42.8	26.6	6.7	N.A.	14.0
1950	54.3	32.9	8.0	N.A.	17.8
1951	83.8	51.5	12.4	N.A.	23.8
1952	86.3	51.0	16.0	N.A.	26.1
1953	76.3	40.4	17.4	N.A.	28.6
1954	92.8	48.1	19.1	18.6	28.0
1955	102.0	49.8	22.0	23.2	37.5
1956	102.8	44.9	23.5	21.8	32.2
1957	109.4	51.2	24.8	20.4	34.4
1958	105.9	51.6	25.6	19.6	33.3
1959	108.0	47.3	25.3	17.1	30.9
1960	110.8	48.3	25.8	19.0	31.3
1961	111.2	46.1	28.7	17.3	31.9
1962	107.9	44.7	32.3	17.7	30.9
1963	128.6	59.7	33.2	20.0	37.9
1964	140.8	74.1	41.4	24.2	44.4
1965	149.5	72.4	49.9	32.3	56.3
1966	168.0	76.4	56.5	32.0	58.2

* Source: GHAI, D.P. op.cit., p.17 and Uganda Government: Statistical Abstracts

1/ Because of the different sources of data and the rounding off, some of the figures in this table do not agree with the figures in other tables, the discrepancy however is very slight.

T A B L E I - 5

GROWTH OF THE UGANDA ECONOMY 1946 - 1966 AS PERCENTAGE OF MONETARY G.D.P.

Year	Total Exports	Government Expenditure	Gross Capital Formation	Net Imports
1946	54.21	N.A.	N.A.	28.50
1947	55.28	18.29	N.A.	30.49
1948	56.44	21.45	N.A.	34.32
1949	62.15	15.65	N.A.	32.71
1950	60.59	6.20	N.A.	32.78
1951	61.46	14.80	N.A.	28.40
1952	57.76	18.12	N.A.	29.56
1953	52.95	22.80	N.A.	37.48
1954	51.83	20.58	20.04	30.17
1955	48.82	21.57	22.75	36.76
1956	43.68	22.85	21.20	31.32
1957	46.80	22.67	18.65	31.44
1958	48.73	24.17	18.51	31.44
1959	46.90	23.43	15.83	28.61
1960	43.59	23.29	17.15	28.25
1961	41.46	25.81	15.56	28.69
1962	41.43	29.94	16.40	28.64
1963	46.42	25.82	15.55	29.47
1964	52.63	29.40	17.19	31.53
1965	48.43	33.38	21.61	37.66
1966	45.48	33.63	19.05	34.64

to 41.4 per cent in 1962, the lowest figure. In 1964, the total export earnings amounted to £74.1 million or 52.6 per cent of the monetary gross domestic product.

Closely connected with total export earnings, are the export taxes which form an important source of government revenue. These export taxes which amounted to £1.0 million in 1947 or 19 per cent of the total revenue, increased to £8.1 million or 51 per cent of the total revenue in 1951 and reached a maximum of £9.7 million or 22.7 per cent of the total revenue in 1964/65 financial year. This again demonstrates the overwhelming influence of agricultural export earnings on the growth of the Uganda economy.

As regards employment, the majority of the population in Uganda are either self-employed deriving their livelihood from agricultural activities or part-time employed in agriculture. The number of people recorded as employed for wages has gone up and down between 215,408 in 1951 and 246,029 in 1965, an increase of only 30,621 people or 14.2 per cent representing an annual increase of 0.9 per cent. Table I - 6 shows the total reported employment for wages which in 1959 numbered 239,460, representing 6.5 per cent of the total adult population. As will be demonstrated later, with limited employment opportunities elsewhere agriculture has to provide more and more employment for the increasing population.

<u>The Role of Agriculture in the Economic Development:</u>

The discussion in the preceding section has indicated how the growth of the economy of Uganda has been determined and greatly influenced by the growth and output of the agricultural sector. Although the developing countries are by definition mainly engaged in agriculture and other primary activities such as mining, fishing and hunting, theories of economic development differ on the relative emphasis they place on the development of the agricultural sector <u>vis-a-vis</u> other sectors such as manufacturing industry. Some economists having been impressed by the fact that the more developed the country, the smaller is the relative importance of its agricultural sector, jump to a policy conclusion that greater emphasis must be placed on industrial development rather than agriculture. This kind of reasoning invariably leads to the common debates in the literature concerning the questions of agriculture versus industry, export promotion versus import substitution and labour intensive versus capital intensive investment. This kind of dichotomy is unnecessary.

The proponents of emphasis on industry argue that industrialization offers substantial benefits of a dynamic nature that are important for bringing about structural transformation and economic growth. They argue that industry with its modern technology will breakthrough the entire social fabric of life and traditionalism in the rural areas which are inimical to economic development and place people in an entirely new environment. This ignores the fact that agricultural development affects many more people and historically the introduction of cash crops with the resultant increase in cash incomes has led to increased commercial-mindness and savings of the farmers have been used in trade, small industries and education.

Industrialisation has also been advocated on the ground that it can by absorbing the surplus labour from agriculture reduce the population pressure on the land and thereby increase the productivity of those who remain in agriculture. This argument assumes the existence of disguised unemployed labour, shortage of land, low labour productivity in agriculture as compared to industry and labour cost as a key component of the total industrial costs. These conditions do not exist in Uganda although land shortage occurs in a few areas such as Kigezi and Bugisu where also disguised unemployment might occur.[1] But the extent to which industry would absorb the surplus labour depends on the rate of growth of industry, rate of growth of employment as determined by wage and capital relationships within the industry and the availability of complementary inputs such as capital and managerial skills and a market for the industrial products. So, even if, the labour cost is zero, industry is unlikely to expand at rates much above the present growth rate which is supported by high protective tariffs. As can be seen from Table I - 6 reported employment for wages has been fairly constant over the period despite the expansion of the manufacturing industries. Employment in the manufacturing industries varied between 15,568 in 1952 and 20,865 in 1966. (Table I - 17). Thus, the increase in population in Uganda must have been absorbed in agriculture and therefore for rapid absorption of excess labour, agricultural development is the only possibility and should be given top priority where land shortage does not preclude it.

Industrialisation is also advocated on the grounds that industry is characterised by increasing returns and external economies because of specialisation, division of labour and technological advance. According to Raul Prebisch, industrialisation is an inescapable part of the process of change accompanying an improvement in per capita income and that active population tends to shift from occupations with a relatively low income elasticity of demand mainly primary production to industry and other activities where the income elasticity of demand is high. 1/ It is also argued that industries stimulate the growth of other industries by supplying products which can form the basis of further industry or by providing a market for the products of other industries thus fostering both forward and backward linkages.

1/ MEIER, G.M. Leading Issues in Development Economics. Oxford University Press, New York, 1964, p.286.

T A B L E I - 6.

TOTAL REPORTED EMPLOYMENT FOR WAGES *

	1951	1952	1953	1954	1955	1956
Private Sector						
Africans	119,251	117,305	119,410	126,735	134,063	129,915
Asians)	6,122	6,328	4,870	5,536	5,697	5,737
Europeans)			1,720	1,841	1,982	1,987
Public Sector						
Africans	87,881	89,548	95,116	98,047	92,047	95,814
Asians)	2,154	2,798	1,816	1,911	1,846	1,737
Europeans)			1,140	1,585	1,629	1,880
Total Employment						
Africans	207,132	206,853	214,526	224,782	226,264	225,729
Asians)	8,276	9,126	6,686	7,447	7,543	7,474
Europeans)			3,130	3,426	3,611	3,867
Grand Total	215,408	215,979	224,342	235,655	237,433	237,070

* Source: Uganda Government: Statistical Abstracts.

Notes: Employees in peasant agriculture and domestic households have been excluded and up to 1959 enterprises employing less than 5 employees were excluded.

T A B L E I - 6. (Continued)

TOTAL REPORTED EMPLOYMENT FOR WAGES*

	1957	1958	1959	1960	1961	1962
Private Sector						
Africans	132,310	131,169	126,338	133,319	125,635	126,140
Asians)	7,427	7,923	8,384	8,629	8,521	8,093
Europeans)	2,392	2,383	2,517	2,631	2,516	2,337
Public Sector						
Africans	94,606	97,230	97,922	95,570	95,364	90,633
Asians)	1,842	2,039	1,959	2,008	1,950	1,812
Europeans)	2,060	2,250	2,340	2,382	2,121	1,804
Total Employment						
Africans	226,916	228,399	224,260	228,889	220,999	216,773
Asians)	9,269	9,962	10,343	10,637	10,471	9,905
Europeans)	4,452	4,633	4,857	5,013	4,637	4,141
Grand Total	240,637	242,994	239,460	244,539	236,107	230,819

T A B L E I - 6. (Continued)

TOTAL REPORTED EMPLOYMENT FOR WAGES

	1963	1964	1965	1966	1967
Private Sector					
Africans	122,944	120,718	136,017	143,167	150,173
Asians	7,988	7,960	8,539	8,948	9,495
Europeans	2,237	2,052	2,138	2,170	2,439
Public Sector					
Africans	85,406	91,628	92,169	88,706	91,767
Asians	1,674	1,425	1,643	1,635	1,604
Europeans	1,400	1,111	1,181	1,403	1,321
Total Employment					
Africans	208,350	212,346	228,186	231,873	241,940
Asians	9,662	9,385	10,182	10,583	11,099
Europeans	3,637	3,163	3,319	3,573	3,760
Grand Total	221,649	224,894	241,687	246,029	256,799

Albert O. Hirschman, considers that agriculture in general and subsistence agriculture in particular are characterised by the scarcity of linkage effects. In his opinion, all primary production excludes any substantial degree of backward linkage although he recognises that the introduction of modern methods does involve considerable purchases of better variety seeds, fertilizers and insecticides. He concludes that this is a major defect of the agricultural sector and writes:

> ".....agriculture certainly stands convicted on the count of its lack of direct stimulus to the setting up of new activities through linkage effects; the superiority of manufacturing in this respect is crushing". 1/

The validity of this criticism depends on the stage of economic development a country has attained. In the early stages of development, when new industries are being established for import substitution, the size of the market and the supply of investment funds may be more important than specific links, through the sale of products to other industries or the purchase of inputs from them. Certainly, in the case of Uganda because of her geographical position, the establishment and expansion of the manufacturing industry has to be geared to the home and East African market. And since, in Uganda, one of the main determinants of the size of the market is the incomes of the rural population, the income which is mainly derived from

1/ HIRSCHMAN, A.O. The Strategy of Economic Development, Yale University Press, New Haven, 1961, pp.109 - 110.

agriculture, there is therefore a strong case for putting emphasis first on agricultural development. In Uganda, though the backward linkage effect of agriculture may be low because of limited use of purchased inputs such as fertilisers, better variety seeds, agricultural implements; its forward linkage effect should be reasonably high as exemplified by the establishment of textile factories; vegetable oil mills, and food processing industries all of which are agricultural raw materials.

Other a priori arguments for industrialisation are based on the terms of trade and export instability of the primary products. Industrialisation is advocated as a means of diversifying the economy and reducing the country's dependency on a few exports whose prices tend to fall in relation to the prices of the manufactured goods which the country imports to the great benefit of the developed countries which produce the manufactured goods. 1/ It will be argued later that economy of Uganda has suffered adversely through the instability of the prices of the main export crops namely cotton and coffee, nevertheless it would take a long time before industrialisation would offer the required stability.

1/ For a full discussion of this thesis, see Raul Prebisch "The Economic Development of Latin America and its Principal Problems", U.N. Economic Commission for Latin America, 1950, and "Commercial Policy in the Underdeveloped Countries" American Economic Review, Papers and Proceedings, 1959.

The supporters of more emphasis on agriculture as opposed to industry base their arguments on the considerations that agriculture being the main industry of major proportion in the developing countries, has to expand first in order to provide the required impetus for the expansion and growth of other sectors; that it is necessary to modernise and mechanise agriculture in order to free labour for industrial development; that agricultural production can be raised rapidly using little capital investment; that large scale industrialisation is precluded by lack of capital, managerial and entrepreneurial ability and inadequate infrastructure. The development of the rural sector is considered capital saving as it requires less overhead costs for housing, roads and social facilities than for urban development.

Agricultural development is also advocated as a means of decreasing imports and increasing exports and foreign exchange earnings. Agricultural development through its contribution to personal incomes creates a market for the products of the local manufacturing industry. These and other arguments for the development of agriculture will be illustrated when the role of agriculture in the economic development of Uganda is discussed. It will suffice here to repeat that

> "industrial development versus agriculture has become a false issue, and the concern now is rather with the interrelationships between industry and agriculture and the contribution that each can make to the other. It has

> also become apparent that the relative emphasis to be given to industry and agriculture must vary according to the country and its phase of development." 1/

Many students of development economics have long recognised the prior importance of agricultural surplus and high agricultural productivity as preconditions for economic development. In fact, William H. Nicholls who has been charged with "propagating the physiocratic doctrine that food comes first" has emphasized the importance of an agricultural surplus as a precondition and sustaining force for economic development. 2/ He defines agricultural surplus simply as the physical amount by which total agricultural production exceeds total food consumption by the agricultural population which produces it. This definition should be extended to cover all agricultural products in addition to food which are produced by the use of labour.

Using the wider definition of agricultural surplus one can say that historically the economic development of Uganda has been based on agricultural surplus. For as early as 1925 cotton

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1/ MEIER, G.M. op.cit., p. 285.

2/ NICHOLLS, W.H. "An 'Agricultural surplus' as a factor in Economic Development". The Journal of Political Economy, Vol. LXXI, No. 1., 1963, pp. 1 - 29.

"The Place of Agriculture in Economic Development" in Eicher, C and Witt, L (Eds.) Agriculture in Economic Development, McGraw-Hill Book Company, New York, 1964.

alone accounted for over 94 per cent of the total domestic exports and in 1954, cotton and coffee accounted for over 55 per cent of the gross domestic product by African enterprises. The export taxes on these two crops accounted for as much as 51 per cent of the total government revenue in 1951.

The agricultural contribution to the economic development of Uganda has been in the usual form of source of food and raw materials; source of export earnings and capital; market for non-farm products and source of labour and employment.

1. Agriculture as a source of food

Without repeating the physiocratic doctrine that 'food comes first' one can show the important role agriculture must play in Uganda as a source of food not only for the people engaged in farming but also for the population engaged in non-agricultural activities such as industry and mining. Economic development has brought about increased population growth in the initial stages due to lower mortality rates resulting from improved health services and this increase in the population has to be fed. The 1959 Uganda census indicated that the crude death rate had declined by 20 per cent from the 1948 census figures and it is hoped that the 1969 census figures will show a further decline in mortality rate. It is also known that with development and increase in per capita income, diets improve as people take more and better food per capita. The proportion of rich animal protein foods such as meat, milk, butter and eggs increases as the proportion of starchy foods such as grains and potatoes in the diets decreases. These improved diets require more and better food supplies.

Apart from autonomous changes in demand which are presumably less important, the annual rate of increase in demand for food is given as D = p + ng, where p and g are the rate of growth of population and per capita income, and n is the income elasticity of demand for agricultural products. 1/ Assuming that the income elasticity of demand for food in Uganda is as high as the suggested figure of 0.8 for the Mbale, Fort Portal and Gulu, and using the rate of growth of per capita gross domestic product at factor cost of 1.5 2/, and the population growth rate of about 3 per cent per annum, then the annual rate of increase of demand for food in Uganda is of the order of 4.2 per cent a year, that is D = 3 + (.8 x 1.5).

1/ MEIER, G.M. op. cit., p.291.

2/ From Table I - 2, the per capita gross domestic product at constant 1960 prices increased from £20.7 in 1954 to £24.7 in 1966 representing an annual growth rate of 1.5 approximately.
The Income elasticity figure comes from HOWE, C.W., "An analysis of African Household Consumption and Financial Behaviour in Kenya and Uganda". The East African Economic Review. Vol. 4 No. 1, 1968, p.60.

Failure of the agricultural sector to expand to meet this food demand can seriously impede economic growth by leading to higher prices for food and/or increased imports of food. The higher food prices would lead to demands for higher wages which would if granted lead to higher prices for wage goods and slower growth of employment. The increased imports of food would lead to the loss of foreign exchange which could otherwise be used for the importation of capital and incentive goods which could not be produced locally. Uganda imports very little food from within and outside the East African Community, and in 1954 out of the total net imports of £28.4 million, some £2.6 million or 9.2 per cent was in the category of food. The net imports from outside the Community of food commodities was valued at £1.3 million or 4.5 per cent of the total net value of imports in 1954. In 1966, the proportion of net imports accounted for by food commodities was 9 per cent of the total net value of imports and amounted to £5.3 million out of £59.4 million. The net imports of food commodities from outside the Community were valued at £2.6 million or 4.3 per cent of the total net value of imports.

Uganda's agriculture, therefore, has met almost all the food requirements of the population and contributed to the economic development of the country through food production and consumption. The standard of food consumption is of special importance because of its direct effect on human welfare and its indirect effect on output through its influence on the capacity of man to perform work. 1/ It should also be noted that both the supply of calories and proteins has been adequate for the country as a whole. 2/

2. Source of Raw Materials:

In the early stages of economic development, agriculture plays another vital role as a source of raw materials for industrial development. According to Lewis industrialisation usually starts in one of the three ways:

> " (1) with the processing for export of primary products (agricultural or mineral) which were previously exported in a crude state; or
> (2) with manufacturing for an expanding home market; or
> (3) with the manufacture for export of light manufactures, often based on imported raw materials." 3/

1/ MELLOR, J.W. The Economics of Agricultural Development, Cornell University Press, Ithaca, New York, 1966.

2/ CLEAVE, J.H. "Food Consumption in Uganda" in East African Journal of Rural Development, Vol. I , No. 1, 1968, pp. 70 - 87.

3/ LEWIS, W.A. "Industrialisation in the Gold Coast (Ghana)" in Meier, G.M. op. cit., p.322.

In Uganda, industrialisation certainly started with the processing of agricultural products, especially cotton ginning for export.

After the introduction of cotton in 1904, ginneries were established for processing the crop, by 1907 there were three ginneries around Kampala and in 1919 there were 58 cotton ginneries of which 18 were in Buganda and 40 in the Eastern Region. The number of ginneries continued to increase as cotton production expanded. Similarly, the number of coffee processing factories has increased with the increase of coffee production.

Agricultural processing helps both in providing a market for the primary produce and broadening the base for industrial development. Modern agricultural processing has also the advantage of spreading technical knowledge, training of labour and the acquisition of managerial and organisational skills which could be used elsewhere. Agricultural processing makes a contribution to economic development by increasing the value per unit weight of the product and thus adding to the net value of export earnings. Processing also adds value to the products sold on the domestic market and enables partial or complete import substitution. The processing adds value to agricultural products mainly through increasing the 'form utility' of the product. This includes improvements in quality and palatability, reduction in weight and waste percentage and improvement in uniformity and visual appeal. 1/

From Table I - 1, it can be seen that cotton ginning, coffee curing and sugar manufacturing accounted for £3.8 million or 4 per cent of the monetary gross domestic product in 1954 and this has gradually increased to £5.6 million in 1966 although the percentage contribution decreased to 3.3 per cent. The contribution of the manufacture of food products has fluctuated between £1.5 million in 1954 and £2.1 million in 1966. Employment in agricultural processing and food manufacturing industries has fluctuated between 17,489 in 1952 and 18,408 in 1966 with the lowest figure of 12,499 in 1958. (see Table I - 18p.?)

Although the industrial sector is still very small, it occupies an important place in the development strategy as an essential ingredient for a rapid and sustained economic growth. Manufacturing and agricultural processing are the main sub-sectors of the industrial sector, contributing over 96 per cent of the gross output of the industrial sector in 1966. 2/ The

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1/ For a full discussion see BELSHAW, D.G.R., "Agricultural Processing Export Earnings and Import Substitution; Some Economic issues" Crop and Livestock Processing in Uganda, Conference at Makerere U.C., 1967.

2/ Uganda Government, Background to the Budget, 1968-69, op. cit., p.16.

following Tables show the performance and the importance of the agricultural processing and manufacturing industries.

Table I - 7

INDUSTRIAL GROSS OUTPUT AT CURRENT PRICES, 1963 & 1966 *

	1963 Shs. Million	1963 Percentage	1966 Shs. Million	1966 Percentage
Processing of Agricultural Products	792	52.3	882	43.5
Manufacturing	666	44.0	1,067	52.6
Electricity	54	3.5	76	3.8
Quarrying	2	0.2	5	0.2
TOTAL	1,514	100.0	2,029	100.0

* Source: Uganda Government: Background to the Budget 1968-69, Government Printer, Entebbe, 1968, p.15.

Table I - 8

VALUE ADDED BY INDUSTRY 1963 & 1966 *

	1963 Shs. Million	1963 Percentage	1966 Shs. Million	1966 Percentage
Processing of Agricultural Products	90	24.7	67	14.2
Manufacturing	225	61.8	333	70.8
Electricity	48	13.2	68	14.5
Quarrying	1	0.3	2	0.4
TOTAL	364	100.0	470	100.0

* Source: Uganda Government: Background to the Budget 1968-69, op. cit., 1968, p.15.

From Table I - 7 above, it can be seen that although the percentage share of agricultural processing of the total output decreased from 52.3 to 43.5 per cent, the absolute value increased from 792 to 882 million shillings. The value added and the percentage share of agricultural processing industries decreased during the period 1963 to 1966 as a result of the variation in prices and quantities of the agricultural products. Similarly, both the gross output and the value added of the manufacturing sub-sector were affected in 1966 when the world price of blister copper fell. The production of blister copper is the largest single element in the manufacturing sub-sector.

To the extent that agriculture attracts other industries such as textiles, oil milling and food manufacturing industries which use the agricultural output as their inputs, the processing activities provide forward linkages. Other industries may be set up whose products such as fertilisers, pesticides and insecticides are specifically intended as inputs for the agricultural sector, these provide the backward linkages. These linkages as we have discussed, are relatively weak compared to the linkage effects of the manufacturing sector.

3. Source of Export Earnings

In Uganda the introduction and expansion of the production of export crops mainly cotton, coffee, tea and tobacco has been the dynamic element in the development process of the economy. It has been generally recognised that the expansion of agricultural exports represents one of the most promising means of increasing incomes and augmenting foreign exchange earnings in a country stepping up its development effort as it caters for an established world market which is so large that the production of a single country such as Uganda is unlikely to affect the price of the particular commodity.

The production of export crops has the advantage that it could be superimposed on an existing system of agriculture, in fact the production of export and cash crops in Uganda has been done without any major change in the farming methods, just by adding an acre or two of cotton or coffee cultivated in the traditional manner with a hand hoe and knife. [1] Thus, the importance of agricultural exports is due in part to the fact that the expansion of export crop production represents the major possibility of increasing agricultural incomes before the country has gone through the process of structural transformation which increases the size of non-agricultural population and the effective domestic market for agricultural products.

Agricultural exports form the largest proportion of total export in the Uganda economy, as can be seen from Tables I - 9

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[1] WALKER, D. "Problems of Economic Development of East Africa" in Robinson, E.A.G. (Ed.) Economic Development of Africa South of the Sahara. Macmillan, London, 1965, p.109.

TABLE I - 9

VALUE OF TOTAL EXPORTS *

(£'000)

	1949	1950	1951	1952	1953
Agricultural Products:	22,792	28,925	46,787	47,275	34,058
Coffee	2,891	8,332	13,654	18,346	11,543
Cotton (raw)	17,343	16,698	28,742	[illegible]	16,802
Animal feeding stuffs	858	339	468	[illegible]	986
Tea	223	281	318	317	411
Sugar	53	854	596	791	604
Hides and Skins	491	754	1,269	[illegible]	876
Minerals	42	73	257	206	156
All other commodities 1/	609	3,927	4,469	5,486	6,145
	23,443	32,925	51,513	52,967	40,359

* Source: Uganda Government: Statistical Abstracts

1/ These include all domestic manufactures including textiles, domestic ware, steel doors and windows, tyres, soap, medicines, beer, cigarettes, cement, paints, timber, ivory fish, etc.

T A B L E I - 9. (Continued)

VALUE OF TOTAL EXPORTS*

(£'000)

	1954	1955	1956	1957	1958
Agricultural Products:	42,367	43,369	41,187	45,504	44,816
Coffee	13,478	20,134	15,721	21,587	20,827
Cotton (raw)	20,877	16,386	19,285	17,476	18,141
Animal feeding stuffs	1,628	1,482	1,645	1,365	1,150
Tea	960	1,084	915	1,162	1,043
Sugar	3	835	597	1,194	1,198
Hides and Skins	787	697	855	658	824
Minerals	121	122	136	1,788	2,071
All other commodities 1/	5,623	6,270	3,550	3,890	4,746
	48,111	49,761	44,873	51,182	51,633

TABLE I - 9. (Continued)

VALUE OF TOTAL EXPORTS

(£'000)

	1959	1960	1961	1962	1963
Agricultural Products:	40,472	39,509	38,361	35,779	50,204
Coffee	18,666	17,010	14,086	[illegible]	27,206
Cotton (raw)	15,428	14,930	16,716	6,860	14,380
Animal feeding stuffs	1,736	1,771	1,506	928	1,657
Tea	1,267	1,545	1,610	3,089	2,107
Sugar	616	1,455	1,601	1,628	2,128
Hides and Skins	958	1,157	823	1,179	1,072
Minerals	2,784	3,720	2,961	3,617	3,615
All other commodities[1]	4,063	5,054	4,732	5,252	5,897
	47,319	48,283	46,054	44,658	59,716

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T A B L E I - 9. (Continued)

VALUE OF TOTAL EXPORTS

(£'000)

	1964	1965	1966	1967
Agricultural Products:	60,764	56,541	60,132	61,366
Coffee	35,406	30,426	34,788	34,600
Cotton (raw)	15,857	16,768	15,345	15,161
Animal feeding stuffs	1,708	2,076	2,370	2,422
Tea	2,256	2,422	3,186	3,545
Sugar	2,175	866	236	1,420
Hides and Skins	1,181	1,277	1,797	1,307
Minerals	6,195	8,338	6,130	[illegible]
All other commodities[1]	7,118	7,561	10,112	10,135
	74,077	72,440	76,374	77,834

T A B L E I - 10

VALUE OF TOTAL EXPORTS (Percentages)

	1949	1950	1951	1952	1953
Agricultural Products	97.2	87.9	90.8	89.2	84.4
Coffee	12.3	25.3	26.5	28.3	28.6
Cotton (raw)	74.0	50.7	55.8	56.0	41.6
Animal feeding stuffs	1.1	1.0	0.9	1.5	2.4
Tea	1.0	0.9	0.6	0.6	1.0
Sugar	0.2	2.6	1.2	1.5	1.5
Hides and Skins	2.1	2.3	2.5	1.4	2.2
Minerals	0.2	0.2	0.5	0.4	0.4
All other commodities	2.6	11.9	8.7	10.4	15.2
TOTAL	100.0	100.0	100.0	100.0	100.0

T A B L E I - 10. (Continued)

VALUE OF TOTAL EXPORTS (Percentages)

	1954	1955	1956	1957	1958
Agricultural Products	88.0	87.2	91.8	88.9	86.8
Coffee	28.0	40.4	35.0	42.2	40.3
Cotton (raw)	43.4	32.9	43.0	34.2	35.1
Animal feeding stuffs	3.4	3.0	3.7	2.7	2.2
Tea	2.0	2.2	2.0	2.3	2.0
Sugar	-	1.7	1.3	2.3	2.3
Hides and Skins	1.6	1.4	1.9	1.3	1.6
Minerals	0.3	0.2	0.3	3.5	4.0
All other commodities	11.7	12.6	7.9	7.6	9.2
TOTAL	100.0	100.0	100.0	100.0	100.0

T A B L E I - 10. (Continued)

VALUE OF TOTAL EXPORTS (Percentages)

	1959	1960	1961	1962	1963
Agricultural Products	85.5	81.8	83.3	80.0	84.1
Coffee	39.5	35.2	30.5	45.2	45.6
Cotton (raw)	32.6	30.9	36.5	18.5	24.0
Animal feeding stuffs	3.7	3.7	3.3	3.1	2.8
Tea	2.7	3.2	3.5	4.7	3.5
Sugar	1.3	3.0	3.5	2.6	3.6
Hides and Skins	2.0	2.4	1.6	1.6	1.8
Minerals	5.9	7.7	6.4	6.1	6.0
All other commodities	8.6	10.5	10.3	11.9	9.9
TOTAL	100.0	100.0	100.0	100.0	100.0

T A B L E I - 10. (Continued)

VALUE OF TOTAL EXPORTS (Percentages)

	1964	1965	1966	1967	
Agricultural Products	82.0	78.1	78.8	79.5	
Coffee	47.8	42.0	45.5	44.8	
Cotton (raw)	21.4	23.1	20.1	19.6	
Animal feeding stuffs	2.3	2.9	3.1	3.1	
Tea	3.0	3.3	4.2	4.6	
Sugar	2.9	1.2	0.3	1.8	
Hides and Skins	1.5	1.8	2.4	1.7	
Minerals	8.4	11.5	8.0	7.4	
All other commodities	9.6	10.4	13.2	13.1	
TOTAL	100.0	100.0	100.0	100.0	

and I - 10 which show the value and percentage of the total exports. In the early years, almost all exports were agricultural exports, for example of the total export value of £5,097,215 in 1925, agricultural exports accounted for £5,034,379 or 98.8 percent of which some £4,808,782 or 94.3 per cent of the total exports came from cotton and cotton seed exports and only £140,019 or 2.7 per cent from coffee exports. In 1935, out of the total exports valued at £3,630,529 some £3,447,556 or 95 per cent came from agricultural exports of which £2,958,518 or 81.5 per cent was accounted for by cotton and cotton seed exports whereas some £230,950 or 6.4 per cent came from coffee exports. Agricultural exports still account for nearly 80 per cent of the value of total exports. (Table I - 10).

The value of total exports increased from £25.4 million in 1959 to £76.4 million in 1966, an increase of about £55 million, representing a growth of rate of 18.4 per cent per annum. The agricultural exports on the other hand increased from £22.8 million to £60.1 million or 14.8 per cent per annum over the same period. (Table I - 9). The lower rate of growth of agricultural export earnings is explained by the levelling off of export earnings between 1957 and 1962 caused by the severe deterioration of prices offsetting growth in production and Uganda's export price index fell by 50 per cent. 1/ The rapid growth in agricultural export earnings for the period 1946 to 1957 was caused mainly by the big rise in prices for cotton and coffee; reaching a peak of about shs.7.50 per lb. for lint in 1951 and about £500 per ton for coffee in 1954. Likewise, the recovery of agricultural export earnings after 1962 was due to a substantial increase in coffee prices and output. Thus, in Uganda, agricultural exports which form the bulk of total exports, have contributed significantly to the foreign exchange earnings which are so important for the imports of the capital goods required for economic development.

From Table I - 4 (p.12) which shows the growth of monetary gross domestic product and export earnings, and Table I - 5 (p.13) which shows export earnings as a percentage of monetary gross domestic product, it can be seen that the level of the monetary gross domestic product is mainly determined by the level of export earnings. The percentage of export earnings to monetary gross domestic product was 54 per cent in 1946 increasing to 62 per cent in 1949 and then fluctuated between that figure and 41 per cent in 1962 which is the lowest; it was 45.5 per cent in 1966. Therefore, the level of national income is to this extent

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1/ For detailed discussion of the past trends in agricultural exports, see Kyesimira, Y. Agricultural Export Development, East African Publishing House, Nairobi, 1969. Chapter 3.

T A B L E I - 11

VALUE OF MAIN CASH CROPS TO AFRICAN GROWERS *

(£'000)

Year	Coffee Arabica	Coffee Robusta	Cotton	Tobacco	Total
1946	1,109		4,002	-	5,111
1947	134	625	2,956	29	3,744
1948	145	1,443	2,340	65	3,993
1949	188	862	7,376	56	8,482
1950	215	1,820	7,334	70	9,439
1951	492	3,120	10,372	80	14,064
1952	406	3,925	11,929	88	16,348
1953	676	5,055	10,374	106	16,211
1954	1,404	6,886	12,926	112	21,328
1955	2,148	13,922	11,584	180	27,834
1956	1,350	7,992	12,576	183	22,101
1957	1,435	9,139	13,081	282	23,937
1958	1,209	10,605	12,792	330	24,936
1959	775	12,950	11,720	331	25,776
1960	1,037	12,458	10,517	169	24,181
1961	972	8,770	12,575	193	22,510
1962	1,962	11,796	6,106	292	20,156
1963 1/	2,214	16,569	12,432	339	31,554
1964	2,376	19,074	10,106	583	31,556
1965	1,444	19,793	14,709	656	36,602
1966	3,395	16,941	15,872	574	36,782
1967	2,482	12,818	10,171	796	26,267

* Source: Uganda Government: *Statistical Abstracts*

1/ Coffee includes Non-African production.

dependent and highly correlated with agricultural export earnings.

Although the surplus of food crops are sold for cash, the export crops have been the main source of cash incomes to the majority of the population. The value of the main cash crops, coffee, cotton and tobacco to African farmers has increased from £5.1 million in 1946 to £36.8 million in 1966, an increase of 10.4 per cent per annum. Table I - 11 shows the growth of value of these crops to farmers based on the fixed prices the farmers received. The main cash crops are cotton and coffee with tobacco and more recently tea supplementing them.

(a) Cotton:

Cotton which was introduced in Uganda in 1904 proved well suited to the local conditions and soon became the leading agricultural export and a major foreign exchange earner until it was overtaken by coffee in 1957. Cotton production which was about 2,000 bales in 1907 reached a pre-second World War record of 418,000 bales during the 1937/38 season and was only 227,000 bales in the 1945/46 season. The 1937/38 record was not broken until 1964/65 when 438,000 bales were produced. (See Table I - 12). Although, in the Second Five-Year Development Plan, cotton production target stands at 575,000 bales, the present production prospects are of the order of 450,000 bales.

TABLE I - 12

COTTON PRODUCTION : VOLUME AND VALUE *

Crop Year	Bales of Lint (400 lbs.each)	Average yield of Seed Cotton per Acre (lbs) 1/	Average Price to Growers per 100 lbs. Seed Cotton (Shs.)	Total Value to Growers £'000
1947/48	170,066	218	20.42	2,399
1948/49	391,240	333	29.61	7,376
1949/50	339,788	282	31.75	7,334
1950/51	346,465	301	43.16	10,372
1951/52	380,304	332	47.56	11,929
1952/53	319,992	290	48.60	10,374
1953/54	397,594	325	49.40	12,926
1954/55	299,831	227	58.81	11,584
1955/56	363,449	305	52.11	12,576
1956/57	372,185	313	53.34	13,081
1957/58	350,693	288	54.90	12,792
1958/59	400,682	263	44.20	11,720
1959/60	360,262	300	44.81	10,517
1960/61	371,022	318	52.23	12,575
1961/62	181,137	113	52.06	6,106
1962/63	358,288	257	53.56	12,432
1963/64	379,415	245	48.34	11,941
1964/65	437,931	261	54.08	15,077
1965/66	445,181	250	56.08	15,872
1966/67	426,681	243	38.42	10,171

* Source: Annual Reports of the Department of Agriculture

1/ Based on the estimated acreage by the Department of Agriculture.

Although the estimated acreage under cotton doubled between 1945 and 1966, the production increased slightly and the average yield per acre barely changed, if anything decreased. 1/ Thus, cotton production has been relatively stagnant in spite of the great advance made by research scientists in breeding higher yielding varieties of cotton and introducing better techniques of pest control by spraying. The stagnation may be explained by the failure of the peasant farmers to improve their husbandry practices by timely planting and weed control. Nonetheless, the increase in cotton production that took place meant a lot of effort by the peasant farmers and contributed a great deal to the general development of the country through increased export earnings, incomes, export duties and increased general economic activities.

1/ This is based on the Department of Agriculture's acreage estimates which were found to be 162 per cent more than the census estimates for 1963. A correction for this overestimation would increase the average yield of seed cotton per acre though the trend would remain the same assuming the same percentage of overestimation, For more details see Uganda Government: Report on Uganda Census of Agriculture, Vol.III. Government Printer, Entebbe, 1966, p.63.

(b) Coffee:

Coffee was the second major agricultural export until 1957 when it replaced cotton. In 1966, coffee exports were valued at £34.8 million or 45.5 per cent of the total value of total exports (see Tables I - 9 and I - 10). Table I - 13 shows the growth of coffee production which increased from 25,200 tons in 1947 to a maximum of 179,800 tons in 1964. The latter figure might include some coffee which was smuggled into the country from the Congo because of troubles in that country and the relatively higher domestic prices in Uganda. These figures indicate that there was a real increase in the productivity of land and labour employed in coffee production and G.B. Masefield came to same conclusion and wrote:

> "the records of acreage and exports show an apparent production of 2.5 cwt. of clean coffee per acre in 1945 and 4.1 cwt. in 1960. This is easily explicable, since in 1945 when prices were rising, a much larger proportion of the acreage was young coffee not yet in full bearing than in 1960 when prices were dropping, -------------. However, there was an undoubted real rise in yield per acre between these years, and this must largely be attributed to the improvement of standards of tree pruning -----------". 1/

Coffee as the leading agricultural export of Uganda has played a major role in the economic progress of the country.

1/ MASEFIELD, G.B. "Agricultural Change in Uganda" Food Research Institute Studies, Vol.III, No. 2, 1962, p.101.

T A B L E I - 13

COFFEE PRODUCTION *

Year	Robusta (Tons) (clean)	Arabica (Tons) (clean)	Total (Tons) (clean)
1947	22,300	2,900	25,200
1948	37,100	2,800	39,900
1949	20,900	2,500	23,400
1950	31,500	2,500	34,100
1951	41,200	3,800	45,200
1952	37,000	2,300	39,300
1953	33,300	2,400	35,700
1954	32,800	3,600	36,400
1955	73,300	6,500	79,800
1956	60,100	4,700	64,800
1957	67,700	5,500	73,200
1958	76,000	5,700	81,700
1959	101,600	6,700	108,300
1960	109,900	7,200	117,100
1961	85,900	7,000	92,900
1962	105,300	12,200	117,500
1963	153,100	9,100	162,200
1964	171,000	8,800	179,800
1965	118,600	11,800	130,400
1966	146,900	15,200	162,100

* Source: Annual Reports of the Department of Agriculture

Agricultural exports have made an enormous contribution to the economic development of Uganda through constituting a very high proportion of the monetary gross domestic product. The rate of economic growth has been accelerated by the expansion of agricultural exports especially through the multiplier effect on the gross domestic product which according to Paul G. Clark the increase in gross domestic product per unit increase in agricultural export volume is 2.07 and per unit increase in export prices 1.80. 1/ Thus, a unit increase in agricultural export volume implies a unit increase in agricultural product and leads indirectly to a further unit increase in other sector of the economy. Agricultural exports through the farmers and other savings and government revenue has direct effect on the rate of investment both in the private and public sectors.

But, Uganda's heavy reliance on a few agricultural exports, namely cotton and coffee has its disadvantages in terms of export instability. According to A.I. Macbean -

> "Uganda closely approximates the model underdeveloped country implicit in many discussions of export fluctuations. Its economic characteristics are such that export instability seems certain to have internal repercussions. Total exports form 27 per cent of G.D.P. Foreign trade, exports plus imports exceeds 45 per cent of G.D.P. and over 64 per cent of the G.D.P. of the money economy. Some 75 to 80 per cent of the export proceeds are derived from two cash crops, coffee and cotton, which are almost entirely produced

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1/ CLARK, PAUL G. Development Planning in East Africa, East African Publishing House, Nairobi, 1965, p.70.

by small-scale, family-run farming units. ------ Moreover, the exports on which Uganda depends are highly unstable." 1/

This analysis refers to the 1950 to 1960 period.

From Table I - 4 and Table I - 5 (pp. 12 + 13) it can be seen that total exports form over 40 per cent of the monetary G.D.P. and net imports about 30 per cent. From Tables I - 9 and I - 10 (pp. 34 + 38) it can be seen that in 1949 cotton and coffee accounted for over 86 per cent of the total value of exports and in 1966 their contribution had decreased to about 66 per cent indicating some degree of diversification not only of the total exports but also of agricultural exports as crops such as sugar and tea increased their relative importance. With the mining of copper at Kilembe, the value and proportion of mineral exports has increased from £42,000 or 0.2 per cent in 1949 to a maximum of £8.3 million or 11.3 per cent in 1965.

Macbean found that although annual percentage changes in export proceeds and in cash domestic product for 1950-60 are highly correlated (r=0.95), the degree of response of income to export changes was modified by fluctuations in imports which tended to absorb some of the fluctuations in exports and thereby help to reduce the impact on domestic income. He concluded that:

1/ For a full discussion of the effect of export instability on the economic development of Uganda, see Macbean, A.I. Export Instability and Economic Development. George Allen & Unwin Ltd., London, 1966, Chapter 5.

".....causes of Uganda's export instability ----- It stems mainly from specialisation on two crops, coffee and cotton, which are themselves subject to unstable world prices and rather unstable production. In the case of coffee, supply has been more important than demand in generating unstable export incomes; the reverse was true of cotton. On balance, changes in supply and changes in demand have been roughly equally responsible." 1/

In Uganda stabilisation measures have been the establishment of marketing boards and the price assistance funds and diversification. These will be discussed later. It is however, agreed that Uganda's economy suffered serious retardation in its rate of growth due to export instability between 1949 and 1962. 2/

4. Source of Capital:

The importance of capital as one of the strategic elements in the process of economic development has long been recognised. The capital requirements of a developing country that is making determined effort to achieve economic growth are enormous; local capital is required not only for the establishment and expansion of manufacturing and industrial enterprises but also for the financing of economic infrastructure and social overhead

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1/ ibid. p.150

2/ According to Y. Kyesimira, Uganda was hardest hit by export prices compared with her partners in the East African Community mainly because of the limited degree to which her portfolio of experts had been transformed. Kyesimira, Y. "Agricultural Export Development in East Africa" E.D.R.P. No. 58.

investments. This comprises all public services ranging from law and order through education and public health to transportation, communications, power and water supply as well as agricultural overhead investments in extension, education and research. Capital is also required for urban housing and infrastructure some of which will be in the public sector.

The sheer size of the agricultural sector as the existing industry of major proportions points to its importance as a source of capital for overall economic growth and the burden of domestic savings is bound to fall heavily on the agricultural sector. As we shall see later, this has in fact been the case in Uganda where the agricultural sector has played the leading role. Among the reasons advanced for the agricultural sector's ability to make a net contribution to the capital requirements for infrastructure and for industrial expansion without reducing the level of consumption of the farm population are, firstly the scope for raising agricultural productivity by means that require only moderate capital outlays on improved farming techniques, application of fertilisers, spraying and better utilization of underemployed rural labour. Secondly, since agriculture also requires capital, it is necessary to minimize the agricultural requirements for scarce resources of high opportunity cost and to enhance the productivity of the resources already committed to agriculture before considering the flow of capital out of agriculture. 1/ In Uganda, increased agricultural output has been achieved mainly through increased inputs of labour and land.

According to John W. Mellor the contribution of the rural sector to capital formation may be marshalled in four ways:

> "It may be extracted by the government through the medium of taxes. Agricultural production may be increased sufficiently to bring about a relative decline in agricultural prices and thereby favour increased profits in the nonfarm sector with consequent favourable effects on savings and investment in that sector. Agriculture may form capital directly within its own sector and minimize its demands for capital from other sectors. Finally, agriculturists may invest directly in other sectors - perhaps after its own development has increased demand for products from other sectors and the profitability of such investments." 2/

In Uganda, the main contribution of the agricultural sector to capital formation has been marshalled mainly through taxation, both direct and indirect, through the surpluses of the marketing boards and through the profits of processors and estate owners which have either been ploughed back or invested in other ventures. Most of the investment in the peasant agriculture took the form of labour inputs in addition to a number of purchased inputs and if increase in acreage of perennial crop such as coffee, tea and sugar cane is any guide, considerable

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1/ MEIER, G.M., op. cit., p.295

2/ MELLOR, JOHN W., op. cit., p.84

capital formation has taken plase in agriculture.

Besides, the direct African poll tax which for a great majority of the population must have come from agricultural incomes, the agricultural sector has contributed more towards government revenue through export duties mainly on cotton and coffee and through the utilisation of the marketing boards surpluses which were put in the price assistanse funds but not used for price stabilisation purposes. From Tables I - 14 and I - 15 which show the sources and percentage of the total government revenue, it can be seen that export taxes have contributed up to a maximum of £9.7 million in 1964/65 financial year and up to a maximum of 51.2 per cent of the total government revenue in 1951.

The percentage contribution of export taxes increased sharply from about 19 per cent in 1947 to the maximum of 51 per cent in 1951. In value terms, the export taxes increased by eight-fold from £1 million in 1947 to £8.3 million in 1952 and then decreased abruptly to £4 million in 1953. After which both value and percentage contribution, fluctuated along a decreasing trend until 1961/62 season when the export taxes amounted to £1.8 million or 7.3 per cent of the total government revenue, these being the lowest figures for the period 1947 to 1966. The very low figures for 1961/62 are due to bad weather conditions which reduced cotton production from 371,000 bales in 1960/61

T A B L E I - 14

TOTAL GOVERNMENT REVENUE 1947-1956 *

(£)

I T E M	1947	1948	1949	1950	1951	1952	1953	1954 June
Direct Taxation	1,085,203	1,140,720	1,127,412	1,234,513	1,219,488	1,811,765	2,420,644	1,620,218
African Poll Tax	662,002	669,351	454,565	454,174	475,163	497,569	506,406	475,906
Indirect Taxation	3,012,872	5,683,546	5,589,907	7,109,960	12,206,746	12,447,542	8,686,340	6,038,323
Export Taxes	1,011,704	1,449,262	2,967,987	4,167,189	8,106,369	8,269,108	4,044,958	3,431,011
Earnings of Departments	600,622	993,950	922,998	1,029,328	1,013,684	1,613,334	2,457,727	1,098,154
Repayment of debts	53,151	53,151	53,151	906,184	836,017	258,078	330,344	296,076
Contribution from Local Funds	405,865	1,061	21,358	322,534	38,762	879,625	3,411,049	1,171,292
Grants from Foreign Governments	173,509	552,602	379,558	434,184	511,588	278,675	428,960	124,551
T O T A L	5,331,222	6,405,030	8,094,384	11,036,703	15,826,285	17,289,019	17,735,064	10,348,614

* Source: Harris, Sir Douglas, DEVELOPMENT IN UGANDA, 1947 to 1955/56, Balding & Mansell Ltd., Wisbech, England, p. 12.

TABLE I - 14. (Continued)

TOTAL GOVERNMENT REVENUE*

(£)

	1954/55	1955/56	1956/57	1957/58
Direct Taxation	2,917,116	3,729,117	3,772,135	3,668,773
African Poll Tax	371,949	375,129	406,466	401,619
Indirect Taxation	12,415,590	11,810,401	13,910,927	12,862,802
Export taxes	6,339,578	5,225,993	7,105,979	5,406,288
Earnings of Departments, etc.	2,290,003	3,041,913	3,031,810	3,438,823
Repayment of Debt	421,180	483,173	640,180	650,836
Contribution from Local Funds	2,354,035	2,421,953	2,334,113	1,789,478
Grants from Foreign Governments	437,911	111,330	489	38,281
TOTAL	20,835,835	21,597,887	23,689,652	22,440,993

* Source: Uganda Government: Statistical Abstracts.

T A B L E I - 14 (Continued)

TOTAL GOVERNMENT REVENUE *

(£)

	1958/59	1959/60	1960/61	1961/62
Direct Taxation	4,191,915	4,228,491	4,156,193	4,177,091
African Poll Tax	405,259	378,264	388,372	324,440
Indirect Taxation	13,919,218	12,719,297	11,853,200	11,770.114
Export taxes	5,916,873	4,052,696	2,459,635	1,800,171
Earnings of Departments, etc.	3,650,733	3,643,699	4,149,418	5,356,185
Repayment of Debt	650,815	650,790	519,823	1,192,398
Contribution from Local Funds	1,449,755	22,966	13,870	24,495
Grants from Foreign Governments	243,161	677,886	1,345,031	1,214,160
TOTAL	24,105,597	21,937,129	[illegible],[illegible]7,240	24,734,441

T A B L E I - 14 (Continued)

TOTAL GOVERNMENT REVENUE *

(£)

	1962/63	1963/64	1964/65	1965/66
Direct Taxation	3,906,110	3,776,000	4,295,900	4,584,250
African Poll Tax	139,663	-	-	-
Indirect Taxation	16,211,632	21,529,000	27,478,050	25,389,100
Export taxes	3,285,489	7,866,000	9,662,000	4,970,150
Earnings of Departments, etc.	9,767,738	2,347,000	5,277,250	5,808,050
Repayment of Debt	1,206,594	2,193,000	1,091,400	2,555,900
Contribution from Local Funds	296,988	2,254,000	1,[illegible],600	143,700
Grants from Foreign Governments	1,503,008	3,125,000	[illegible],450	3,688,300
	32,892,070	35,224,000	42,[illegible],950	42,149,300

T A B L E I - 15

TOTAL GOVERNMENT REVENUE (PERCENTAGES)

	1947	1948	1949	1950	1951	1952	1953	1954
Direct Taxation	20.36	17.81	13.95	11.19	7.71	10.48	13.65	15.66
African Poll Tax	12.42	10.45	5.62	4.12	3.00	2.55	2.86	4.60
Indirect Taxation	56.51	57.51	69.06	64.42	77.15	72.00	48.98	58.35
Export taxes	18.98	22.63	56.67	37.76	51.22	47.83	22.81	33.15
Earnings of Departments	11.27	15.58	11.40	9.55	6.41	9.55	13.86	10.61
Repayments of Debt	1.00	0.83	0.66	8.21	5.28	1.49	1.86	2.86
Contribution from Local Funds	7.61	0.01	0.26	2.92	0.24	5.09	19.23	11.32
Grants from Foreign Governments	3.25	8.32	4.69	3.93	3.23	1.61	2.42	1.20
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

T A B L E I - 15 (Continued)

TOTAL GOVERNMENT REVENUE (PERCENTAGES)

	1954/55	1955/56	1956/57	1957/58	1958/59	1959/60
Direct Taxation	14.00	17.27	15.92	16.35	17.39	19.25
African Poll Tax	1.79	1.74	1.72	1.79	1.68	1.72
Indirect Taxation	59.59	54.68	58.72	57.32	57.74	57.98
Export taxes	30,67	24.20	30.00	24.09	24.55	18.48
Earnings of Departments	10.99	14.08	12.80	15.32	15.15	16.61
Repayments of Debt	2.02	2.24	2.70	2.90	2.70	2.97
Contribution from Local Funds	11.30	11.21	9.85	7.97	6.01	0.10
Grants from Foreign Governments	2.10	0.52	0.01	0.14	1.01	3.09
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00

T A B L E I - 15 (Continued)

TOTAL GOVERNMENT REVENUE (PERCENTAGES)

	1960/61	1961/62	1962/63	1963/64	1964/65	1965/66
Direct Taxation	18.61	16.89	11.88	10.72	10.08	10.88
African Poll Tax	1.74	1.31	0.42	-	-	-
Indirect Taxation	53.06	47.50	49.28	61.18	64.50	60.23
Export taxes	11.41	7.28	9.99	22.35	22.68	11.79
Earnings of Departments	18.58	25.70	29.70	6.66	12.39	13.78
Repayments of Debt	3.67	4.82	3.67	[illegible]	2.56	6.02
Contribution from Local Funds	0.06	0.10	0.90	6.20	2.36	0.54
Grants from Foreign Governments	6.02	4.91	4.57	[illegible]	8.11	8.75
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00

to 181,000 bales in 1961/62 season and coffee production from 117,000 tons in 1960 to 93,000 tons in 1961. (see Tables I - 12 and I - 13). From 1963 the export taxes increased mainly as a result of increased quantity and prices of coffee exports.

Export taxes as a proportion of monetary gross domestic product rose sharply from 4.8 per cent in 1948 to 9.4 per cent in 1952 and then decreased to the lowest figure of 1.9 per cent in 1961. 1/ The proportion of export taxes to monetary gross domestic product increased to over 6.2 per cent in 1964 and was about 5 per cent in 1965 due mainly to the increase of export taxes on coffee as a result of higher prices.

Export taxes and the surpluses of the marketing boards together with the price assistance funds have been the 'main' sources of the capital development expenditure in the public sector during the period 1947 to 1966. The capital development expenditure for the 1955-1960 period was mainly financed from export taxes, the African Development Fund and the Cotton Price Assistance Fund. Of the total expenditure of £30.1 million, £7.7 million or 25.7 per cent was derived from export taxes; nearly £8 million or 26.5 per cent from the African Development Fund and £5 million or 16.6 per cent was a 'permanent' loan from the Cotton Price Assistance Fund. Thus nearly 70 per cent of the total capital development expenditure came directly from the export crops.

1/ GHAI, D.P., op. cit., p.30.

The African Development Fund which was established in 1952 with £5 million from the Cotton Price Assistance Fund was used in acquisition of ginneries, expansion of technical and commercial education, community development schemes, medical services and agricultural schemes. Table I - 16 shows the schemes on which £14 million from the Fund was spent up to 30th June 1960 after which date all the assets of the Fund, valued at £4.9 million were transferred to the capital development fund. The capital development fund was used to finance part of the development budget during the First Five-Year Development Plan period 1961/62 to 1965/66 (see Table VI - 2 p.332).

Besides, over £17 million which had been transferred from cotton funds to the African development fund and the £5 million which was transferred to the capital development fund in 1956/57 some other sums amounting to over £6.2 million had also been transferred in 1948 to the Development and Welfare Fund, and the reserve funds. Thus, for the period 1945 to 1960, a total of £24.2 million from cotton funds and £.6 million from coffee funds had been transferred to the various development funds. Altogether, some £29.8 million was made available for development projects through the price assistance funds and this represented nearly 11 per cent of the payments to the growers of cotton and coffee. 1/

1/ LURY, D.A. "Cotton and Coffee Growers and Government Development Finance in Uganda 1945-1960" East African Economic Review, Vol.10, No. 1, 1963, pp.47 - 53.

TABLE I - 16

UTILISATION OF THE AFRICAN DEVELOPMENT FUND *

SCHEME	Allocation	Expenditure up to 30.6.60	Percentage
	£	£	
Acquisition of ginneries (both silent and for cooperatives)	1,140,561	1,304,222	9.29
Grants to Teacher Training, Technical, Commercial and other schools	10,456,000	8,934,648	63.63
Community Development Schemes	1,627,000	1,515,757	10.78
Medical Services	1,003,000	578,566	4.12
Agricultural Education	530,400	324,694	2.31
Agricultural Mechanisation	1,115,000	223,374	1.59
Other Agricultural Projects	657,359	607,359	4.33
Grants to Local Administrations	163,500	152,483	1.09
Others	670,000	401,836	2.86
TOTAL	17,352,820	14,040,939	100.00

* Source: Uganda Government: *Report of the Annual Accounts for the Year 1958/59* Government Printer, Entebbe, p.139.

The price assistance funds also contributed to the capital structure of the parastatal cor orations, for example the initial capital of £250,000 for the Coffee Marketing Board came from the coffee funds, whereas the Lint Marketing Board's working capital of £5 million was written-off against the Cotton Price Assistance Fund. In addition, some of £1.2 million of the Cotton Price Assistance Fund has been invested in the Uganda Electricity Board stocks and some £.5 million was authorised in 1956 to be appropriated to the Local Investment Fund in order to provide increased capital for the Uganda Development Corporation. The use of such large sums from the cotton and coffee funds provided the Government with enough liquidity for temporary financing of various projects and programmes and made enormous contribution to capital formation.

5. Market for Non-Agricultural Products

Besides being a source of raw materials, export earnings and capital; agriculture has also contributed indirectly to the economic development of Uganda by providing a market for non-agricultural products. It is well-known that in developing countries the use of capital equipment in the production of goods and services for the domestic market is inhibited by the small size of the market, that is by lack of purchasing power. And the main determinant of the size of the market is productivity and the total volume of production. In Uganda, it is the volume of agricultural production which is the key determinant of the size of the domestic market and purchasing power. This is clearly indicated by the fact that over 40 per cent of the monetary gross domestic product is derived from agriculture and the majority of the population derive their money incomes from agricultural activities.

Since long distance from the coast coupled with lack of industrial raw materials and limited availability of industrial entrepreneurs and managers make the manufacture of goods for export extremely unlikely. Hence the industrialization of Uganda has been geared to the domestic market and oriented more towards import substitution rather than export promotion. The rate at which industrialization can proceed is largely determined by the rate at which farmers' incomes will grow given the limited employment opportunities for wages. The cash incomes to African growers from coffee, cotton and tobacco amounted to £21.3 million in 1954 whereas the estimated emoluments of all African employees were £7.6 million in the same year. Although the wage rates have increased faster than agricultural prices, the estimated emoluments to all African employees in wage employment amounted to £31.4 million in 1966 whereas the incomes derived from cotton, coffee and tobacco amounted to £36.8 million. Since some of the wages were received from agricultural activities, this shows the importance of agriculture as a source of money incomes. Ehrlich asserted in case of cotton that:

> "the introduction of cotton as an export crop gave the initial vital stimulus which transformed Uganda from a primitive economy with isolated markets into a semi-market economy." 1/

The economy has been transformed further and industrialization accelerated through increased investment which has been induced by increased farmers' consumption expenditure due to increased incomes.

6. Source of Labour and Employment

The agricultural sector makes a factor contribution to economic growth when there is a transfer of productive resources from it to other sectors; the transferable resources being capital and labour. The Lewis two-sector model based on the assumption of a perfectly elastic supply of labour does not apply to Uganda with her low population density and good fertile soils. The usual assumptions about surplus labour do not apply either, though people in wage employment must have come originally from the rural sector and return to the agricultural activities after a spell of paid employment. 4/

In Uganda, like other developing countries, agriculture is the main activity for most of the population. Almost all the Africans who form almost 99 per cent of the total population live and work either full-time or part-time on agricultural holdings. The predominance of the agricultural sector in the

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1/ EHRLICH, C. "The Marketing of Cotton in Uganda 1900 - 1950" Unpublished Ph.D. Thesis, University of London, 1958. p.36.

economy is also strengthened by the lack of employment opportunities in other sectors. Table I - 6 (p. 18) shows the total reported employment for wages between 1951 and 1967. It has already been observed that there has been only an insignificant increase in employment, in fact the recorded employment figure for 1966 is slightly greater than that for 1960.

Table I - 17 shows the distribution of all Africans employed for wages for the period 1952 to 1967. Of all Africans employed for wages about 30 per cent were employed in the agricultural sector. In addition, many people are employed for cash on agricultural holdings for periods ranging from a few days to a year. 1/ It is also estimated that some 95 per cent of the total adult population are engaged in both commercial and peasant agriculture. This estimation assumes that all adult people are usefully employed and ignores any seasonal underemployment or voluntary unemployment.

But since the population of Uganda has been increasing at the rate of over 3 per cent per annum, whereas the total employment in the cash economy has remained fairly stagnant, it follows that the increase in the labour force must have been

1/ For more details see Uganda Government Report on Uganda Census of Agriculture, Vol. I, Government Printer, Entebbe, 1965. p.60.

TABLE I - 17

INDUSTRIAL DISTRIBUTION OF ALL AFRICAN EMPLOYEES *

	1952	1953	1954	1955	1956	1957
Agricultural Sector	68,336	68,093	65,835	71,120	73,066	64,214
(a) Agriculture	48,015	49,562	45,527	46,908	48,837	45,651
(b) Cotton-ginning, coffee curing and food manufacture	17,489	16,083	17,353	20,824	19,717	15,087
(c) Forestry, fishing and hunting	2,832	2,448	2,955	3,388	4,512	3,476
Mining and Quarrying	7,959	7,037	7,922	6,758	5,375	5,536
Manufacturing and Industries	15,568	14,208	14,814	15,153	13,836	17,512
Construction	39,937	48,436	45,448	40,482	37,107	35,184
Commerce	4,592	5,057	6,245	5,458	5,326	9,022
Transport and Communications	7,006	7,065	7,625	8,586	5,913	10,403
Government Administration	9,916	9,569	11,113	11,826	12,759	13,151
Local Administrations	37,287	37,246	37,294	35,898	36,963	38,893
Education and Medical Services	11,412	16,060	18,609	20,745	20,207	20,674
Miscellaneous services	4,840	7,702	9,877	11,066	12,177	12,327
TOTAL	206,853	220,473	224,788	[illegible]	225,729	226,916
Percentage of employees in the agricultural sector (a) to (c)	33.04	30.88	29.29	31.43	32.37	28.30

Source: Uganda Government: Statistical Abstracts.

T A B L E I - 17 (Continued)

INDUSTRIAL DISTRIBUTION OF ALL AFRICAN EMPLOYEES

	1958	1959	1960	1961	1962
Agricultural Sector	64,024	62,432	67,436	[illegible],114	64,517
(a) Agriculture	47,505	46,055	49,366	[illegible],770	47,867
(b) Cotton-ginning, coffee curing and food manufacture	12,499	12,795	14,470	1[illegible],[illegible]	13,099
(c) Forestry, fishing and hunting	4,020	3,582	3,600	3,742	3,551
Mining and Quarrying	3,949	5,136	5,322	5,7[illegible]9	5,095
Manufacturing and Industries	18,202	17,240	16,955	17,896	17,092
Construction	36,642	31,778	29,204	28,[illegible]	28,635
Commerce	10,246	9,918	10,696	11,142	10,483
Transport and Communications	10,378	9,677	10,105	9,631	8,955
Government Administration	14,328	14,665	14,568	14,293	15,558
Local Administrations	35,939	38,328	34,469	32,048	28,054
Education and Medical Services	19,121	25,560	25,171	16,680	24,912
Miscellaneous services	15,570	13,526	14,963	12,932	13,042
TOTAL	228,399	224,260	228,889	220,299	216,773
Percentage of employees in the agricultural sector (a) to (c)	28.03	27.84	29.46	[illegible].11	29.76

T A B L E I -17 (Continued)

INDUSTRIAL DISTRIBUTION OF ALL AFRICAN EMPLOYEES

	1963	1964	1965	1966	1967
Agricultural Sector	63,509	67,367	66,180	70,014	71,364
(a) Agriculture	46,986	47,814	46,786	[illegible]	49,755
(b) Cotton-ginning, coffee curing and food manufacture	13,568	16,061	15,833	[illegible]	17,387
(c) Forestry, fishing and hunting	3,955	3,492	3,061	[illegible]	4,222
Mining and Quarrying	4,353	4,830	6,084	[illegible]	6,473
Manufacturing and Industries	17,177	16,485	18,612	[illegible]	23,184
Construction	25,819	24,091	31,573	[illegible]	31,442
Commerce	9,663	9,681	9,209	[illegible]	10,409
Transport and Communications	9,606	8,995	9,698	[illegible]	10,148
Government Administration	13,439	15,429	13,915	14,560	15,540
Local Administrations	26,072	29,033	24,859	20,216	17,448
Education and Medical Services	15,366	24,827	37,791	38,327	43,290
Miscellaneous services	12,846	11,608	10,265	12,751	12,692
TOTAL	208,350	212,346	228,186	231,873	241,940
Percentage of employees in the agricultural sector (a) to (c)	30.48	31.73	29.00	30.45	29.50

absorbed in the rural sector. Folke Dovring while examining the share of agriculture in a growing population stated that:

> "In many of the present less developed countries, on the contrary, there is still a large agricultural majority. As a consequence, it would take a very rapid rate of industrialisation to absorb all the annual population increment into other industries, and even more so to reduce the existing surplus in agriculture"

and added that a decline in the agricultural population requires the combination of a low rate of population increase with a high rate of industrialization, the combination which is difficult to achieve in the early stages of development. He concluded that:

> "The conclusion that emerges from the above is that in most of the less developed countries today, there is no reason to expect reduction of absolute numbers in the agricultural population within the near future. In several of them, continued increase of the agricultural population must be expected for quite a long time to come." 1/

This certainly is the case for Uganda with a high rate of population growth combined with high percentage of the population being under 16 years of age, the number of young entrants to the labour force rapidly increases. According to the 1959 Census, children under 16 years of age formed 43.6 per cent of the total population. This is bound to slow down the rate of structural transformation as reflected in changes in the proportion of

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1/ DOVRING, F. "The Share of Agriculture in a Growing Population" in Eicher, C and Witt, L. (Ed.) Agriculture in Economic Development, McGraw-Hill Book Company, New York, 1964, pp.95-97.

agricultural to non-agricultural labour force. 1/ There is, therefore, the problem of population-growth absorption rather than the supply of labour for industrial development.

Given the current and planned rate of growth of industrial development, it is highly unlikely that industrial and urban employment will absorb the population increase. The main opportunities for employment, therefore, lie in the agricultural sector. Even in densely populated areas such as India, it is said that large-scale opportunities for additional employment exist within agriculture and that output could also be increased by redistribution of the committed labour within the sector. M. Paglin has demonstrated that between 1951 and 1961, the population of India increased by 21.5 per cent while the labour force employed in agriculture increased by 33 per cent accompanied by an increase in agricultural product of 46 per cent. 2/

In Uganda, there is great potential for the agricultural

1/ JOHNSTON, B.F. "Agriculture and Economic Development: The Relevance of the Japanese Experience" Food Research Institute Studies. Vol.VI, No. 3, 1966, p.267.

2/ PAGLIN, M. "Surplus" Agricultural Labour and Development: Facts and Theories" American Economic Review Vol. LV, No. 4, 1965 pp. 815 - 832.

sector to absorb productively the anticipated future levels of population through expanding the area under cultivation and adopting new activities and techniques. The resultant expansion of agricultural production could lead to increased non-agricultural employment through its effect on investment which is induced by the enlarged size of the market for local manufactures and the favourable effects of increased supply and reduced prices of food for urban and industrial workers on industrial expansion and service industries. [1] The marketing and processing of the increased agricultural production would also lead to further employment opportunities.

In conclusion, despite some shortcomings of the agricultural sector, it is fair to say that the economic development of Uganda has been based on agricultural surplus which has been the main determinant of the gross domestic product, government revenue and personal incomes. To the extent that industrialisation of Uganda is based on import substitution, agricultural incomes have been the main determinant of the size of the domestic market and hence the rate of industrial and commercial development. In the

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[1] For a full discussion of the problem of population-growth absorption, see BELSHAW, D.G.R. "Population-growth Absorption Policy in East Africa, with special reference to the Employment of Youth" a Background Paper for the Seminar on National Youth Programmes in East Africa, organised by the International Secretariat for Volunteer Service, 1966.

following chapter I shall examine the factors which influenced the rate of agricultural development and the part played by government measures and policies.

CHAPTER II

FACTORS AFFECTING AGRICULTURAL DEVELOPMENT:

Introduction:

In the preceding chapter I have discussed the role and indicated the contribution which the agricultural sector has made to the economic development of Uganda. In this chapter I shall examine the factors which have affected the rate of agricultural development and their relevance to agricultural development planning. It is well-known that the rate of agricultural output is determined by the interaction of a number of factors operating at the farm level. These are the 'proximate factors' whose influence on agricultural production depend upon the decisions taken by the farmers themselves.1/ These proximate factors include technological innovations, managerial innovations and the use of capital, land and labour. The external factors which include agricultural research, extension and education; institutional arrangements such as marketing and credit and financial incentives are the conditioning factors which are socially determined. On these government policy measures for promoting agricultural development are based.

1/ Johnston, B.F., "The Choice of Measures for Increasing Agricultural Productivity: A survey of Possibilities in East Africa" Tropical Agriculture. Vol. 41, 1964, pp.91-112.

Organisation of Agricultural Production:

Although, since the beginning of the century a great deal has been achieved in agricultural development through the introduction of new crops such as cotton in 1904, new methods of husbandry and the introduction of mechanical implements such as the ox-plough, on the whole the system of agriculture is still subsistence in nature. The export sector of the cash economy is superimposed on what remains basically a subsistence economy in which the primary objective of production is self-sufficiency in food. The availability of land and the lack of integration of livestock into the farming system have encouraged the continuation of shifting cultivation in some areas. Thus, the process of transition from traditional methods of cultivation with simple hand implements to improved farming methods with mechanised implements has hither-to made gradual advance.

As MacDonald has stated the extent to which the farming system meets the needs of the peasant farmer and his family for basic food and a variable quantity of cash depends on the environment, land availability;

husbandry practices, social, educational and dietary standards of the farmer and the national agricultural policies.1/ And he stated that:

> "although the needs of the cultivator and his family appears to be met, intrinsically the 'exploitive subsistence cultivation system with cash cropping superimposed' is inadequate in that it is antagonistic to specialisation and, in its present form, is unlikely to support the demand for an increase in the standard of living for the rural population".2/

The main inadequancy of the subsistence farming system being its low resource productivity.

By practicing-shifting cultivation system the farmers pay little attention to the importance of protecting, conserving and improving the soil. And the low productivity is due to poor husbandry practices, lack of incentives; non-utilization of technical knowledge and the inadequacy of human muscle power as a source of energy. These limitations of peasant agriculture have long been recognized, especially in connection with cotton cultivation.

1/ MacDonald, A.S. "Farming System Development in Uganda" Address to Uganda Agricultural Association. Annual Meeting. 1964.

2/ ibid. p.3.

It was said that an ordinary peasant farmer cannot grow more than three acres of cotton on a family basis and since the cost of employing hired labour was greater than the return, the farmer was limited in his efforts to increase his production and thereby improve his standard of living.1/

The main rationale for the subsistence type of agriculture is the need for security through self-sufficiency in food production. The primary aim of most cultivators is to produce their own food as an insurance against famine and the production of cash crops is allocated the residual element of resources. The fact that a lot of resources, though of low productivity, are committed to peasant agriculture has the advantage that total agricultural production can be greatly increased without institutional changes or heavy capital investment but by increasing the productivity of the resources in the sector. There is need, therefore, to increase labour productivity in the subsistence sector in order to release more resources for the increased production of cash crops.

1/ Wrigley, C.C. Crops and Wealth in Uganda, East African Institute of Social Research, Kampala, 1959, p.67.

The need for developing large-scale commercial agriculture based on the plantation system was recognised by the early British administration as a means to developing an export trade. The plantation system has the advantages of permitting a better controlled supervision of the products, facilitates orderly planting, systematic harvesting and the use of fertilizers and insecticides; it allows for economical transport to the processing centres and a regularity of supply, thus justifying specialized equipment. The system also allows for better utilization of waste products, research facilities and enables risks and long waiting periods to be undertaken. And because of the high administrative and capital costs, the plantation system can only grow high value crops.

The planters were encouraged to come to Uganda to establish plantations of export crops such as coffee and rubber to help bring into the country capital which would create incomes which the Government could tax and thereby become independent of the British taxpayer. As it turned out, the planters were slow in coming mainly because land registration was slow and Kenya with plenty of empty attracted most of them, hence, non-African plantations though a factor in the economy.

never made the contribution to Uganda's economic development that had been expected. Although the plantations were established as early as 1907, the Government had hesitations almost from the outset about alienating land because of the social and political problems this might create. The policy on non-African plantations versus peasant agriculture was far from being clear as emphasis differed with different administrations and Governors. But according to C.G. Wrigley:

> "The truth is that, having once ruled out mass colonisation on the one hand and huge land concessions on the other, policy-makers at the time did not see any critical significance in the distinction between the remaining possible forms of exploitation, between planters who caused crops to be grown by paid labourers and merchants who purchased crops from independent peasant producers, and concluded that Uganda was to all appearance moving towards a mixed economy, in which Africans would provide labour-power, partly as independent peasant cultivators and partly as wage-earners, while non-Africans would contribute capital and managerial skills, in

some cases merely to the processing and merchanting of crops, in others to their cultivation"1/ Yet it was not the planters but the efforts of the peasant cotton farmers who in 1914/15 produced over 52,000 bales valued at £351,000 which represented more than 70 per cent of the value of all exports and led the country in the following year to be able to do without an imperial grant-in-aid.2/ Although the direct government revenue from cotton in form of buying and ginnery licences was negligible, the main items of revenue such as poll-tax and import duties were heavily dependent on money incomes of the people of which the major source was cotton including the wages of those employed in ginning and transporting it.

By March 1915, a total of 21,675 acres had been established on 135 non-African estates, of which 9,915 acres were under coffee, 2,310 acres under rubber, 4,835 acres under cocoa.3/ Because of the long gestation period of 5 to 7 years for coffee and rubber respectively, these plantations could not make an appreciable contribution to the economy before the first war. During the inter-war period, the development of non-African plantations was plagued not only by the Government policy which made it difficult for the foreigners

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1/ ibid., p.3.
2/ ibid., p.21.
3/ ibid., p.30.

to acquire land but also by the scarcity of labour which made labour costs too high relative to the prices of the crops which the planters were growing. The World-wide collapse of Commodity prices especially for coffee and cotton in the early twenties made the life of the planters unbearable, others left farming while other estates changed to sugar and tea growing instead of coffee and rubber.1/

Even after the second war, the structure and organisation of agricultural production has not changed much. Peasant agriculture is still the main stay of the economy with non-African plantation agriculture playing a minor albeit important role in the economy. Table II - 1 shows the estimated acreage under crops for the period 1945 to 1966 by African growers. It shows that the estimated acreage under crops by African growers doubled from nearly 6 million acres in 1945 to nearly 12 million acres in 1966, a growth rate of 6 per cent. per annum. Some of this increase in acreage is accounted for by the increase in population which has been growing at more than 2.5 per cent. per annum and has almost doubled during the period.

1/ For a full discussion of the planters difficulties see Wrigley, C.C. op. cit., Chapter III.

T A B L E II - 1

ESTIMATED ACREAGES UNDER CROPS, 1945-66 - AFRICAN GROWERS*

('000 Acres)

Crop	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955
Mixed Beans	375	396	343	411	476	459	477	511	621	617	633
Soya Beans	23	20	17	16	22	21	9	8	7	13	8
Cassava	477	484	454	506	494	528	520	531	605	590	556
Coffee Arabica	14	15	15	14	15	18	18	19	20	23	25
Coffee Robusta	129	144	146	150	153	162	184	211	236	262	291
Cotton	1,147	1,252	1,037	1,556	1,628	1,534	1,513	1,473	1,606	1,739	1,586
Groundnuts	357	357	350	353	352	345	391	367	414	401	425
Maize	159	307	261	286	315	267	272	303	663	472	379
Sorgum	372	454	464	469	485	492	554	561	585	604	578
Finger Millet	1,091	1,034	1,015	1,051	1,135	1,136	1,153	1,050	1,217	1,231	1,217
Onions	-	1	1	2	2	2	2	1	2	2	2
Pigeon Peas	127	141	167	159	217	223	314	220	223	234	221
Field Peas	31	31	30	35	32	38	36	34	28	29	35
Plantains	837	777	789	817	845	872	891	915	1,181	1,529	1,415
Sweet Potatoes	483	512	479	514	528	518	530	545	621	585	580
Solanum Potatoes	1	2	2	4	7	12	12	10	12	12	11
Simsim	242	222	248	245	254	256	234	211	212	235	258
Tobacco	5	5	5	7	5	8	5	7	7	7	7
*Others1/	99	94	87	80	50	43	31	28	26	35	34
Total	5,969	6,248	5,900	6,675	7,025	6,934	7,046	6,093	8,286	8,620	8,255

1/ Others include cocoa, bulrush millet, rice, wheat, grams and chillies.

* Source: Uganda Government, Revised Crop Acreage Estimates, 1945-1956 and Annual Reports of the Department of Agriculture, Government Printer, Entebbe.

T A B L E II - 1 (Continued)*

('000 Acres)

Crop	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966
Mixed Beans	659	508	526	577	578	722	677	681	767	916	947
Soya Beans	5	1	5	5	5	7	2	-	3	1	1
Cassava	542	528	668	676	606	785	655	706	1,146	1,116	1,323
Coffee Arabica	27	29	34	55	35	41	44	42	45	44	48
Coffee Robusta	327	405	436	463	499	538	561	588	599	686	778
Cotton	1,568	1,617	2,014	1,565	1,516	2,072	1,804	2,014	2,138	2,261	2,169
Groundnuts	414	411	447	427	428	556	616	589	618	582	669
Maize	478	358	340	560	349	441	422	394	538	632	690
Sorghum	593	684	682	705	678	720	725	732	789	751	741
Finger Millet	1,178	1,152	1,218	1,271	1,162	1,282	1,307	1,304	1,508	1,408	1,419
Onions	4	4	1	2	3	3	2	5	2	3	5
Pigeon Peas	167	158	165	245	181	140	146	172	222	218	216
Field Peas	38	30	31	31	31	42	25	39	37	45	69
Plantains	1,251	1,291	1,340	1,464	1,546	1,581	1,603	1,745	2,017	1,397	1,570
Sweet Potatoes	580	529	565	712	599	705	627	586	690	870	985
Solanum Potatoes	9	15	11	10	11	12	5	6	11	18	22
Simsim	253	228	245	235	244	269	206	215	269	234	238
Tobacco	8	11	14	16	11	9	10	14	12	12	12
Tea	-	-	-	-	-	-	1	3	3	5	6
Others	23	17	21	22	16	15	19	15	17	55	67
Total	8,104	7,974	8,759	8,821	8,498	9,878	9,455	9,844	11,231	11,252	11,975

Out of the total area under cultivation some 21.7 per cent. in 1945, 23.1 per cent. in 1955 and 25.2 per cent in 1966 was under the so-called' cash crops' namely cotton, coffee and tobacco and, in the sixties, tea.1/ Thus, there seems to have been a relative increase in the acreage under 'cash crops' as compared with food crops, indicating a certain amount of transformation toward market economy which was reinforced by the increased size of urban market and increased exports of other crops such as groundnuts.

Besides the increase in acreage under cultivation, there was also increases in the livestock population owned by the African farmers. Table II - 8 shows the reported numbers of livestock for the period 1944 to 1967. The table shows that cattle numbers have increased from 2.3 million in 1944 to 3.9 million in 1967. In addition to the increase in cattle numbers, there has been also an increase in the importation of exotic dairy cattle which numbered over 1,000 by the end of 1966 according to the annual report of the Department of Veterinary Services for 1966. The number of goat increased from 2.1 million in 1944 to 2.8 million

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1/ The distinction between cash and food crops should not be taken too literally since the surplus of food crops is also sold for cash.

TABLE II - 2
LIVESTOCK ON AFRICAN FARMS*
('000)

Year	Cattle	Goats	Sheep	Pigs
1944	2,259	2,104	-	-
1945	2,294	2,145	-	-
1946	2,394	2,205	-	25
1947	2,454	2,057	-	25
1948	2,485	2,158	1,037	19
1949	2,548	2,310	1,077	18
1950	2,534	2,324	1,158	17
1951	2,714	2,441	1,036	15
1952	2,745	2,472	1,051	13
1953	2,842	2,728	1,128	14
1954	2,855	2,747	1,136	13
1955	3,094	2,514	1,093	12
1956	3,232	2,797	1,120	12
1957	3,308	2,656	1,120	13
1958	3,427	2,728	1,127	12
1959	3,590	2,765	959	16
1960	3,618	2,592	865	16
1961	3,383	2,533	832	16
1962	3,365	2,340	760	15
1963	3,464	1,991	861	19
1964	3,497	2,014	755	32
1965	3,627	1,998	791	37
1966	3,682	1,900	784	37
1967	3,971	1,710	775	43

* Source: Uganda Government: Statistical Abstracts.

in 1956 and then gradually decreased to 1.9 million in 1966. The number of sheep has decreased whereas the number of pigs have gradually increased from 25,000 in 1946 to 43,000 in 1967. But due to the rapid increase in population, there has been a decline in livestock per capita ratio.

After the second war the non-African participation in agriculture was still mainly confined to a few plantation crops namely coffee, sugar cane, sisal and tea, whereas cocoa and rubber cultivation had been abandoned. Table II - 3 show the acreage, production and value of these crops to the estate owners. From the table, it can be seen that the acreage under coffee increased from 11,000 acres in 1945 to 28,000 acres in 1960 before it started declining as more and more coffee estates were turned to tea and sugar cane growing. Sugar cane and tea acreages on the other hand, have steadily increased from 29,000 and 5,000 acres in 1944 to 42,000 and 25,000 acres in 1963 respectively. The sisal acreage and production has also suffered a major decline mainly as a result of major fall in the world prices for sisal. Given the small size of the non-African plantation sector, it is fair to conclude that

TABLE II - 3

NON-AFRICAN CROP PRODUCTION *

	COFFEE			SUGAR			SISAL			TEA			TOTAL VALUE TO GROWERS
Year	Acres '000	Production '000 tons	Value £'000	Acres '000	Production '000 tons	Value £'000	Acres '000	Production '000 tons	Value £'000	Acres '000	Production '000 tons	Value £'000	£'000
1944	11	-	-	29	-	-	11	-	-	5	-	-	-
1945	11	-	-	28	-	-	9	-	-	5	-	-	-
1946	11	3	242	28	46	967	9	1	39	5	1	266	1,514
1947	18	5	343	28	57	1,207	9	1	43	5	2	387	1,980
1948	18	4	282	26	65	1,359	10	2	120	6	2	360	2,121
1949	19	3	227	27	46	1,022	8	1	77	6	2	344	1,670
1950	21	3	616	27	55	1,721	10	1	107	6	2	414	2,858
1951	21	4	941	27	49	1,646	9	1	194	7	2	494	3,275
1952	23	5	1,565	28	55	2,312	9	1	100	8	2	431	4,408
1953	23	6	2,009	27	48	2,146	9	1	60	8	2	599	4,814
1954	20	6	2,424	28	41	1,957	9	1	72	9	3	1,175	5,628
1955	21	9	2,243	28	65	3,391	7	1	39	10	3	1,462	7,135
1956	25	10	2,625	31	69	3,154	7	1	30	12	3	1,122	6,931
1957	27	12	2,870	32	81	3,690	7	a	26?	13	4	1,416	8,002
1958	26	14	3,361	33	81	3,759	6	a	25	15	4	1,352	8,497
1959	26	7	1,417	34	82	3,913	6	1	28	16	4	1,517	6,875
1960	28	4	686	37	91	4,397	6	1	36	17	5	1,728	6,847
1961	22	3	463	43	96	4,352	6	1	28	19	5	1,953	6,796
1962	21	6	898	41	104	4,629	6	a	18	21	6	2,385	7,930
1963	NA	NA	NA	42	122	5,451	3	a	40	23	6	2,292	7,783 1/
1964	NA	NA	NA	47	124	5,189	3	-	32	26	7	2,787?	8,008
1965	NA	NA	NA	44	117	4,816	3	-	14	29	8	2,500	7,500
1966	NA	NA	NA	43	127	5,108	2	NA	NA	31	11	4,079	9,187
1967	NA	NA	NA	45	135	5,462	2	NA	NA	NA	11	4,089	9,551

* Source: Uganda Government, Statistical Abstracts.
a Under 500 tons
? Estimated

1/ Excluding coffee production.
The Non African Coffee Production is included in the total coffee production (Table I-II, p.).

Uganda's agricultural development has been brought about by the efforts of the peasant farmers and the government measures and policies for increasing agricultural production must be aimed at raising the productivity of the resources in the peasant sector.

1. Land:

In the agricultural development of Uganda, land has been one of the main factors of production and a major source of wealth. In fact, in considering the determinants of agricultural production the quality and quantity of the natural resources are paid a lot of attention. The term natural resources is sometimes used to mean land and its climatic environment. In 1946, the Governor wrote that:

"the whole wealth of Uganda apart from the human factor......, is to be found in the products of its soil and its waters and the primary and secondary industries dependent thereon;"

and E.B. Worthington in identifying the fundamental problem to economic development re-affirmed the Governor's view that:

"the greatest asset of Uganda is not man-power, because many tribes in the country leave much to be desired as workers, but the large expanse of land and water which has not yet been brought into production. Thus, the fundamental problem divides itself into two parts, first how to increase the output per head of African, and second how to remove the handicaps which render large areas unused or unuseable."1/

It is now agreed that land cannot be separated from Capital, technology and labour in the production process because land and labour can, within limits, substitute for one another and labour skills can substitute for labour numbers. In fact, according to T.W. Schultz:

"the differences in land are least important, difference in the quality of material capital are of substantial importance and the differences in the capabilities of farm people most important in explaining the differences in the amount and rate of increase in agricultural production."2/

1/ Uganda Government, A Development Plan for Uganda, Government Printer, Entebbe, 1947, p.8.

2/ Schultz, T.W. Transforming Traditional Agriculture, Yale University Press, New Haven, 1964, p.16.

Since agricultural land has two components, a natural endowment component and a capital structural component, it takes investment of capital, spread of knowledge and adoption of new technology to increase its productivity.

Uganda has a total area of 91,076 square miles, out of which 16,364 square miles are open water and swamps leaving a total land area of 74,712 square miles. (see Table II - 4) Of the total land area, some 66,187 square miles are estimated as possible agricultural land. Using the estimated population of 7.7 million people in 1966, the available agricultural land per capita was 5.5. acres out of which about 1.5 acres per capita was under cultivation, representing about 27 per cent of the available land.1/ Allowing for double cropping of the annual crops, the acreage under cultivation is reduced by one-third and the cultivated land per capita to about 1 acre or 18 per cent of the available land.

A close examination of the land resources of Uganda reveals that although there is no shortage of land in terms of area, there are factors which tend to limit the area that is really suitable for either intensive or extensive agricultural development.

1/ According to the preliminary results of the 1969 Population Census, the population in 1966 must have been higher than 7.7 million.

T A B L E II - 4

LAND UTILISATION AT DECEMBER 31, 1966*

(Square Miles)

Region	Total Area	Open Water and Swamps	Forest Reserves	National Parks & Game 1/ reserves	Alienated Land	Land Within Townships	Land Allocated to individual Africans	Other Land	Total Land
Buganda	23,451	8,945	767	55	368	72	9,022	4,222	14,506
Eastern	15,308	4,373	679	11	85	75	25	10,060	10,935
Northern	31,189	648	2,039	5,811	6	21	-	24,464	30,541
Western	21,128	2,185	2,167	3,313	189	24	746	12,491	18,930
Total	91,076	16,364	5,652	7,190	648	192	9,793	51,237	74,712

1/ Including 40 square miles of restricted sleeping sickness area.

* Source: Uganda Government: Statistical Abstract, 1967.

Some of these factors are climatic, physical, environmental and institutional and will be discussed below.

(a) Climate:

The climate of Uganda is greatly modified by the fact that most of the country is lying fairly high in altitude, between 3,000 and 4,500 feet above sea level. In the western part of the country, lies the Ruwenzori mountain range which rises to over 16,000 feet and in the eastern part is mount Elgon. This high altitude makes the climate of most of Uganda mild with temperatures ranging from 50-80 degrees Fahrenheit.

The mean annual rainfall varies between thirty and sixty inches. Its distribution is binomial for the western, central and eastern areas and tends towards one peak in the northern region. For the most part, the rainfall is well distributed throughout the year, and allows two annual crops to be grown on the same piece of land per year. Reference to the maps prepared for the East Africa Royal Commission 1953-1955 1/ shows that more than half of the total area of Uganda enjoys almost certainty of a minimum rainfall of thirty inches which is considered essential for agricultural

1/ United Kingdom, East Africa Royal Commission 1953-1955 Report, H.M.S.O., London, 1955. cmd. 9475.

crop production. Only in two small areas in the north-east and south-west where it is not certain to receive rainfall of at least twenty inches a year.1/ This picture is confirmed by the rainfall probability maps in the Uganda Atlas 1967. In such dry places, the construction of dams and boreholes might alleviate the problem of water shortage and support livestock keeping and crop production by irrigation. In general, climate does not limit agricultural production as most of the country receives good reliable rainfall, although due to labour scarcity and work peak the climate might limit production in certain areas.

(b) Soil:

Besides ample and well distributed rainfall, agricultural development requires fertile soil. Most soils of the tropical world are said to be by nature relatively poor, un productive and fragile, and often chemically deficient, lacking in humus and easily leached. Such soils are said to be physically highly friable and very easily eroded.2/ Fortunately, Uganda soils are fairly fertile, formed for the greater part on rocks of very ancient formation namely, gneisses,

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1/ For a full discussion of the effect of climate on agriculture, see McMaster, D.N. A Subsistence Crop Geography of Uganda, Geographical Publications Ltd., Bude, England, 1962, p.10.

2/ United Kingdom, East Africa Royal Commission 1953-1955 Report op. cit., 262.

schists and granites. Normally, the soils which overlie such rocks are susceptible to heavy leaching, but the topography of Uganda consisting of dissected peneplain in the centre, steeper country in the southwest and more gently indulations in the north combined with well distributed rainfall have resulted in a fairly fertile soil.1/ The dissection of the plateau has given rise to gentle slopes and a typical catena which consists of shallow skeletal soils on the summits, deeper loams on the hill-slopes and alluvial soils in the swampy valleys.

The hill-slope soils are deep, fertile, red clay loams and are found over most Buganda, Toro, Bunyoro, and all around the shores of Lake Victoria through Busoga to the Kenya border. These are the most important for agricultural production. In the northern half of the country, the hill-slope soils are markedly lighter grey and less fertile. There are also some rich volcanic soils on mount Elgon, the foot hills of the Ruwenzori and some parts of Kigezi district.2/ The lack of fertile soils does not seem to have been a significant limiting factor to agricultural production.

1/ Wrigley, C.C. op. cit., p.2

2/ For a full discussion of the soils of Uganda and their chemical properties see Department of Agriculture, An Introduction to the Soils of the Uganda Protectorate (now Republic) Memoirs of the Research Division Series I, No.1, 1960.

(c) Disease:

The existence of tsetse flies which carry trypanosomes which cause sleeping sickness in human beings and trypanosomiasis in livestock has limited the use of certain areas for agricultural production. The East Africa Royal Commission 1953-55, estimated that some 24,000 square miles or 32 per cent of the country was so infested.1/ A lot of effort and money have been put into the eradication of the tsetse fly menace and by 1966, only 40 square miles were restricted sleeping sickness areas although a lot of land was still infested.2/ But since, there was a lot of uncultivated land, the tsetse fly infestation though a limitation to extensive pastoralism in certain localities such as Karamoja, has not been a major obstacle to livestock development.

(d) Land Tenure:

Most of the land in Uganda is held under the customary systems of tenure which in essence entail mere occupation and settlement without statutory rights.

1/ East Africa Royal Commission 1953-1955 Report, op. cit., p. 257.

2/ Uganda Government: Atlas of Uganda, Department of Lands and Surveys, 1967, p.59.

There are, however, some 9,763 square miles or 13 per cent of the total land excluding open water and swamps (see Table II - 4) which were allocated to individual Ugandans, under the terms of the 1900 Agreement as freehold. Most of these areas known as "mailo" land are in Buganda and a few in Toro and Ankole. These freehold estates have since been fragmented by sale and inheritance into small portions, though there are still some large land owners with rent-paying tenants.

The customary systems of land tenure have been accused by the proponents of individual ownership of land tenure of preventing the energetic members of the community from acquiring more land and discouraging investment in permanent improvements because of lack of security. It has also been argued that customary systems of land tenure limit agricultural development since land could not be used as a mortgage, for loans. Hence, most land reform proposals have emphasized the need for granting of individual freehold title to land as a means to overcome the above defects and to act as an impetus to agricultural development. Such recommended changes have led to what J.C. de Wilde *et alia* have called a controversy brought about by the underlying differences in social and political philosophy as well as variations in the emphasis put on security, on the one hand, and maximizing output on the other hand. He put it this way:-

> "Some have long believed that only unchallenged individual ownership and the ability to buy and sell land will provide the best incentive to development and increase the chances that land will be efficiently farmed by those possessed of the most energy, initiative and skill. Others fear that individual ownership will lead to excessive inequalities in land and income and produce a landless class contrary to African tradition which would ensure everyone some stake in land as a fundamental birthright"1/

This controversy has been present in the official land policy in Uganda the object of which according to East Africa Royal Commission 1953-55 has been:

> "to afford African communities security in the sense that their customary land rights, whether those be the rights of particular tribes, clans, families or individuals, would not be interfered with either by governments or by immigrants."2/

1/ de Wilde, J.C. (*et alia*) *Experiences with Agricultural Development in Tropical Africa, Vol. I.*, Johns Hopkins Press, Baltimore, 1967, p.132.

2/ *East Africa Royal Commission 1953-1955 Report*, *op. cit.*, p.363.

Yet some freehold estates were given by the Government to private individuals though with legal safeguards to stop such land passing into the hands of non-Africans.

As long as land remains plentiful, customary systems of land tenure work satisfactorily well and do not seem to inhibit agricultural production. But as signs of land shortage begin to appear, then it becomes obvious that the customary systems of land tenure would not do that is why the East Africa Royal Commission concluded that:

> ".. policy concerning the tenure and disposition of land should aim at the individualization of land ownership, and at a degree of mobility in the transfer and disposition of land which, without ignoring existing property rights, will enable access to land for its economic use".1/

As a result of the Commission's recommendations the Government published Land Tenure Proposals concerning the so-called Crown land in the regions other than Buganda. The objectives of the new land policy as contained in the proposals were:-

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1/ ibid., p. 346.

"(i) To redefine the status of land in Uganda and to afford greater local control over land administration subject to the general directions of the Protectorate Government.

(ii) To redefine the processes of law by which land may be disposed of by the Protectorate Government and by local governing bodies.

(iii) To encourage individual land ownership by Africans in such a manner as not to alienate the good will of traditional authorities nor to prejudice good husbandry nor to abandon such safeguards as are essential for the future progress of the people of Uganda."1/

The 1955 proposals were accepted by the Kigezi District Council in 1958 and subsequently in Ankole but not much elsewhere. Although pilot schemes for the adjudication and registration of rights to land were set up in one parish in Kigezi and in two other places in Ankole, the number of people who eventually applied for titles was very small. This lack of enthusiasm was partly due to vested interests of local authorities and partly due to the absence of conditions necessary for

1/ Uganda Government, Land Tenure Proposals, Government Printer, Entebbe, 1955, p.1.

the success of the introduction of individual land tenure. According to John C. de Wilde,1/ the conditions of success are that the farmers potentially involved must have a genuine, desire to develop their land. That there must be potential for profitable commercial farming of the land and the government must be capable of assisting farmers effectively in realising this potential. There must also be an increasing and costly litigation about land, the avoidance of which would encourage voluntary participation of the people concerned. Other conditions include the need to deal with fragmentation and to encourage livestock development. The success of consolidation and individualisation of land tenure in Kenya was mainly due to the presence of the conditions of success which included a package of co-ordinated government effort in agricultural and livestock production and marketing.

The policy of individualisation of land tenure has been critically examined by Beverley Brock who after examining a list of specific impediments to agricultural development said to be caused by customary forms of land ownership concluded that "most of them are not

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1/ de Wilde, J.C. op. cit., p.141.

problems of land ownership but land use or transactions and as such a change in the legal form of ownership might not be the most effective method of tackling them.1/ She cited examples which indicate that customary systems of land tenure have not hindered investment in coffee plantations in places like Bugisu where also land transactions have been common.

Other writers have come to similar conclusions as regards security and the rights of land use under the customary systems of land tenure. J.T. Fleming writing on the customary Kisoga land tenure said that the peasant was entitled to cultivate the land in any manner he chooses and his rights over timber felling are restricted to protect valuable trees.2/ M.L. Perlman writing on land tenure in Toro stated that:

> "I feel that on the whole the customary system has offered up to now relatively secure tenure as long as a man continues to occupy the land. And I consider that this system of land tenure continues to function well, and does not lead to any major difficulties."3/

All this may well be true but does not invalidate the need for change in land tenure system as the country develops from subsistence, through semi-subsistence and eventually to commercial agriculture and livestock production. This

1/ Brock, B. "Customary Land Tenure, Individualization and Agricultural Development: Some Comments on a Conference" R.D.R. No. 65., 1968.

2/ Fleming, J.T. Recent Development in Customary Land Tenure. Government Printer, Entebbe, 1961.

3/ Perlman, "Land Tenure in Toro" E.A.I.S.R. Conference Papers 1962.

later stage requires more than rights of land use and undefined security as afforded by the customary system of land tenure. It requires statutory rights and demarcated land possession.

The recent Public Lands Act of 1969 has established the machinery through which persons holding land under customary tenure could convert it into leasehold. The Act has centralized the control and management of public lands by establishing a Uganda Land Commission as a corporate body with District Land Committees as advisory to the commission. Even this is not considered sufficient to meet the present and future needs of the country given the importance of land both as an economic and political resource. In the President's Communication from the chair of the National Assembly it was stated that the

> "Government proposes to appoint a Commission to study the land situation with a view to rationalising the country's land system so as to promote the most efficient use of land and on the other hand the promotion of social justice in conformity with the equality and dignity of man enshrined in the constitution".1/

1/ Uganda Government: President's Communication from the Chair of the National Assembly on 11th February, 1969, Government Printer, Entebbe, 1969.

The terms of reference and the composition of the Commission are yet to be announced but it seems likely that the commission will be asked to look into ways and means of speeding individualisation of land tenure. It is now generally agreed that the customary systems of land tenure as such did not substantially inhibit agricultural production. Also the government policy against land alienation to non-Africans has tended to discourage foreign investment in plantation agriculture at a time when there was a lot of unoccupied land.

8. <u>Labour</u>:

In Chapter one I have discussed the role of agriculture as a source of employment opportunities and indicated that over 95 per cent of the adult population are engaged in both commercial and peasant agriculture. In fact, labour has been the primary instrument for increasing agricultural production in Uganda with the use of simple implements to cultivate extensive areas of land. With given resources of land and capital, agricultural production could be intensified by abundant application of labour. Indeed many technological innovations require additional labour for their application for example fertilisers.

In Uganda, the contribution of the labour force to the agricultural development has been limited by economic, social and physical factors of which the more important are lack of incentives, traditional hinderances, capital deficiency and lack of knowledge. Given the natural resource endowment, agricultural infrastructure, market facilities and capital resources, the increase in agricultural production would depend upon the efforts put forth by individual farmers. The amount of effort put in itself depends on the level of production incentives whose powers of motivation are determined by the nature and intensity of the farmers' relative wants for goods and services.

Many economists have written about the absence or limited production incentives in traditional agricultural societies on the ground that in such societies the neccessities of life are so few and easily met that there are no incentives for greater production. Uganda with agricultural labour which initially lacked specialised skills, innovational attitudes and other fundamental attributes which W. Arthur Lewis calls "the will to economize" coupled with the general lack of consumer goods led the Agricultural Productivity Committee to conclude that:

"The incentive therefore for the majority of farmers to increase their cash incomes is limited; leisure and time for social intercourse (including drinking parties) are more valuable to them than money after their limited cash wants have been met. The family system in the rural areas provides security against old age so that there is little need to save even for that"1/

Other writers, while appreciating that economic motivation, is not as dominant in developing economies as in developed ones, have explained the causes of the deficiency. W. Elkan when writing on incentives in East Africa dismissed the suggestion that customs and old-established habits of thought preclude rational economic behaviour on the grounds that evidence was thin. He admitted however, that:

"Sometimes it is true that a group of Africans do not respond to money incentives. But since others do, it seems wiser not to postulate innate differences but to see whether there are not, in fact, differences in circumstances which explain

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1/ Uganda Government; Report of the Agricultural Productivity Committee. Government Printer, Entebbe, 1954, p.31.

differences in behaviour.... Given a favourable environment, Africans have as keen a sense of economic advantage as anyone else".1/

According to him, men value leisure not because of an innate distaste for work, but because the relationship between wages and prices is such that leisure seems a better buy than almost anything else. According to S. Rottenberg, the desire for leisure is due to occupational prestige and the value system of the community.2/

On the other hand, W.O. Jones, who has surveyed the literature on economic incentives in Africa, has discovered that Africans have not been at all reluctant to adopt new methods of production when they see clear economic advantages in doing so. He gives as an example, the increase in acreage under maize in Buganda region by 90,000 acres more than the largest previous crop when due to shortage of maize in 1953, the Government guaranteed a 15 cents price per lb. which was very high. He concluded that:

1/ Elkan, W. "Incentives in East Africa" Colonial Review, 1956, p.241.

2/ Rottenberg, S. "Income and leisure in an Underdeveloped Economy" Journal of Political Economy, Vol. LX, No.2., 1952, pp. 95-101.

"All that can be said is that the economic drive is present in a great many Africans who are well able to order their affairs to serve it. And for the purpose of economic analysis this is enough."1/

The situation has changed somewhat, more farmers have been brought into the cash economy by the introduction of cash crops, provision of transport and marketing facilities, availability of consumer goods and services such as clothes, bicycles, radios and educational institutions. However, the system of agricultural production is in the main still semi-subsistence in nature which makes the desire for money less effective. The provision of more general education and extension advice might have helped in speeding the process of inculcating economic thinking into the farmers.

3. Capital and Purchased Inputs:

Capital has been recognized as one of the scarce factors of production in the developing countries and Uganda is no exception. The capital stock in terms of cleared land, perennial crops and livestock in Ugandan agriculture is extremely small and the current rate of capital accumulation is considered to be low as a result

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1/ Jones, W.O. "Economic Man in Africa" Food Research Institute Studies, Stanford, 1960, p.132.

of the low saving potential due to small average incomes. Most of the investment in peasant agriculture took the form of labour inputs in addition to small quantitives of purchased inputs. These purchased inputs included hand hoes, knives, tractors, fertilizers and other agricultural machinery. Table II - 5 shows the value of the imported inputs since 1944. Records show that 4,000 tons of fertilizers valued at £102,000 were imported in 1955 and increased to over 12,600 tons valued at £343,000 in 1966. These fertilizers were used mainly by non-African sugar and tea estates and up to now, very few peasant farmers are using fertilizers in large quantities except some tea and tobacco growers who are encouraged to use the fertilizers.

The number of tractors imported into Uganda increased from less than twenty in 1945 to over 300 in 1963 and over 800 in 1966. The great increase in the sixties is mainly due to expanded mechanical cultivation programme of the Government. Unfortunately it is not easy to say how many of the imported tractors were for agricultural purposes, it is estimated that most of them were for non-agricultural purposes in the period when only a few tractors were used on the non-African plantations.

T A B L E II - 5

IMPORTED AGRICULTURAL INPUTS*

Year	Fertilizers Quantity (Tons)	Fertilizers Value (£'000)	Tractors & Parts (£'000)	Agricultural hand tools & implements (£'000)	Agricultural Machinery, Implements & Parts (£'000)
1944	-	-	14	45	9
1945	-	-	15	69	9
1955	4,000	103	370	167	65
1956	5,696	155	225	227	101
1957	4,303	129	251	248	103
1958	6,045	184	292	205	104
1959	9,407	250	387	197	77
1960	9,695	242	350	193	87
1961	10,147	241	116	211	80
1962	8,967	220	183	217	89
1963	6,882	152	348	311	180
1964	12,542	299	606	263	279
1965	11,066	278	577	285	250
1966	12,628	343	904	116	315
1967	16,787	402	785	106	527

* Source: Uganda Government: Statistical Abstracts and Blue Book.

In the later, period however, a greater proportion of the tractors were imported for the agricultural mechanisation programme.

Besides, hiring the Government-owned tractors, a few African farmers have bought their own tractors and implements, some with the help of the loans from the Uganda Credit and Savings Bank (now the Uganda Commercial Bank). The number of such farmers has been very small and by 1960 only 38 African farmers owned tractors. In spite of the 25 per cent subsidy on tractors, the number of African farmers owning tractors has tended to decrease mainly because of the availability of the government-owned tractors for hire.

The most significant investment in peasant agriculture has been the purchase of agricultural hand tools and implements of which hand hoes and knives were the main items. The importation of these hand tools and implements which were valued at £69,000 in 1945 increased to over £311,000 in 1965 and decreased to £118,000 in 1966 as more and more of these tools were being manufactured locally both in Uganda and Kenya. In 1945 when almost all the hoes were imported, some 702,592 hoes valued at £66,911 were imported out of the total value of £69,000 for total imported hand tools and implements. This shows that hand hoes are the most important agricultural hand tool.1/

The importation of agricultural machinery, implements and parts increased from £9,000 in 1945 to £315,000 in 1966 indicating a tremendous increase in agricultural investment. There was also an increase in the number of ox-drawn ploughs in the Districts of Teso and Lango where ox-cultivation is widespread. In Lango, the number of ox-ploughs increased from 5,722 in 1947 to 14,484 in 1960 and there were some 83,707 ox-ploughs in Uganda at the time.2/

On the livestock side, investment took the form of increased numbers as shown in Table II - 2. The investment in exotic cattle has been preceded by investments in paddocks, cattle dips and spraying pumps. It is not easy to quantify both the capital investment into agriculture and the effect of that investment on total production. But it is generally agreed that capital investment into agriculture, both private and public has been insufficient for the needs of the economy. The World Bank Mission to Uganda recognised the need

1/ Masefield, G.B. "Agricultural change in Uganda - 1945-1960" Food Research Institute Studies, Vol. III, No.2, 1962, p.98.
2/ ibid., p.96.

for injecting capital into agriculture through the subsidies and agricultural credit schemes. These schemes will be discussed later. According to H.W. Ord, the governments may be criticised for not doing more to channel some of their capital funds into African agriculture which has the least capital.1/ Other economists in trying to identify the most limiting factor to small scale farming have argued that capital is not the limiting factor but techniques and education.2/ But since capital is a complementary factor of production, its adequate supply would lead to substantial increase in the productivity of other inputs such as land and labour and would enhance the effectiveness of the non-conventional inputs such as institutions, education and research.

4. Management:

Management is often considered one of the factors of production and according to C. Ehrlich "the scarcest factor of production in Uganda is not land, labour or

1/ Ord, H.W., "The Employment of Capital in East Africa" E.A.I.S.R. Conference Papers, 1959.

2/ Heyer, J. "Kenya's Agricultural Development Policy" East African Economics Review. Vol. 2, No.2, 1966.

capital, it is indigenous enterprise"1/ This assertion was based on the apparent lack of Ugandan African participation in the marketing and ginning of cotton but it ignores the almost insuperable problems which an African would face in trying to enter an industry with excess capacity and in the hands of a different racial group which would put up fierce competition. Besides, African participation was in fact excluded by legal cartels in form of ginning pools. It is generally agreed that management is one of the proximate factors through which the decisions of individual farmers affect rate of increase of agricultural production.

According to Glenn L. Johnson, management together with technological advance and improvement in the human agent are non-conventional inputs and involve the organisation and co-ordination of the conventional factors of production, namely land, labour and capital to bring about maximum efficiency and productivity. He argues that:

"It does not follow that because output is related to technological advance, improvements in the human agent, and increases in managerial skills, these changes should be quantified and

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1/ Ehrlich, C. <u>The Marketing of Cotton in Uganda.</u> unplublished Ph. D. Thesis, University of London, 1958, p.7.

treated as factors of production. Though, for instance, a decision to use fertiliser does change output indirectly, it is the fertiliser, not the decision, which is a factor of production."1/ It seems most helpful, there to regard the managerial unit of a business as a decision making unit which controls the amounts and combinations of factors of production entering in the production process. And this should be distinguished from social management which affects the conditioning factors.

The lack of managerial skills has long been recognised in Uganda and according to the World Bank Mission the low level of resource management was one of the two most evident obstacles to raising productivity in agriculture the other being the lack of capital. Thus, the Mission's programme for raising the general level of productivity lay great emphasis on improving technical management and providing the means by which improved techniques can be applied.

1/ Johnson, G.L. "A Note on Nonconventional Inputs and Conventional Production Functions" in Eicher, C. and Witt, L. (Ed.) Agriculture in Economic Development. McGraw-Hill Book Company, New York, 1964, p.120.

According to the World Bank Mission the three fundamental needs for improving management are expansion and continuing agricultural research, expansion of extension service to lead farmers to make fuller application of known techniques of production and greater emphasis on agricultural education and training at various levels.1/ The efficacy or otherwise of the Government programmes for imparting managerial skills to the farmers will be discussed under the relevant headings. It can be argued that the general lack of managerial ability in making decisions has retarded the rate of agricultural development through its effect on specialisation and limited organisational framework to absorb capital in productive investment. The failure of credit, subsidy and mechanisation schemes is partly attributable to the farmers' lack of managerial skills to take advantage of such schemes. Agricultural development planning, therefore, should make adequate provisions to enable and encourage farmers to make productive decisions which would raise the rate of economic growth.

5. <u>Infrastructure and Institutions:</u>

Agricultural development like general economic

1/ International Bank for Reconstruction and Development. <u>The Economic Development of Uganda</u>, Johns Hopkins Press, Baltimore, 1962, p. 130.

development requires the provision and expansion of infrastructure such as railways and roads and institutions such as credit, research, education and marketing facilities. In fact, the colonial philosophy for agricultural development was based on the assumption that provision of the infrastructure and institutions by the government was sufficient to bring about increased agricultural production through stimulating private initiatives. Accessibility to markets is very important for agricultural development and the provision of improved transport facilities is one of the principal requisites for the development of the market agriculture. Feeder roads to link agricultural areas with the main road and railway systems are very important in order to transform subsistence production to market economy.

Inadequate transport facilities cause much waste and are responsible for high marketing costs especially for bulky products. The opening up of roads to connect producing areas with the railway system has encouraged agricultural production especially of export crops such as cotton, coffee and tea. In fact, the construction of feeder roads is part and parcel of the tea expansion programme by outgrowers.

Other institutions such as research to develop improved production possibilities and higher yielding, disease resistant varieties; education and extension to impart knowledge of new techniques and farming methods to farmers and credit facilities to enable the farmers to acquire the necessary tools and implements are all very important. As will be shown later, the inadeququancy of these institutions must have limited the rate of agricultural progress.

Marketing institutions for buying, grading, storing and transporting of agricultural products play a crucial part in the agricultural development process and the transformation from subsistence to market economy. Improved marketing facilities and procedures affect agricultural development directly through providing for a better utilisation of a given level of production and indirectly by fostering increased production. Improved marketing increases the economic value of a given quantity of produce by providing it with the form, time and location utilities which increase consumer satisfaction. Any deficiencies in marketing and marketing institutions undoubtedly hamper agricultural development.

In Uganda the marketing institutions for most crops other than the crops under centralised marketing authorities such as cotton and coffee, have been insufficient. The local markets for exchange of agricultural produce between African producers and consumers are limited in terms of the quantities traded because most farmers in the same area grow the same type of crops mainly for their subsistence requirements and these markets take place infrequently, either once weekly or once every two weeks. It has also been suggested that farmers attend the local markets not so much to sell their produce and buy their food requirements but as a social occasion to meet friends.

Besides the local markets, the main marketing chain begins with primary buying by licensed produce dealers. These dealers have been mainly Asian traders located in townships and trading centres. Since these trading centres, are sometimes separated by long distances, especially in the sparcely populated areas, farmers in-between would have to travel long distances to deliver their produce to the nearest produce buyer. This would act as a disincetive to increased agricultural production. Other defects are due to the small quantities which producers deliver to the traders who have to hold these commodities until they accumulate large enough load to transport to the main produce merchants in Kampala. The small trader, therefore, has to bear the risk of prices dropping, spoilage and payment of high interest rates while he is accumulating the produce. Consequently, the prices offered by the trader to the producers are heavily discounted in order to ensure a wide enough margin to cover the trader's risk and profit. These lower prices act as disincentives to increased agricultural production and emphasize the need for organized marketing which would enable farmers to collect large quantities before delivery to tranders in order to induce them to offer better prices. Co-operative marketing is designed to achieve this end.

Beyond the stage of primary buying, comes the activities of the statutory marketing boards which were initially established to handle the two major export crops namely cotton and coffee. These are the Lint and Coffee Marketing Boa ds. Recently, the Government has established the Produce Marketing Board to handle all other agricultural produce including tobacco. The only export crops left out of the activities of the marketing boards are tea and sugar.

The marketing boards developed from war time marketing arrangements whereby most crops as well as marketable surpluses of staple commodities for domestic consumption were subject to various kinds of bulk-buying arrangements. The breakdown of overseas buying of cotton and coffee during the second world war forced the Uganda Government to become the sole purchaser of cotton and coffee using the ginners and coffee curers as its agents on commission for buying and processing. The prices paid to the growers were fixed and guaranteed by the Government. The Lint Marketing Board was set up in 1949 to take over the functions of Government in respect of cotton marketing and similarly the Coffee Industry Board was set up to buy and export coffee in 1953. This became the Coffee Marketing Board in 1959. The Produce Marketing Board was established in 1968.

Among the reasons advanced for the establishment and maintenance of the marketing boards is the need to stabilise producer prices in the face of fluctuating world prices which have unsettling effect and entail important social and economic disadvantages due to over-dependence of the economy of Uganda on cotton and coffee. It has also been suggested that cotton and coffee growers in general wish the price of their produce to be guaranteed and that in case of an annual crop like cotton, a guaranteed minimum price before planting would encourage farmers to plant more cotton. The farmers' response to the minimum guaranteed price would of course depend on attractiveness of the price. A lower price might in fact, discourage planting.

The other reason for retaining organised marketing was to offer protection to growers through the reduction of market uncertainties to the processors and exporters. It was stated that:-

> "The removal of the Lint Marketing Board between the exporter and the ginner would expose both to the full risks of the imperfect world markets without any opportunity of protection through the medium of a reliable hedge market. It follows that both exporters and ginners would have no option but to discount the price, they paid for lint and seed cotton to the obvious detriment of the African producer."1/

This is not important as long as cotton brokers have access to reliable future markets for cotton and can thereby reduce the risks.

1/ Uganda Government: Despatch from the Governor of Uganda to the Secretary of State for the Colonies. Sessional Paper No.4 of 1956/57, Government Printer, Entebbe, 1956, p.8.

Under the organised marketing arrangements, primary marketing and processing of cotton and coffee were carried out by private concerns acting as agents of the Boards on fixed margins of profit. The processed crops were offered for sale in open competition. There were no safeguards for the producers from being exploited by the processors as the processing allowances paid by Boards were based on cost figures submitted by the processors themselves. These allowances provided for super-profits besides encouraging inefficient processors to remain in business to the detriment of the farmers. An arbitrary reduction of ginners allowances from an average of 46.6 cents per pound of lint in 1961/62 season to 31.8 cents per lb. of lint in 1965/66 season indicate a saving of about £1 million on a crop of 350,000 bales of 400 lbs. each. This reduction of about 15 cents per lb. was excessive, and a reduction of 10 cents would have left the ginners with a comfortable of profit. A reduction of ginners allowances by 10 cents per lb. lint on a crop of 350,000 bales would mean a saving of about £700,000. This shows the extent to which the cotton farmers have lost through the fixing of ginners allowances.1/

1/ For further details see Uganda Government: Report of Committee of Enquiry into the Cotton Industry 1966 Government Printer, Entebbe, 1966.

However, it is still fair to say that the establishment of marketing boards reduced the exploitation of the producers by the processors and exporters and increased the value of the products through quality controls and organized marketing. But it was with the establishment and expansion of the cooperative movement that the bargaining power of small scale producers was strengthened and by acquiring processing factories the farmers were given the opportunity to benefit from large scale operations. The cooperatives like the Lint and Coffee Marketing Boards have covered the cotton and coffee growers and yet the problems of marketing other crops have been severe constraints on the expansion of cash crop production. With the establishment of the Produce Marketing Board, the marketing chain for the so-called minor crops is now developed.

6. Other Government Policies:

It is a well-known fact that the rate of increase of agricultural production is determined by the interaction of proximate factors and various conditioning factors that depend on government measures and policies which affect the nature of production possibilities available to the farmers.

The role of most of the conditioning factors such as agricultural research, extension and education, marketing facilities, credit schemes, and infrastructure have already been discussed. In this section price fixing and taxation policies and their effect on financial incentives will be examined.

Price fixing started during the second world war period when the Government itself became the purchaser of almost all produce sold and had complete control of prices. Minimum guaranteed prices were fixed for various crops and the price differentials, were used as the main instrument to induce cultivators to grow urgently needed crops and to discourage production of less needed commodities. It has been suggested that the price of cotton, which during the War was not in urgent demand, was held relatively low while the prices for crops such as maize or soyabeans were set high in order to meet wartime demand pattern.1/ The prices paid to the growers for their coffee were also kept down.

Among the reasons advanced for keeping down the prices paid to growers for their two main cash crops, namely cotton and coffee were the need to avoid inflation; to stabilize prices and incomes and to encourage food

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1/ Masefield, G.B. op. cit., p.113.

production and thereby indirectly assist industrialisation. It was argued that because of the shortage of consumer goods due to war time limited supplies and congestion at the port of Mombasa, passing to the farmers the full price increases would lead to inflation and the higher incomes would be absorbed in higher prices. This argument ignored the fact that the terms of trade were unfavourable to Uganda since the import price index had risen more than the export price index compared with the prewar period. (1935-38).1/

Low price paid to producers led to the accumulation of large sums of money by the public marketing organisations. The presence of these funds gave the Government the opportunity to establish price assistance funds to stabilize prices and incomes of producers. The Cotton and Coffee Price Assistance Funds were established in 1948 to ensure that money would be withheld from producers when prices are high and disbursed when the world prices fall and thereby augment producers incomes and mitigate the effects of the world price fluctuations of cotton and coffee on the economy.

1/ Wrigley, C.C. op. cit., p.69.

The other reason given was that if the prices of export crops were allowed to rise substantially, the growers might direct their efforts towards increasing the production of cash crops to the detriment of the production of food crops. The reduced food production might lead to famine conditions especially in towns where such high food prices might retard the rate of industrialisation.

The low prices paid to producers, besides encouraging food production and discouraging export crop production had the general effect of encouraging the transfer of labour from agricultural production into leisure and some into wage employment. The lower crop prices made technical changes such as mechanisation and improved husbandry less profitable and slowed down their rate of adoption. It is also said that the restraint on prices was greatly resented by producers to the extent that it was cited as one of the causes of the unrest and riots in 1945 and 1949 especially in Buganda region.

As a result of the war time marketing arrangements and the continuation of the government pricing policy involving paying guaranteed prices to the growers which were lower than the equivalent world market prices, large sums of money were accumulated in the Cotton and Hard Coffee Control funds. These funds amounted to £10.55 million in June 1948. Following the suggestion of the Advisory Committee on the Disposal of the Cotton and Hard Coffee Control Funds that these funds should be regarded as broadly available for two purposes namely, economic proposals designed to strengthen the industries and to increase the profits of the producers and proposals of general development and welfare in the producing areas.1/ The Legislative Council by a resolution in June 1948 decided that the Cotton and Hard Coffee Funds should be closed as at 30th September 1948 and the monies standing at the credit of the Funds applied as follows:-

TABLE II - 6

DISPOSAL OF COTTON AND HARD COFFEE FUNDS*

		£
(1)	Price Assistance Fund	3,925,000
	Cotton Price Assistance Fund	3,425,000
	Coffee Price Assistance Fund	500,000

1/ Uganda Government: Interim Report of the Advisory Committee on the Disposal of the Cotton and Hard Coffee Control Funds, Government Printer, Entebbe, 1945.

		£
(2)	Cotton and Hard Coffee Development and Welfare Fund	1,250,000
	Central Food Storage	100,000
	Agricultural loans; machinery and Plant	50,000
	Cooperative Societies - Loans	100,000
	Land Bank and Building Society	500,000
	African Housing	500,000
(3)	Grants to Native Administrations	250,000
(4)	Grants to Reserve Fund for Post-War Development Schemes	4,625,000
(5)	Reserve for Projects outside Development Plan	500,000
	Total	10,550,000

* Source: Annual Report of the Department of Agriculture 1948, p. 5.

The above allocation meant that of over £6.5 million was to be used for various development projects of no immediate benefit to the cotton producers from whom most of the funds were withheld.

The few years which followed saw a tremendous increase of the price assistance funds as very large sums of money were being added annually. For example, in 1951 alone, over £13.7 million was added to the cotton price assistance fund and over £5.1 million to the coffee price assistance fund. In the same year, the cotton growers were paid only £10.4 million and the coffee growers some £3.6 million (see Table I - 11, p. 44). By the end of 1951, the cotton price assistance fund stood at £21.4 million, a six-fold increase since 1948 and coffee price assistance fund was £9.1 million, an increase of nearly twenty times. This unprecedented increase in the price assistance funds is considered to have been somewhat fortuitous and unplanned and mainly due to greater increase in world prices than what had been expected. The government policy was somewhat ad hoc though there was a general philosophy of some sort. The government strategy of the period according to Sir John Hall who was Governor of Uganda from 1944 to 1951 was:

> "the policy of the Government has been to treat the greatly enhanced post-war prices of cotton and coffee as in the nature of a windfall, a large proportion of which should be creamed off the price before payment is made to the cultivator."1/

This policy of forced saving, though modified in 1953 when it was decided that the guaranteed price to be offered to the grower would be as much as possible

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1/ Walker, D. and Ehrlich, C. "Stabilization and Development Policy in Uganda: An Appraisal" Kyklos, Vol. XII, 1959, pp. 341-353.

one reflecting the World market price after deducting the necessary processing, marketing and transport costs; came under strong criticism from the East African Royal Commission 1953-1955 mainly because of the amounts collected and their utilization. From June 1948, to the end of 1952-53, some £44,475,000 or nearly £9 million per annum had been collected from the cotton and coffee growers into the two price assistance funds. The sum of £9 million was nearly equal to the total African wage-bill in 1952 or to 23 per cent of the total African cash income of that year.1/ This represented a very high proporation of the growers incomes as will be demonstrated later.

Unlike the coffee funds which were used to support prices to growers and to run the coffee Marketing Board and its predecessor the Coffee Industry Board, the cotton funds were mainly used to finance various development schemes and projects. Since 1952 when the African Development Fund was established and when it was decided that any amount in excess of £20 million should be transferred from the Cotton Price Assistance Fund to the African Development Fund, some £17.4 million were so

1/ East Africa Royal Commission 1953-1955 Report. *Op. cit.*, p. 82.

transferred. The utilisation of the African Development Fund is indicated in Table I - 16 (p.65) and shows that only 8 per cent was spent on agricultural education, mechanisation and other agricultural projects.

Table II - 7 below shows the general disposal of cotton funds for the period 1945-1966. It should be noted that only £13.4 million or 26.5 per cent was paid to growers in price supports. In addition £1 million was spent on cotton spraying subsidy. In all, £19.4 million or 38.4 per cent was used for the direct benefit of the cotton growers.

In Uganda, agricultural taxation in the form of export duties on coffee and cotton has been a major source of revenue for the Government. (See Tables I-14 p.56). This taxation policy has been criticized on the grounds that export duties are discriminatory against the cotton and coffee growers and they tend to be a disincentive because they fall directly on output. It has also been argued that these export duties have been excessive and according to D.A. Lury, the export tax on cotton represented over 32 per cent of the payments to growers and over 25 per cent of the payments to coffee growers for the period 1945-60 (see Table II - 8).

Table II-8 shows the magnitude of the levies on

TABLE II - 7

DISPOSAL OF COTTON FUNDS - 1945-1966*

Period	Scheme	Amount £'000	Percentage
1945-1948	Various Development Funds (Table II - 6)	6,375	12.62
1952-June 1960	African Development Fund	17,353	34.37
	Loan to Capital Development Fund	5,000	9.90
	Working capital of LMB	5,000	9.90
	U.E.B. Stock	1,200	2.38
	Local Investments Funds	500	0.99
1960-1966	Groundnut deficiency payment	86	0.17
	Cotton Spraying subsidy	1,035	2.05
	Payments to Growers	13,365	26.47
	Loans to cooperative Unions	583	1.15
	Total	50,495	100.00

* Source: Uganda Government: Reports of Accounts.

TABLE II - 8

LEVIES ON INCOMES OF COTTON AND COFFEE GROWERS 1945-1960*

	Cotton		Coffee		Cotton & Coffee	
	Value £'000	Percentage of payments to Growers	Value £'000	Percentage of payments to Growers	Value £'000	Percentage of payments to Growers
Payments to Growers	135,254	100	96,618	100	231,872	100
Export Duties	43,537	32.2	24,691	25.5	68,228	29.4
Contribution to Development Funds	24,200	17.9	625	0.6	24,825	10.7
Increase in Price Assistance Funds	15,918	11.8	9,979	10.4	25,897	11.2
Total deductions	83,655	61.9	35,295	36.5	118,950	51.3

* Source: Lury, D.A., "Cotton and Coffee Growers and Government Development Finance in Uganda 1945-1960" East African Economic Review, Vol. 10, No.1, 1963, pp. 47-53.

incomes of cotton and coffee growers for the period 1945 to 1960. The total deductions in form of export duties, increase in the price assistance fund and contribution to the various development funds amounted to £83.7 million or about 62 per cent of the payments to cotton growers and the total deductions from the coffee growers amounted to £35.3 million or 36 per cent of the payments to the growers. The total deductions from both the cotton and coffee growers amounted to £118.9 million or over 51 per cent of the total payments to growers during the period.

The argument against export duties on grounds of inequity does not seem to carry much weight, since the cotton and coffee growers, form the great majority of the population. According to the Uganda Census of Agriculture, 63 per cent of the holders plant cotton and over 42 per cent of the holders plant coffee.1/ Even allowing for some holdings which might grow both cotton and coffee especially in the Buganda region, almost every holding grows either of these crops. Since in an agricultural country such as Uganda it is not possible to raise the required revenue without the tax

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1/ Uganda Government: Report on Uganda Census of Agriculture Vol.III. Government Printer, Entebbe, 1966, p.61 and p.70.

system reaching down to the small farmers, the argument might be more on the method than equity.

It is difficult to be certain about the effects of export duties in discouraging increased production as coffee production has steadily increased and while cotton production has fluctuated at random. According to N. Kaldor, it is the shortage of resources and not inadequate incentives which limits the rate of economic development. He argues that given availability of fertile land and knowledge, the agricultural population would tend to worker harder and produce more when additional taxes are levied on them. That is they would reduce their leisure, rather than their standard of living.1/ Taxation would therefore act as an incentive to produce more. But, in the absence of a target income, the indirect taxation in form of export taxes might not act as a production incentive. The main argument against agricultural taxation in Uganda is that it has been excessive. This argument become even stronger when consideration is given to the fact that the Government had surplus balances during that period.

1/ Kaldor, N. "Taxation for Economic Development" <u>The Journal of Modern African Studies</u>, Vol. 1, 1963, pp.7-23.

In conclusion, I would encore the view of D. Walker and C. Erhlich that:

"heavy taxation of export earnings slows down economic development by reducing the rate of productive investment and causing large sums of money to be spent on public consumption goods".1/

In case of Uganda, taxation and price fixing policies prevented farmers from building up their personal capital and improving their farms and have aggravated the effects of market fluctuations and did little to stabilize farmers incomes.

1/ Walker, D. and Erhlich, C. op. cit., p.352

CHAPTER III

AGRICULTURAL PLANNING AND INVESTMENT CRITERIA

Introduction:

Agricultural planning like general economic planning started after the second world war in an effort to increase agricultural production and to accelerate the transformation from subsistence to commercial agriculture. Although all development plans in Uganda have contained schemes and measures designed to raise agricultural production, none contained a comprehensive agricultural sectoral plan except the Second Five-Year Development Plan. As would be expected in the initial stages, the agricultural sectoral plan in the Second Five-Year Development Plan was incomplete and deficient both in scope and content. This will be discussed fully in Chapter seven below.

Given the dominant position of agriculture in Uganda's economy, planning the agricultural sector is vital for overall economic growth as the rate of growth of the whole economy is mainly dependent on the agricultural rate of growth. The purpose of planning is to bring about a faster and more orderly progress towards the achievement of the country's development objectives through co-ordination; better resource allocation and integrated implementation measures and policies. The planning process contributes to a rapid rate of economic growth to the extent that it provides a clearer picture of the interplay of economic forces; attracts increased supply of scarce resources; encourages greater release of energies of the people and results in more efficient use of available resources through greater mutual consistency.

The planning of the agricultural sector however, is complicated by consideration of the special characteristics of the sector. These according to P.G.H. Barter, may be considered under four groups, namely, those arising from the biological nature of agricultural production; those from historical causes; those connected with the small and dispersed nature of agricultural production and those from the special characteristics of investment in agriculture.[1] These characteristics make it imperative for the agricultural sectoral plan to be sufficiently disaggregated and

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1/ Barter, P.G.H. "Special Problems of Agricultural Planning" U.N./F.A.O. Monthly Bulletin of Agricultural Economics and Statistics Vol.II No.6, 1962 pp. 1-7.

flexible so as to adjust to local environmental conditions of soil fertility, climate and the availability of processing and marketing facilities. The historical causes are generally connected with traditions, customs and institutions which unless appropriate measures for social change are taken, may constitute a brake on further development.

The small-scale and dispersed nature of agricultural production is said to be the underlaying cause of the unsatisfactory marketing arrangements because of the inherent difficulty of providing sufficient agricultural infrastructure to cover such a wide area. In addition to the small-scale and dispersed nature, peasant agricultural production involves large numbers of people with different cultural, social and economic backgrounds. In order to solicit the co-operation of these people in implementing the agricultural development plan, it is essential that the plan's objectives, policy measures and individual projects should be formulated in such a way as to cover this wide spectrum of interests. To formulate an appropriate development package of policies and projects is the main task of the agricultural planner.

The nature of agricultural investment presents some problems in planning. A large part of agricultural investment in farm improvements is in the form of unpaid family labour. This non-monetary investment together with the great requirement of working capital as opposed to fixed capital calls for special attention to the planning of agricultural investment. These problems are aggravated by the paucity of statistical data which would be required for such disaggregated planning.

Agricultural planning faces the same problems encountered in planning the private sector. And, in order to influence the decisions of the farmers the government has to adopt appropriate agricultural policies such as provision of incentives, capital and know-how designed to promote private enterprise and initiative. The relevant policies will be discussed below and it sufficies to say here that the set of policies which the government has to adopt to bring about the required results is the core of private sector as well as agricultural planning which is mainly private.

In this chapter, a review of the main elements of agricultural planning will be given so as to serve as a basis and framework against which the planning techniques and agricultural policies in chapters four to seven will be discussed and appraised.

<u>Elements of Agricultural Planning</u>

There is no universally accepted all-inclusive list of elements of agricultural planning and it is not intended to give such a list here. The importance attached to each element and the planning sequence would depend on the resource endowment, product-mix and the planning procedure adopted. Basically, there are two main procedures for formulating and compiling a comprehensive plan. The first being "planning from-the-top-down" which starts with the projection model and aggregate targets and divides these into interrelated sector plans, projects and programmes. The second procedure is the "planning from-the-bottom-up" which involves combining public and private investment projects and programmes into sectoral plans which through the process of successive approximations eventually form the comprehensive aggregate plan and targets. According to Albert Waterston 1/

> "planning from-the-top-down generally has preceded planning from the bottom-up. But good planning requires that from the bottom-up should start at least as early as planning from the-top-down."1/

1/ Waterston, Albert: <u>Development Planning: Lessons of Experience</u>, The John Hopkins Press, Baltimore, 1965. p. 65.

In Uganda the first procedure was followed during the preparation of the Second Five-Year Development Plan and the second procedure is being followed in the preparation of the Third Five-Year Plan. There are economists who consider planning from below or disaggregated micro-economic planning more effective for the agricultural sector in the developing countries given the prevalent lack of data.[1] But since the lack of data and other planning problems are common to both procedures, the effectiveness of the planning process must depend on how we each of the main elements of comprehensive planning is executed. The main elements of a comprehensive agriculture planning include the following:-

(1) Formulation of general sectoral objectives

(2) Analysis and determination of resource endowment and commodity markets.

(3) Formulation of agricultural development strategy.

(4) Selection and evaluation of investment programmes and projects.

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[1] Rukandema, F.M. "On the Effectiveness of Agricultural Planning in Developing Countries: Methods and Problems. R.D.R. 98.

(5) Compilation of the agricultural sector plan.

(6) Implementation measures.

1. Formulation of General Sectoral Objectives

The general objectives of the agricultural sector plan will naturally reflect and fall within the framework of the overall development objectives and strategy of the country. The agricultural objectives are generally derived from such overall objectives as increasing the national income, reducing inequalities in income distribution, increasing employment opportunities, increasing exports and improving the balance of payments position. In the Second Five Year Development Plan objectives which were based on the perspective plan objective of doubling the monetary income per capita by 1981 included increased production and wealth, diversification of production and social and economic justice.

The agricultural objectives were derived[1] from the general objectives and included general expansion in output, diversification of production and structural change. For it was recognized that:

[1] Uganda Government: Work for Progress, Uganda's Second Five Year Plan 1966-1971, Government Printer, Entebbe, 1966, p.30.

"For the next generation and longer, even with the maximum possible diversification of the economy, agriculture will remain the most important source of domestic income, foreign exchange and employment. Domestic production also will provide almost all of Uganda's food supply." 1/

In Uganda where the attainment of the overall development objectives depends largely on the performance of the agricultural sector; the agricultural objectives should be mutually consistent with the overall objectives and should be adjusted *pari passu* should the analysis of the resource endowment so dictate.

The agricultural objectives were not explicit enough and were to a certain degree incompatible. The objective of overall expansion in output may not be compatible with diversification unless crops are specified whose production would increase or decrease. The diversification objective, though a means and not an end in itself, might conflict with the social and economic justice consideration to the extent that there may be no suitable alternative cash crop to offer farmers in a certain area. The diversification

1/ Uganda Government: Work for Progress. Uganda's Second Five Year Plan 1966-1971. Government Printer, Entebbe, 1966, p.55.

objective if pursued too rigourously might lead, because of the time lag between the introduction and production of new crops, to a reduction in overall agricultural output. It is necessary, therefore, for the agricultural objectives to be stated more explicitly and for the order of priority among them to be established so as to give a proper guideline during the planning stages that follow.

2. <u>Analysis and Determination of Resource Endowment and Commodity Markets</u>

Having established the general objectives and their order of importance, it becomes necessary to examine and analyse natural resources, available and expected investment funds, institutional and organisational set up and economic trends to ensure that the objectives are realistic and attainable. The analysis would start with a review of microeconomic trends of population, gross national product, exports, imports and investment resources. This review would give both the direction and the rates of growth of the various components of the economy.

The analysis would also include stocktaking of the current trends of agricultural production and an assessment of the development potential. The investigation of the development potential would include soil surveys to ascertain soil fertility and types suitable for certain crops such as tea which requires soils of a particular PH range. Rainfall distribution and reliability is also important for agricultural production. It is also necessary to study the factor markets and distribution channels in order to make an assessment of the trend of agricultural supply and prices. Such an exercise would benefit from a thorough analysis and appraisal of past agricultural plans which would identify chief factors of growth and highlight the problems to be overcome on the supply or production side.

Like the supply, the demand for agricultural products requires a thorough study. Proper agricultural planning requires an assessment of the prospect and future demand for agricultural commodities, not only for domestic consumption of food and raw materials but also for export. The projection of demand for food over the plan period would indicate to what extent it is possible to expand cash crop production given the productivity of available resources in the peasant sector. The planned decline in the relative importance of subsistence production and the possibility of food import substitution depend on the productivity of the subsistence sector and the rate of growth of domestic food consumption. The factors which affect these relationships deserve serious study during the planning process.

The diversification objective and that of extending cash crop agriculture to ensure that all farmers receive the major part of their income from cash sales dictate that proper market research be undertaken on each and every cash crop to ascertain that adequate market exists at remunerative prices. Since proper market research would have to cover all the factors that influence the demand for the particular commodity, its scope is extremely wide. The important factors that influence the demand of a commodity include consumers incomes, tastes and preferences, the price of the commodity and the prices and availibility of its substitutes and complements as well as national and international policies that affect the trade of the commodity in question. Given the great scarcity of skilled manpower and the high cost of collecting and analysing statistical data, a country like Uganda may not be in a position to carry on proper market research on all except a few important cash crops. A few cash crops such as sugar tobacco which are covered by special marketing and pricing arrangements are easier to handle, others which are traded in local markets are difficult to analyse because of lack of statistical data.

Export crops whose production and trade statistics are much better nevertheless, pose their own problems due to the international nature of their trade and the complexity of the market forces. Fortunately, these are the crops which regularly come under study by specialized agencies of the United Nations such as Food and Agriculture Organization, the World Bank; Commodity organizations such as International Coffee Organization, International Institute for Cotton and other organizations dealing with tea, cocoa and sugar. The findings of such organizations on the market prospects for the export crops could be used in planning for exports and diversification to avoid misallocation of resources on crops with uncertain markets.1/

The analysis of economic trends, resource endowment, infrastructure, marketing facilities, institutional organizations, high level manpower supply, factor markets, supply and demand conditions may indicate new development opportunities and bottlenecks. This will lead to the re-formulation of the objectives and changes, in the order of priority. The analysis will also form the basis and foundation for the agricultural development strategy and sectoral plan.

1/ Rukandema, F.M. "Foreign Demand and Supply Analysis and Planning for the Agricultural Export Sector." R.D.R. 83

3. Formulation of Agricultural Development Strategy

The determination of the right strategy for development is vital if the agricultural objectives have to be achieved given the available resources and the institutional and organisational framework. Although the strategy for agricultural development has to fall within the general development strategy, it also has to reflect the general characteristics and the role the sector has to play in the process of growth. In chapter one, the major characteristics and the role of agriculture in Uganda's development have been discussed. It has been shown that agriculture plays a leading role as a source of food, raw materials, export earnings, capital, government revenue and offers employment opportunities. The discussion in chapter two has revealed that the agricultural sector contains large quantity of resources with unexploited potential and indicated the factors which influenced the rate of agricultural development. These are some of the considerations which must be borne in mind in formulating the strategy for agricultural development.

A more explicit overall strategy for economic development in Uganda is given in the First Five-Year Development Plan as the maximum utilisation of scarce resources of capital and skilled manpower in prudent combination with underutilised unskilled labour and fertile land. The strategy for development in the Second Five-Year Plan is based on structural change and expansion on all fronts. These overall strategies leave a lot of room for the determination of the specific sectoral strategy.

There are basically two main strategies for agricultural development, namely, improvement and transformation approaches. The improvement approach is based on the injection into peasant agriculture of improved practices, better seed varieties, fertilizers, insecticides and management to combine with underutilized land and unskilled labour. The transformation approach on the other hand stresses the development of large scale farms, the introduction of capital intensive projects such as irrigation, resettlement and mechanisation. In practice, however, the chosen strategy is generally a combination of the two approaches whose emphasis will depend on the stage of development the country has reached, resource endowment and the objectives to be achieved. The strategy for agricultural development in Uganda should be based on maximising returns to scarce capital and management by combining these factors with the relatively plentiful supplies of unskilled labour and fertile land, thus minimising requirements for scarce resources of high opportunity cost such as foreign exchange and high level manpower.

Alternatively, the strategy should aim at widespread adoption of output increasing innovations by providing complementary inputs such as high yielding seeds, fertilizers, pesticides, credit and managerial skills to combine with the relatively abundant resources of land and labour already committed to the agricultural sector. There is also great potential for increasing agricultural output and productivity by the introduction of technological innovations which call for large capital expenditure provided adequate provisions for research, education, extension and marketing and processing facilities are made.

In accordance with the projection model and the general objectives, the overall target growth rate for the economy is decided. The growth rate for the agricultural sector can be derived from the overall growth rate and adjusted after the strategy and objectives of the sector have been formulated. Where possible objectives for agricultural development should be translated into quantitative targets of both inputs and outputs needed to accomplish them. The sectoral growth rate must be related to target output for individual products. The production targets must in turn be related and consistent with target supply of inputs such as fertilizers, pesticides, seeds, improved planting materials, animal breeding stock, agricultural tools and machinery, transport storage, marketing facilities and skilled manpower.

The production targets should be set commodity by commodity after the feasible crop pattern has been established and should give a quantitative picture of the commodity tasks to be achieved by the agricultural plan. According to E.F. Szczepanik, the agricultural production targets should refer to capacity to produce since actual output is difficult to plan because of the vagaries of nature. He suggests that the development perspective should be drawn in terms of minimum variant which is determined by the extrapolated historical trend in agricultural output; the maximum technical variant which corresponds to the maximum feasible expansion of the agricultural output within the planned institutional framework and a range of alternative variants in between the two.[1] The choice of any particular variant is a policy decision based on its economic consequences.

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[1] Szczepanik, E.F. "Targets and Financing of Agricultural Development" U.N/F.A.O. Monthly Bulletin of Agricultural Economics and Statistics." Vol. 18 No.1 1969.

S. R. Sen suggests that

> "In view of the uncertainities of weather and prices as well as the other difficulties which are inherent in programmes for agricultural development, it may be useful to fix targets in terms not merely of a single figure of final output but in terms also of (i) a range of outputs or of
> (ii) average output for five years and of
> (iii) inputs." 1/

He also suggested that another possible approach may be to set production targets from the village upwards so as to reflect the expectation and felt needs of the farmers. He concluded that more than one approach should be followed and considerable adjustments through successive approximation and iteration would be necessary before a consistent set of output targets can be developed.

The chosen output targets should be related to the various inputs and development measures to show the main sources of increase. This could be in the form of a table showing commodity by commodity what percentage of increase is due to new acreage, fertilizer application, pest control measures, improved seed variety and other factors connected with good husbandry. Since the percentage increases may

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1/ Sen, S.R. The Strategy for Agricultural Development Asia Publishing House, London, 1966, p.73.

differ from region to region, the table should be presented on regional or district basis. Similar tables would also be needed for other sub-sectors such as livestock industry, fisheries and forestry to ensure the consistency of targets with inputs in the agricultural sector.

Although the total allocation of investment resources to the agricultural sector is usually determined within the general projection model to ensure the achievement of the overall objectives and intersectoral consistency, this can and often is modified during the planning process. Another way of determining the sectoral financial allocation is by costing various inputs and measures related to particular output targets consistent with the main development sectoral objectives.

4. Selection and Evaluation of Investment Programmes and Projects

Having formulated the objectives and strategy for agricultural development it becomes necessary to select and evaluate investment programmes and projects which would contribute most to the attainment of sectoral targets and objectives given resource endowment and intersectoral resource allocation. Since Uganda, like many developing countries, lack resources necessary for rapid economic growth, it is imperative that the available meagre resources should be allocated in such a way as to maximize the rate of economic growth. Investment criteria are the tools used in allocating scarce resources among the various projects and programmes in order to obtain the optimum development programme.

In developing countries, besides the need to maximise the rate of economic growth from the planned investment, there are other forces at work which encourage economic evaluation of development projects. These forces are the need to avoid repetition of past failures of government sponsored schemes and the insistence of donor countries and international lending agencies that proper project evaluation is a precondition of granting a loan. As early as 1962, Uganda recognized the fact that in order to obtain access to external resources, the project should be prepared so as to meet the criteria of the agencies in question to the fullest possible extent.[1] Although evaluations have become increasingly strigent, the lending agencies have done a great deal to pioneer the field and develop practical methods of project appraisal. In this regard, the

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[1] Uganda Government: Background to the Budget 1962-63. Government Printer, Entebbe, 1962, p.12.

efforts of the World Bank Group is noteworthy.

The main functions of the investment criteria are two-fold, the first is to test the quality of a project so as to show its desirability and justification and secondly, to give an ordered list of priorities which could be used in conjunction with similar lists from other sectors to decide what resources should be allocated to which projects. As will be argued later, investment criteria are more suited for testing the desirability and profitability of the projects and are less effective when intersectoral comparisons are attempted because of the great variability of the investment criteria coefficients due to differences in factor-product mix and length of life of the different projects. It has been indicated that sectoral resource allocation should be based on a projection model for the whole economy which takes into consideration economic, social and political objectives and ensures consistency of resource supplies,[1] product demands and regional balance.

The main principle involved in any investment criterion is an attempt to measure the contribution of the proposed investment towards the attainment of a particular objective or a number of objectives. The choice of any investment criterion depends on the importance of the objective the development project is supposed to attain. Hence, the diversity of agricultural development objectives calls for different investment criteria as being more suitable for evaluating certain development projects. If the main objective for development is an increase in gross domestic product, then the capital output ratio and benefit-cost ratio are the suitable investment criteria. Similarly, for high economic growth rate, the savings rate and re-investment quotient are the appropriate criteria and for employment promotion, the criterion is the capital-labour ratio or net increment in employment generated plus the income distribution pattern.

Thus, from the point of view of maximum increase in gross domestic product, projects will be chosen with a low capital output ratio and a high ratio of assessed benefits to costs. Similarly, for a high rate of economic growth, projects will be chosen which tend to raise the rate of savings and thus promote the reinvestment of capital. These would usually be projects which increase the incomes of people who have a strong propensity to save and re-invest. In the agricultural sector, these would be large scale plantation owners growing such crops as tea, sugar cane and coffee rather than small peasant farmers.

In general, the investment criteria measure the productivity of resources and give coefficients of benefits over cost. Usually, it is the productivity of the scarce resources, especially where it is assumed that capital is the scarcest factor, which is measured on the assumption that optimum utilisation of the scarce factors leads to the optimum utilization of the abundant factors. This is not always the case. In this section, however, four investment criteria applicable to agricultural projects and programmes will be discussed. These include the capital output ratio, social marginal productivity of capital, the benefit-cost ratio and linear programming.

(a) Capital Output Ratio

The capital output ratio when applied as an investment criterion is synonymous with the capital turnover criterion and stipulates that in order to maximize the national income, choice should be made of investment projects with a minimum capital output ratio or a high ratio of capital turnover. The capital-output ratio can be expressed either as an average or incremental. The net incremental capital-output ratio or capital coefficient represents the net change in total capital investment required per unit increase in the value added to the putput.

The overall or average capital-output ratio has been widely used, not so much as an investment criterion but mainly in growth models of the Harrod-Domar type as a tool for estimating capital requirements for the whole economy, various sectors, or individual industries and processes. This concept assumes a stable relationship between capital invested and output which is more likely to be the case for the economy as a whole but not for sectors and projects. In fact in the commodity-producing sectors, the capital output ratios vary widely as they are dependent on the stage of economic development, the pattern of investment, technology adopted, the relative importance of other factors of production, commodity mix and the amount of investment in complementary sectors. The capital output ratios are higher for transportation and construction sectors than for manufacturing and agricultural sectors. This limits the extent and usefulness of intersectoral comparisons based on these ratios.

According to H.B. Chenery, the minimum capital output ratio as an investment criterion is valid when capital is the only scarce factor or when other inputs are so abundant relative to capital that the latter is the main determinant of the cost of production. Or, when the market prices for the different products coincide with the social values. 1/

1/ Chenery, H.B. "Comparative Advantage and Development Policy" American Economic Review, Vol. 51. 1961 p.18.

Or, when production takes place under constant costs. 1/ These conditions are restrictive and do not obtain in the agricultural sector where skilled labour and managerial skills may be as scarce as capital, and where the inputs of labour and working capital are more important than fixed capital.

Because of the nature of agricultural production, the application of the capital-output ratio is subject to several qualifications and limitations. The most important limitation is the magnitude and composition of fixed capital investment which may be so small in proportion to total inputs that the fixed capital-output ratio may vary widely due to factors other than capital investment *per se*. Also in the measurement of the incremental capital-output ratio for agriculture, attention must be given to the effect on output of both the weather and the gestation period of the project, and yet, the capital-output ratio ignores the time element. In pursuing the income objective, the country is interested in knowing when the benefits will begin to accrue.

1/ Chenery, H.B. "Comparative Advantage and Development Policy" *American Economic Review*, Vol. L1. 1961 p.18.

A project with a high-capital output ratio may be preferred to one with a lower ratio, if the former yields the benefits at a much earlier date.

The other limitation of the capital-output ratio criterion is the neglect of the supplementary benefits of the investment project. Despite these objections, the capital output ratio criterion would usefully be applied in circumstances where capital is the scarcest factor and for economic appraisal of the sectoral allocation of resources in a broad sense. It is in this last use that the capital output ratio analysis has been used in Uganda although it is known that historical ratios may not be good guidelines for future investment.

(b) Social Marginal Productivity of Capital

Some economists, notably A.E. Kahn consider the capital intensity criterion as 'erroneous' as it attempts to economise the use of the scarce capital by concentrating on the capital light investments. According to him,

> "the correct criterion for obtaining the maximum return from the limited resources is marginal productivity - or, from the point of view of society as a whole, social marginal productivity (SMP), taking into account the total net contribution of the marginal unit to national product, and not merely that portion of the contribution

> (or its costs) which may accrue to the private investor" 1/

Hence, an efficient allocation of resources is the one which maximises the value of national product by allocating resources in such a way that the social marginal productivity of capital is approximately equal in the different projects.

H. B. Chenery attempted to quantify the social marginal productivity criterion by using simple rules of thumb, such as the balance of payments effect and capital intensity. The effect of the project on national income can be approximated by applying a set of corrections on the private return and costs for such factors as tariffs, taxes, subsidies, external economies and opportunity costs in order to arrive at social values. With these elements in view, Chenery expanded the social marginal productivity criterion into the following formula 2/

$$SMP = \frac{X+E-M_i}{K} - \frac{L+Md+O}{K} + \frac{r}{K}(aB_1+B_2) \quad - - - (1)$$

1/ Kahn, A.E., "Investment Criteria in Development Programs" Quarterly Journal of Economics, Vol. LXV, 1951 p.39.

2/ Chernery, H.B. "The Application of Investment Criteria" Quarterly Journal of Economics, Vol. LXV11, 1953 p.82.

Where SMP is the average annual increment in national income from the marginal unit of investment in a given project

K is the increment to capital (Investment)

X is the corrected market value of output

E is the value added to output due to external economies

Mi is the cost of imported materials

L is the labour cost

Md is the cost of domestic materials

O is overhead cost including depreciation of capital

r is a measure of over or under valuation of national currency.

a is the combined amortization and interest rate

B_1 is the effect of installation of investment on the balance of payments

B_2 is the effect of operation on the balance of payments

Equation (1) above can be reduced to

$$SMP = \frac{V}{K} - \frac{C}{K} + \frac{Br}{K} \qquad (2)$$

by replacing the numerator groups with single letters. The term $\frac{V}{K}$ represents the value added in the domestic economy per unit of investment and is the rate of capital turnover corrected for imported inputs; $\frac{C}{K}$ expresses total operating cost per unit of investment and $\frac{Br}{K}$ is the balance of payments premium per unit investment.

Chenery applied this formula in calculating the social marginal productivity of industrial projects in Greece and agricultural projects in Southern Italy. The agricultural projects included roads, irrigation and flood control and the social marginal productivity coefficients varied between .06 for flood control and .19 for irrigation projects. 1/

The critics of the social marginal productivity criterion point out that the criterion is expressed in terms of once-for-all effect on the national income and does not include the specific multiplier effects of investment on future income levels. W. Galenson and H. Leibenstein challenged some of the basic premises and corollaries of the social marginal productivity criterion and questioned the validity of the maximization of the national product as a goal for economic development on the grounds that there are other social objectives to consider. In their view, the appropriate economic goal should be the maximization of per capita output or average income either over time or at some time in the future. 2/ In their view, the correct

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1/ ibid. p.85.

2/ Galenson W. and Leibenstein H. "Investment Criteria, Productivity and Economic Development" Quarterly Journal of Economics. Vol.LXIX, 1955, p.345.

allocation of investment resources would be to choose for each unit of investment that alternative that gives each worker a greater productive power than any other. To achieve this, they suggested the marginal per capita re-investment quotient as the investment criterion. Such a criterion, would tend to favour capital intensive projects even where capital is scarce.

O. Eckstein in an attempt to reconcile the conflict between Kahn and Chenery's social marginal productivity and Galenson and Leibeinstein's marginal per capita re-investment quotient suggested a new criterion called the marginal growth contribution which takes into consideration the influence of a project on the rate of capital formation. The criterion maximizes the present value of the future consumption streams.1/ But the high level of abstraction implicit in the assumptions of the marginal growth contribution criterion make it almost inapplicable to the developing countries.

Similarly, the assumptions of and basic data required by the social marginal productivity creterion severely limits

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1/ For a full discussion see O. Eckstein "Investment Criteria for Economic Development and the Theory of Intertemporal Welfare Economics" Quarterly Journal of Economics, Vol. LXX1, 1957 p.56.

its applicability to developing countries. The lack of reliable data would make it difficult to estimate the value added due to external economies and to correct the market values in order to get the social values of the products and factors of production to be used in calculating the parameters and coefficients of the criterion. Although, J.C. Wells considers that the social marginal productivity is the most appropriate investment criterion to test the profitability of investments and is consistent with the model of development planning in Nigeria but he does not indicate how the above drawbacks could be overcome. [1] Because of these drawbacks, the social marginal productivity criterion has not been used in evaluating investment projects in Uganda.

(c) Benefit Cost Ratio

The benefit cost analysis is the main investment criterion which has been chosen and widely used in evaluating development projects in Uganda and other countries. In fact, it is said that the benefit-cost analysis is the only approach to economic appraisal of agricultural development projects

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1/ Wells, J.C. "Investment Criteria and the Nigerian Development Plan" The Nigerian Journal of Economics and Social Studies. Vol.6 No. 3, 1964 p.277.

that is at all well established.[1] It was developed and extensively used by the various agencies of the United States Government especially in connection with water resource development projects.

Benefit cost analysis was a subject of intensive study by O. Eckstein at Harvard University, who indicated that the technique is based on the theory of welfare economics and assumptions of a competitive model in which consumers and producers are assumed rational and the market perfect.[2] Under these conditions, the benefit cost criterion acts as means of testing the quality of a project in order to establish its justification and also as a priority figure for selecting the most desirable projects according to their effects on national income.

According to O. Eckstein, the benefit cost criterion can be represented symbolically as follows:-[3]

1/ Ojala, E.M. "The Programming of Agricultural Development" in Southworth, H.M. and Johnston, B.F. (Eds). <u>Agricultural Development and Economic Growth</u> Cornell University Press, Ithaca, 1067, p.573.

2/ For the full discussion of the theoretical basis of the technique see Eckstein, O. <u>Water Resource Development: The Economics of Project Evaluation</u>. Harvard University Press, Cambridge, Mass. 1958.

3/ The formulation is from Eckstein, <u>ibid</u>. p.56.

Let B = total benefits expected to be received annually

C = total costs per year consisting of annual operating charges and depreciation of capital

K = fixed capital investment

O = annual operating, maintenance and depreciation costs incurred

i = rate of interest

N = amortization period

From the above, the benefit cost criterion B/C, is the ratio of present value of total benefits as given by the sum of the discounted annual benefits.

$$\sum_{n=1}^{N} \frac{B}{(1+i)^n}$$

and the present value of the total costs is given by the discounted annual operating charges plus the fixed capital investment.

$$\sum_{n=1}^{N} \frac{O}{(1+i)^n} + K$$

Hence the $^{B}/C$ ratio is

$$\sum_{n=1}^{N} \frac{B}{(1+i)^n} \left[\sum_{n=1}^{N} \frac{O}{(1+i)^n} + K \right]^{-1}$$

In applying the benefit cost analysis as a social investment criterion, the total benefits and costs must be estimated, calculated and evaluated as accurately as possible. The benefits being goods and services resulting from the project which add to the national income and the costs are goods and services which the country has to forego in order to establish and run the project. The method distinguishes direct project costs and associated costs, direct benefits and indirect benefits. There are also intangible benefits and possibly costs. The direct project costs are the value of goods and services such as land, labour and materials used for the establishment, maintenance and operation of the project. The associated costs are the value of goods and services needed to make the products of the project available for use or sale.

The direct benefits on the other hand are the value of the products and services directly resulting from the project, that is an increase in value of agricultural output in case of an agricultural project. The indirect or secondary benefits are the values added to the economy over and above the value of the primary or direct benefits. The intangible benefits being those which cannot be qualified and expressed in monetary units. These raise serious problems of measurement and evaluation.

Since the benefits and costs of projects occur in diverse physical forms, at different times and over varying periods of time, it is important to bring these effects to common basis of measurement so as to permit meaningful comparisons of benefits with costs of a particular project. This is done by reducing all the benefits and costs to their present worth value using appropriate prices, risk discount rates, interest rates and length of life of the projects. The selection of such rates is one of the major limitation of the benefit cost analysis and has been a subject of continous debate in the literature.

The project is said to be economically justified when[1] the discounted total assessed benefits exceed the discounted total assessed costs, that is when the benefit cost ratio is above unity. Ideally, the benefit cost ratio should be based on the total direct and indirect benefits and costs. Unfortunately, in countries like Uganda where lack of data make it virtually impossible to trace accurately the linkage effects of an investment, it is extremely difficult to make a quantitative assessment of the indirect or secondary benefits and costs. In fact, in Uganda, the benefit cost analysis has been based mainly on the direct benefits and costs. Because of the problems entailed in estimating the secondary benefits some economists maintain that the benefit cost ratio should be calculated on the basis of direct benefits and costs and the secondary benefits and costs should only be used as qualifying factor. These economists, however, concede that the indirect benefits should be taken into consideration in the benefit cost analysis for infrastructure investments such as feeder roads for agricultural development.1/ Some social overhead capital investment with a benefit cost ratio of less than unity may be justified on the strength of their indirect and intangible benefits.

The benefit cost analysis can also be used for comparison and ranking of investment projects provided the projects to be compared are of similar types. The comparison and priority ranking of projects belonging to different sectors would be inappropriate since one cannot compare a forestry project with an irrigation project on the basis of their respective

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1/ Marrama, V. "Investment Criteria and Economic Appraisal of Agricultural Projects" in U.N/F.A.O. Lectures on Agricultural Planning Delivered at F.A.O. Near East Regional Training Centre on Agricultural Development Planning : Agricultural Planning Studies No.3, Rome, 1963, pp. 80-116.

benefit cost ratios because of the wide variation of the ratios. Moreover, projects with high benefit cost ratios may not automatically be included in the agricultural programme. Other factors such as the total cost of the individual projects, complementarity among the projects, balance between supply and demand in projected output and regional balance must also be considered.

Again, the approach of the benefit cost analysis is based on testing the effect of the projects on national income to the exclusion of other objectives such as saving of foreign exchange, increasing government revenue, promotion of employment and income distribution. In order to test projects against these objectives, other investment criteria have to be applied. In fact, the benefit cost analysis has not been applied to comprehensive agricultural investment programmes involving a number of related projects and schemes. The suitable investment criteria for such programmes would be a linear programming technique which seeks to maximise the objective function subject to resource constraints. The benefit cost analysis could in fact provide data for linear programming.

(d) Linear Programming

The investment criteria so far discussed assume the scarcity of one resource, namely, capital and are expressed either as factor intensity ratios or partial productivity coefficients. Generally, there are more than one scarce factor which should be considered, such as the different types of capital, foreign exchange, skilled labour, certain types of land, marketing and transport facilities. Under such circumstances, it is inappropriate to select projects according to their rates of return on any one scarce factor. Indeed, different order of ranking of projects might be obtained in respect of each of the scarce factors used. Also, these investment criteria assume a given economic structure and are strictly applicable within small changes in that structure. Yet, projects for economic development are designed to bring about both social and structural changes. Under such conditions, the appropriate investment allocation criteria is the linear programming technique which has the advantage of combining the productivity criteria with the test for consistency in resource allocation.

The general linear programming problem is to maximise the value of an objective function subject to certain constraints. In development planning, besides political and social constraints, the general constraints are that the demand for commodities and factors of production should not exceed their supply. The objective function to be maximized is the national income or increase in output at a minimum cost of investment. Other objectives such as maximum increase in employment, improvement in social services, favourable balance of payments, diversification or regional balance can be included as constraints. The application of the linear programming technique is based on the assumptions that the objective function and constraints are linear implying constant returns to scale, production coefficients constant for a given production technique and the prices are assumed constant and reflecting opportunity costs.

If an activity level is defined as one which generates a unit value of national income and the activity being a project, then the problem of project evaluation can be simplified to introducing new projects into the development programme until the maximum national income is achieved. No project would be included in the investment programme unless its total contribution to the national income is greater than the contributions of each of the rejected projects. The problem may be set up as follows:

Resources	Projects or Activities			
	x_1	x_2	x_3	x_n

$$\begin{array}{llllllll}
R_1 & a_{11}x_1 & +a_{12}x_2 & +a_{13}x_3 & \ldots & a_{1n}x_n & \leqq & R_1 \\
R_2 & a_{21}x_1 & +a_{22}x_2 & +a_{23}x_3 & \ldots & a_{2n}x_n & \leqq & R_2 \\
R_3 & a_{31}x_1 & +a_{32}x_3 & +a_{33}x_3 & \ldots & a_{3n}x_n & \leqq & R_3 \\
R_m & a_{m1}x_1 & +a_{m2}x_2 & +a_{m3}x_3 & \ldots & a_{mn}x_n & \leqq & R_m
\end{array}$$

The objective function is to maximise national income which is equal to a unit value times Z where $Z = x_1 + x_2 + _3 \ldots x_n$

subject to $AX \leqq R$

$X \geqq 0$

And where X_1 to X_n are the various development projects such as purchase of tractors, irrigation schemes, establishment of tea estates or building of feeder roads and R_1 to R_m are the resources such as capital, foreign exchange, skilled labour and a_{11} to a_{mn} are the production coefficients whose matrix is represented by A. The solution to the above matrix can be obtained by using the simplex method and high speed computers.

The application of linear programming technique to the evaluation of investment projects in the developing countries has been limited by the lack of data, existence of weak structural interdependence, varying production coefficients and lack of personnel sufficiently trained in computer programmes. In agricultural planning, the linear programming technique can be used in evaluating projects for a comprehensive agricultural programme involving schemes such as irrigation, credit, extension, improved seed variety, pest control, fertiliser supply and application. The linear programming technique would take care of the complementarity of projects and their consistency with overall investment and production targets. H.B. Chenery and P.G. Clark, who have applied the linear programming technique to development programmes have asserted that:

> "Even when data are not available to utilize such a model in its entirety, the rationale of programming solutions may serve as a guide to better methods of approximation. Secondly, the setting up and solution of linear models on a trial basis provides insight into the quantitative significance of the interrelations among decisions in each sector that are ignored by simpler techniques."1/

This is particularly important in the agricultural sector where intrasectoral relations are important. It seems

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1/ Chenery, H.B. and Clark, P.G. Interindustry Economics, John Wiley & Sons Inc. New York, 1959, p. 283.

appropriate even for countries like Uganda, to use simple linear programming models to start with and introduce more variables as more data on inter and intrasectoral relationships become available.

Limitations of Investment Criteria

The relative merits and limitations of the various investment criteria discussed above have been pointed out. But, whichever criterion one chooses the problem of lack of data, the difficulties of enumeration and measurement of benefits and costs of the projects, the problems of structural disequilibria and imperfect market prices which do not reflect the social values of products and costs are common to all criteria. It has also been pointed out that due to the multiplicity of objectives for agricultural development, no single criterion is wholly satisfactory for ranking all projects and no satisfactory method of combining the various investment criteria to give a general ranking order has been discovered, though K.A. Bohr, has proposed a system for comparing investment criteria for the selection of the manufacturing industries.[1]

1/ Bohr, K.A. "Investment Criteria for Manufacturing Industries in Under-developed Countries" The Review of Economics and Statistics, Vol.xxxvi, 1954, pp. 157-166.

The major limitation of investment criteria in agricultural planning is the nature of agricultural planning process itself. The investment criteria are useful for analysing and choosing between clearly defined projects but in agricultural development planning the choice is often between different strategies and policies. Since the implementation of the agricultural programme depends ultimately on the voluntary efforts of a multitude of farmers, it is the evaluation of the effect the policies and measures would have on the initiative and efforts of the farmers that is most important. Yet, the investment criteria which have been discussed above would not give the right answer. It is where economic analysis is unable to give precise guidelines that experienced and personal judgement are brought in.

In spite of all these limitations, the whole exercise of project evaluation forces the planners as well as decision makers to quantify costs and benefits as far as possible, rather than being content with vague qualitative judgements about the desirability of certain projects, policies and measures. It also causes the right questions to be asked and even if the investment criteria calculations cannot always give the right answers, they can sometimes play the purely negative role of screening projects and rejecting those which are obviously less promising and thus avoiding wastage of resources. This in itself is very desirable.

5. <u>Compilation of the Agricultural Sector Plan</u>

Having formulated objectives and strategy for agricultural development and having set production and investment targets and selected investment projects and programmes which would bring about the attainment of the objectives and targets; what remains, therefore, is to compile the agricultural sector plan and to devise suitable policies and measures for its implementation. The process of selection and evaluation is not completed until the agricultural development projects, measures and policies have been integrated into the agricultural sector plan that is consistent within itself and with the national plan as a whole. And since the selected projects and programmes may not balance either because of lack of projects or resources, adjustments will have to be made in certain parts of the programme calling for matching adjustments elsewhere until a satisfactory degree of consistency and coordination has been achieved.

Although the agricultural sector plan will contain projects for direct public investment, such as agricultural infrastructure, provision of material inputs for farmers to purchase at market or subsidized prices and projects designed to bring about improvements in institutions such as land tenure, credit provision and marketing arrangements and the provision of improved services such as extension, education and research. Yet, in a mixed type of economy the achievement of the agricultural targets will depend mainly on the activities of the farmers. The Government can influence the resources devoted to agriculture and the rate and pattern of agricultural development by its direct investment projects as those indicated above as well as by measures and policies designed to increase farmer's incentives. These measures include production incentives, pricing policy, leisure, wage and price relationships, taxation and saving policies and credit and subsidy schemes. There is need to ensure that these policies are consistent with each other and consistent with general strategy and objectives of agricultural development.

Among the most important policy measures for agricultural development is the price policy. A positive price policy has three functions, namely, to accelerate the growth of the agricultural output as a whole; to accelerate or decelerate the growth of the output of individual crops in order to bring about the required crop-mix and lastly to secure increases in the marketed supply of food crops. A well thought out price policy would be complementary to institutional and technological improvements and increased supply of purchased inputs.

Thus, the resulting quantum and pattern of investment in agriculture over the plan period would reflect the strategy for development and the planned rate of growth of the economy. The projects to be included in the agricultural sector plan should take care of the short-term shortages while creating the necessary production potential for the perspective plan. Thus, some projects have to be quick maturing, while others are long-term ones. There is also need to ensure a reasonable geographical distribution of projects while at the same time maintaining some concentration and package programmes where such an approach is technically and economically more desirable. Thus, the draft agricultural plan is incorporated in the draft national plan and submitted to the Planning Commission for discussion and initial approval. The approved draft is submitted to the Cabinet for discussion and final approval. As a result of these discussions, some changes and adjustments might be made to ensure that both the sectoral and national plans are politically acceptable.

The quality of both the agricultural sector plan and the national plan is greatly determined by the efficiency and suitability of the planning organization. A suitable form of planning machinery can make a substantial contribution to the effectiveness of planning by avoiding administrative delays and making the best use of skilled manpower and other scarce resources.[1] The main functions of the central planning organization include the determination of broad strategies, objectives and policies; formulation and evaluation of projects and policies and the coordination of the plan implementation.

A suitable organization to carry out these functions would consist of a central policy-making body, a central planning secretariat and planning units in the executive Ministries. The central policy-making body like the Uganda Planning Commission has the functions of determining the overall objectives and strategy and providing political directives within which the technical work of planning has to be carried out. It would also have to study and approve the draft plan before the plan is submitted to the Cabinet and Parliament for final approval. The functions of the

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1/ For detailed discussion see Abercrombie, K.C. "Agricultural Planning Organization" in U.N./F.A.O. Agricultural Planning Studies No.3, op. cit., p.43.

central planning secretariat include the work of evaluation and co-ordination as well as technical formulation of the plan and project. In Uganda, the Ministry of Planning and Economic Development carries out these functions.

The main functions for the planning unit in the Ministry of Agriculture include liaison with the central planning secretariat; preparation and evaluation of projects for inclusion in the plan and assisting with the implementation of the plan. In countries like Uganda where the responsibility for the agricultural sector is shared between the Ministries of Agriculture and Forestry; Animal Industry, Game and Fisheries; Marketing and Co-operatives and Commerce and Industry to which the Agricultural Enterprises of the U.D.C. belongs; it is necessary to have an agricultural sector committee at the level of the central planning secretariat. The functions of this committee would be to bring together the various ministries and other bodies involved in agricultural development, to formulate national land use policies which ensure that the various claims on land such as agriculture, forestry, livestock and game are given a fair share. It is also suggested that the members of such a committee should keep in close touch with the field staff of their organisations so as to know the felt needs and problems of the farmers for whom they are planning. These are the people who should be able to assess the response of the farmers to any given measure. To achieve better results, it is essential to have well-defined functions for the various organizations which should have frequent and effective consultations.

6. Implementation Measures

According to some authorities, the implementation of agricultural plans is considered one of the hardest part of the planning process and leaves much to be desired in most countries.[1] Implementation involves formulating technical, economic, administrative and organizational measures which should be effective while at the same time within the available and expected financial, physical, administrative and managerial resources. The implementation has two aspects, the first being the policies and measures contained in the plan and the second being the physical implementation on the ground. The various measures and policies by which the Government can influence the rate and pattern of agricultural development have been discussed. These have been classified

[1] U.N./F.A.O. Review of Agricultural Planning During the Second Postwar Decade, Agricultural Planning Studies No. 5 Rome, 1966, p.12.

under four categories, namely, the provision of material inputs, measures for improvement of efficiency, provision of economic incentives and institutional reforms. Both the provision of incentives and institutional reforms can considerably influence the amount and direction of private investment, and bring about the plan implementation. And in countries like Uganda where labour is the major input in agricultural production, appropriate policies regarding land tenure, credit, prices, marketing improvements, extension and research work may yield better results at less cost to the Government than the provision of material inputs.

The implementation measures devised must reflect the objectives and strategy of the plan as well as being consistent with the availability of resources. The implementation procedures must be flexible enough to take care of critical constraints either through re-evaluation of existing projects and identification and evaluation of new projects or re-allocation of the scarce resources. The process of plan evaluation and modification during the implementation stage is necessary as a basis for increasing the efficiency of the plan in light of experience gained.

The process of plan evaluation and modification should be crystallised at the time when annual budget is being compiled. Since the provision of adequate recurrent expenditure is an important aspect of plan implementation especially in the agricultural sector and since the annual budget is the principal means by which the government authorises and controls public expenditure; the annual budget must contain adequate financial provisions and policy instruments designed to mobilize resources and to stimulate private enterprise. The phasing of the financing of the planned projects should coincide with the annual budgets and a close co-ordination should be maintained between finance, planning and executive ministries to ensure that only projects and programmes in the development plan should be included in the annual budget which acts as an annual plan for implementation purposes.

The physical aspects of the plan implementation require the agricultural plan to be broken down into regional or district plan to show what each region or district is supposed to do commodity by commodity and scheme by scheme. Both human and physical resources would have to be mobilized and investments phased. The implementation responsibilities for the various organizations would have to be clearly established and co-ordination ensured. And for the agricultural plans whose implementation depends on persuasion and conviction, the extension staff have to introduce the plan to the farmers select the starting points, organise collective action and carry on the follow-up action. This requires the extension staff itself to be fully informed and conversant with the agricultural sector plan.

Introduction

In the first three chapters, the structure of the Uganda economy, the role of agriculture in the economic development, factors affecting the rate of agricultural development, main elements of agricultural planning and investment criteria and their application to agricultural programmes and projects were discussed. The term investment being used in the wider sense to embrace all sorts of expenditure of both capital and recurrent nature by Government departments and public corporations on agricultural projects and services. In this and the following three chapters case studies of development plans and policies will be undertaken to show the magnitude and effectiveness of the developmental effort in the agricultural sector. Although the agricultural sector consists mainly[4] of the departments of agriculture, forestry, veterinary, game, fisheries, locust and tsetse fly control, it is the Department of Agriculture which will receive the greatest attention in order to limit the area of analysis.

As the post-war development policies are related and influenced by pre-war policies, it is desirable to briefly examine some pre-war development plans and reports in order

CHAPTER IV

WORTHINGTON: A DEVELOPMENT PLAN FOR UGANDA (1947-1956) AND THE 1948 REVISION OF THE PLAN

Introduction

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As the post-war development policies are related and influenced by pre-war policies, it is desirable to briefly examine some pre-war development plans and reports in order to gain insight into the evolution of the government development policy as regards the agricultural sector. The following are the important ones:

1. Uganda Development Commission Report 1920 1/

In October 1919 a Commission was appointed by the Governor, Sir R. T. Coryndon, with the following terms of reference:

> "To inquire into and consider generally the steps which should be taken to forward the commercial and industrial development of the Protectorate, having regard to the interests of the different communities resident therein, and in particular to inquire into and report on the question of transport throughout the Protectorate." 2/

The Commission consisted of Acting Chief Secretary as Chairman, Attorney General, Assistant Commissioner of Police and five nominated members, representing the Chamber of Commerce, Ginners' Association, the Government, Planters' Association and the Indian Association. No African was appointed to the Commission, although Africans formed the majority of the population, being estimated at 3,064,735, whereas Asians

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1/ Uganda Government, Report of the Uganda Development Commission 1920. Government Printer, Entebbe, 1920.

2/ ibid., p.5

were 5,604 and Europeans just 1,269 in 1920. Furthermore, out of the 62 witnesses whom the Commission interviewed, 21 were Government employees, 15 were planters, six came from commercial firms, nine were missionaries, eight Asians, and only five Africans. At this stage a number of Africans had had enough elementary education to participate in such Commission as they were doing in administration. As the development of Uganda was geared to the advancement of the Africans, the African views should have been adequately represented.

Another shortcoming of the Commission was its scope, which was limited to commercial and industrial development as affected by the system of transport, which meant that agriculture, which was and still is the mainstay of the Ugandan economy, was not given its proper place. It is well known that agricultural development in the form of export crops has been the dynamic element in the economic development of Uganda. And the industrial development in the early years was in the form of crop processing such as cotton ginning. (there were 58 cotton ginneries in Uganda during 1919/20) and coffee curing. The rate of commercial development was determined by the size of the market which was itself mainly dependent on farm incomes and hence the development of agriculture. Indeed, in 1918/19, Uganda's exports amounted to £1,247,497.

of which £972,937 or 78 percent was received from the export of cotton lint, seed and oil. Thus greatest part of farm income was derived from cotton which was grown almost entirely by Africans. The Commission's report, however, contained some useful recommendations of which the following are important:

(a) Transport

The Commission condemned strongly the imposition of surcharge and supercharge on Uganda produce carried by the railways to the coast, and paying all the resulting proceeds to Kenya. The traffic of goods to and from Uganda accounted for 25 per cent of the earnings, amounting to £89,137. This was considered an intolerable burden and a form of exploitation which undermined the commercial stability of Uganda. The Commission rightly urged the Government to rectify the situation for the sake of equity. The elimination of surcharge was important for agricultural development since high transport charges tended to discourage production of agricultural crops for export save those with high value per unit weight. In fact the expansion of cotton production in Uganda was encouraged by the coming of the railway and the opening up of roads to connect the cotton growing areas with the railway system.

(b) Education

Although at the time education was in the hands of missionaries, the Commission considered it one of the primary duties of the government and recommended that the government should take an active part. This recommendation was subject to the following reservations:

> "We are opposed to any extensive literary education for the general native population, and we consider that it should not proceed beyond a standard which will enable a native to learn a trade by which he can earn a living ..... The education of the brain should not outstrip that of the character ..... For those who are by nature quick and intelligent no limit should be set, but we should regard with the greatest apprehension any system which would result in the creation of a large body of half-educated natives, a manace to themselves and to the country." 1/

Later it was suggested that education should aim at instilling into the minds of the pupils a sense of loyalty to the British Crown. It is now generally agreed that education is one of the top priorities in any development plan since it is through education that industrial skills, modern agricultural techniques and appreciation of desirable social changes can be acquired. The cautious approach which was advocated by the Commission was misguided especially when consideration is given to the fact that of the estimated government expenditure for the financial year 1919/20, only 0.5 per cent. was allocated to education. (see Table IV-1). Such a great task could not

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1/ ibid., p.34

be left in the hands of missionaries who had limited financial resources and whose main interest in education was literacy and evangelical.

TABLE IV-1

ESTIMATED GOVERNMENT EXPENDITURE 1919/20*

Item	Amount (£)	Percentage
Administration	85,254	18.26
Law, Order and Defence	87,427	18.73
Public Debt and Pensions	18,720	4.01
Revenue Collection and Financial control	18,065	3.87
Development of Natural Resources	43,608	9.34
(a) Agriculture	17,156	3.68
(b) Forestry	4,242	0.91
Agricultural Sector (a & b)	21,398	4.58
General Economic Development	109,395	23.44
Social Services	45,821	9.82
Education	2,229	0.48
Medical	31,854	6.82
Service Department	55,919	11.98
Miscellaneous	2,576	0.55
TOTAL	466,785	100.00

*Source: Uganda Government, Report of the Uganda Development Commission, 1920, Government Press, Entebbe, 1920, p.8.

The need for government involvement in education was spelt out again five years later in the Report of the East African Commission 1/ which emphasised the fact that African education should be linked with hygiene, agriculture and crafts. Thus indicating that the type and level of education required for economic development was more than the ability to read and write. The estimated government expenditure on education was a trifling £2,225 out of the total government expenditure of £ 465,118 during the 1919/20, which left a surplus of £30,431 to increase the accumulated surplus balance to £197,801. At the same time during 1920 there were 70,689 boys and 45,302 girls enrolled in missionary schools for which the government could have provided facilities for high and professional education. Before the establishment of the Education Department, the only government educational institution in existence was Makerere College. 4/ This slow and late participation by government in education was the reason why it took over fifty years before any graduate was produced through our local educational system, and another seven after introduction of degree courses

1/ United Kingdom: Report of the East African Commission, H.M.S.O. 1925, cmd. 2387, p.50.

before the first of agricultural graduates qualified.

(c) Agriculture

Although in 1918/19 agricultural exports were valued at £1,101,964 or 88 per cent. of the total domestic exports, and the transport problems on which the Commission concentrated were mainly influenced by the quantities of agricultural products to be moved for export and domestic consumption; yet the Commission paid very little attention to agriculture other than making a superficial mention of cotton, coffee and rubber. The provision of transport facilities should have been coupled with a sound policy of agricultural production in order to accelerate the economic growth of the country.

(d) Development

Among the important recommendations for accelerating economic development was the need for a cheaper outlet to the sea, the expansion of the road system, the use of railway revenue for development other than general purpose and the establishment of a Board of Economic Development. But the whole strategy proposed by the Commission was cautious and conservative for the Commission maintained that:

> "We are strongly opposed to any steps which would tend to force the exploitation of the

> country and create a 'boom'. Apart from the fact that the difficulties of labour and transport are not yet solved, we feel that the natural wealth of Uganda is such that her progress is assured without any adventitious aid, and that real development will in the end be more rapidly attained by a programme of moderate caution. As the training of the native advances, the internal communications improve, so should development proceed. Thus, the foundation will be secure, and the country free from any artificial appearances of properity." 1/

Thus the rate of growth was to be tied to educational advance of the Africans, which in turn was to be tied to a "standard which will enable a native to learn a trade", so with limited job opportunities, the corollary was that education be slowed down, this in fact would create another vicious circle instead of breaking the existing ones.

During those early years, when the Uganda economy was almost wholly subsistence with hardly any structural transformation it would appear that government should have spent more on education and agriculture in order to accelerate the process of transformation by increasing agricultural incomes and thereby encouraging general development. That too little was spent on agriculture is shown by the fact that in 1919/20 out of the estimated government expenditure

1/ Uganda Government, Report of the Uganda Development Commission, 1920. op. cit., p.13.

of £446,785 only £17,156 or 3.7 per cent. was voted for the Department of Agriculture (Table IV-1 p.198.). The attitude of both the Commission and the government seems to have been too cautious at the time when Uganda's exports exceeded imports and government revenue exceeded expenditure, leaving a good margin in the reserve fund. This should have been the time for bold progressive investment aimed at rapid agricultural development.

The years which followed saw significant changes in government policies, with a shift of emphasis from alien plantation agriculture to African peasant agriculture as the basis for production of both export and subsistence crops. There was also a change of policy as regards land tenure which in essence meant that the chiefs would no longer be granted freehold titles and the peasants would be given security of tenure. This resulted in a new pattern of agrarian society composed of a mass of free peasant cultivators with smallholdings which yielded them both food and money incomes, and above them an administrative hierarchy of paid chiefs who no longer derived any direct profit from the land cultivated by the peasants. There was also another change of policy from excessive pressure in forcing Africans to cultivate crops such as cotton to letting the economic incentives direct the peasant farmers' activities. These liberal policies were accused of slowing down the rate of economic progress since the determination of the volume of output was left to the free choice of the peasant farmers who were considered deficient as innovators. 1/ Economic progress, however, did take place, the production of cotton and coffee increased steadily even during the years of depression. Cotton production increased from 204,000 bales in 1928/29 season to 402,000 bales in 1937/38 whereas coffee production increased from 2,000 tons in 1928 to nearly 13,000 tons in 1937. Attempts to improve the efficiency of peasant agriculture had met with little success although the plough had been successfully introduced in Teso and other suitable areas. The number of ploughs increased from 210 in 1920 to more than 3,000 by 1926.

Other developments during the period was the increase in the extension personnel of the Department of Agriculture from nine field officers and three scientific specialists in addition to the Director and his Deputy in 1921 to eighteen field officers and nine specialist officers in 1932. This increase in staff was planned to cover

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1/ Wrigley, C.C., Crops and Wealth in Uganda. East African Institute of Social Research, Kampala, 1959. Chapter IV.

administrative districts and specialized branches of research. Besides the increase in numbers there was also an improvement in academic qualifications of the staff. 1/ There was a great improvement in communication network, with the main railway line to Kampala being opened at the beginning of 1931 and the main roads maintained by the Government increasing from 600 miles in 1920 to 1,727 miles in 1931, in addition to 5,260 miles built and maintained by the local administrations. 2/ The provision of transport facilities was considered the best means of accelerating the general economic development and the Report of the East Africa Commission asserted that:

> "there can be no doubt that road development in Uganda has been largely responsible for the great increase in the growth of cotton, most of the cotton being grown along the roadsides. Money spent on roads is doubly valuable, as it not only encourages the cultivation of economic crops but, almost as important, encourages the circulation of traders and natives, and increases the natives' wants." 3/

thus creating incentives for increased production. It is also interesting to note that in 1921 Uganda received a development loan from the British Treasury valued at £550,000

1/ *ibid*., p.64

2/ United Kingdom, Annual Reports on Uganda 1931, H.M.S.O., London.

3/ United Kingdom, *op. cit*., p.139.

which was expended on general development of agriculture, forestry, veterinary, natural resourses, health, education and transport services. 1/ This shows that efforts were being made to eliminate the limiting factors and to accelerate the rate of economic progress.

2. Development Committee Reports 1936 2/

(a) Towards the end of 1935, the Government realised that although provision for an extensive programme of capital works had been made in the 1936 estimates, the country was still in many respects inadequately equipped and heavy expenditure was contemplated necessary to make good some of the deficiencies. The projects in the estimates needed some economic appraisal in establishing their order of priority, while at the same time making sure that capital and consequential recurrent expenditure over a period of five years are covered by estimated revenue.

To achieve the above objectives, the Government appointed a Development Committee to examine projects and proposals which were designed to modernise existing institutions and develop further the country's resourses. The

1/ Thomas, H.B. and Scott, Sir Robert, Uganda
Oxford University Press, London, 1935.

2/ Uganda Government, Development Committee Reports 1936, Government Printer, Entebbe, 1936.

terms of reference of the Committee required it to classify the projects according to the nature, purpose and source of finance and report to Government the order and precedence and urgency of the approved projects. It was estimated that £1,142,000 made up as follows:

(a) accumulated surplus balances £542,000

(b) total revenue surplus £100,000

(c) loan funds £500,000

would be available for the schemes during the five-year period. The Committee, however, recommended schemes estimated to cost a total of £1,636,710, of which £725,710 or 44 per cent. would be raised from loans. Included in the approved schemes was a sum of £41,000 or 2.5 per cent. of the total estimate, for buildings for the Department of Agriculture, in addition to establishing an agricultural centre at Kawanda whose estimated cost of £32,100 had been separately approved.

Although most of the approved schemes were not executed due to the shortage of personnel and funds caused by the outbreak of the Second World War, the Committee succeeded in introducing long-term consideration into the framing of annual budgets. The Committee attempted to evaluate development projects and in the absence of well defined investment criteria as discussed in Chapater three, this had to be based on economic analysis used in conjuction with technical and administrative desirability. The Committee also called attention of the Government to the need of halting the process of accummulating surplus and reserve funds at the expense of reasonable progress in modernising and improving equipment and services which were vital for economic development. The position had been that a large surplus and reserve fund had been rapidly accummulated to the tune of £1,695,902 in 1936, the year when actual expenditure was £1,624,073 and revenue £1,712,940, leaving a budgetary surplus of some £88,867.

During the late 1930s, the agricultural economy of Uganda continued to expand mainly as a result of increased acreage under crops made possible by the use of more labour. Also the Government measures of soil and water conservation must have had some beneficial effect on production. The need to achieve increased efficiency of the factors of production, namely labour and land, in agricultural production received more attention mainly as a result of a change in policy due to what C. C. Wrigley calls 'the silent revolution'. The traditional methods of crop production were no longer considered sufficient as more was demanded of the Uganda economy which made changes necessary. Thus, the attention of the Government was increasingly focussed upon the need to raise agricultural productivity by the adoption of new techniques of soil conservation, row planting, ploughing and rotations and extension advice. There were also attempts made to improve the marketing and processing of agricultural products to ensure that the producers received a higher proportion of the export prices of their crops especially cotton. 1/ It was these policies which were the basis of the post-war development plans and policies which will be considered in this and the next three chapters.

Post-War Development Policies

The Worthington Plan was formulated at the time when policy-makers both in the Colonial Office in London and at the Government House in Entebbe were more concerned with the need for economic development and welfare of the people. Indeed, even during the wartime period, the time for belt-tightening and great economy, a circular stressing the need for ecomomy made exceptions for the countries, like Uganda, whose standard of living was so low that it was considered imperative "to do all that is practically

1/ For a detailed discussion see Wrigley, C.C. op. cit., Chapter IV.

possible to raise the standard of living of such people ..... for humanitarian, political, economic and administrative reasons". 1/ Such considerations had led to the formulation of the Colonial Development and Welfare Act of 1940 as it was thought insufficient that African colonial governments should be solvent and that the African peoples should be secured against exploitation and disruption of their social system but that they should also cease to be poor. The economic problems of the sterling area, the rapid political advance towards self-government and the activities of international organisations such as the recommendations of the 1943 Hot Springs Conference on the Food and Agriculture Organisation of the United Nations which required the participating governments to do everything possible to achieve freedom from want for all people in all lands. All these pointed to the need for rapid economic progress.

It was felt that the peasant system of agriculture, with cotton as the main cash crop, would not lead to the desired progress since the farmer's production would be

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1/ The circular is quoted in Powesland, P.G., Economic Policy and Labour, E.A.I.S.R., Kampala, 1957, p.73.

severely limited by his inability to cultivate more land than a few acres. There was also the fear of population explosion and its effect on reducing per capita incomes unless the rate of increase of total production is greater than the rate of increase of the population. To avoid such a calamity, it was suggested that a very high standard of living with its concomitant low rate of population increase should be attained without delay. 1/ This view, however, ignored the fact that the initial stages of economic development bring about improved medical and social services which tend to encourage population increases until economic pressures of population density, cost of living and cost of providing proper education make birth control a necessity. Such a stage of economic development would take decades to achieve and Uganda has not reached it as yet.

<u>Objectives and Strategy of the Plan</u>

The appointment of Dr. E. B. Worthington, a distinguished natural scientist, as a Development Adviser to the Uganda Government, and chaging him with the duty of preparing the first post-war ten-year development plan (1947-1956)

1/ Wrigley, C.C. *op. cit.*, p.67.

was the first major step in development planning in Uganda. Although his plan was in fact a revision of an earlier six-year plan produced in May 1944 as a joint report of the Standing Finance Committee and the Development and Welfare Committee, it contained, as he put it, few original proposals and ideas. The Worthington Plan, however, differed from the 1944 plan in reflecting the views of Sir John Hall, the new Governor, which were entirely at variance with his predecessor's, Sir Charles Dundas, who had placed great emphasis on the development of education and health services. The Worthington Plan, therefore, in reflecting the views of the Governor and official thinking at the time, gave priority to economic as opposed to social development. Hence, the main objective of the plan was to cause production in all forms to increase at a greater rate than population to ensure a net increase in the standard of living. 2/

The Governor, in an introduction to the Worthington Plan, explained how a country must in the long-run have the social services that it can pay for and that desirable social development must be related to increase in production. He stated:

"That a great expansion of health and education services is eminently desirable is beyond

> question, and that such an expansion will in due course become financially practicable one can be reasonably confident, but meanwhile the revenue for that expansion does not exist and, failing large additional taxation which is not practicable at present, our only course is to press on with the production of national wealth and meanwhile to restrict the expansion of social services within the limits imposed by the funds that can be made available. .... It is not a question of policy but of pace." 1/

Thus the Plan envisaged a substantial increase in public expenditure on such productive services as agriculture, tsetse control, meteorology, public works and communications, while maintaining steady improvement in the social services.

The strategy of the Plan was based on the need to utilise Uganda's natural resources of land and water given what was considered the main limiting factors which included lack of fundamental information about the country; a system of agriculture inherited from the past and incompatible with the full use of the natural resources; the low capacity of the African population for physical and mental work coupled with a lack of desire for economic and social advancement; and power based on the most inefficient use of fuels, namely wood. 2/ Therefore, the achievement

1/ Uganda Government, A Development Plan for Uganda and The 1948 Revision of the Plan, Government Printer, 1949, p. xii.

2/ ibid., p. 9.

of the main objective of the Plan required the elimination of these limiting factors. The peasant system of agriculture, though considered a limiting factor to increased agricultural production, was on policy grounds taken as given since the alternatives of alien estate plantations or collective farms on the Russian model were considered inappropriate. The unsatisfactory performance of the labour force which was due to bad housing, bad feeding, unsympathetic employers and paucity of consumer goods; could be rectified with better feeding, medical services and conducive conditions of work.

In order to stimulate private enterprise, the strategy in the Plan was based on the provision of infrastructure, such as roads, railways, hydroelectric power, and marketing facilities, thereby eliminating the inhibitions to increasing production. This doctrine of the primacy of economic development has inspired all the major capital 1/ projects in the decade following the end of the war, including the Owen Falls Dam, the extension of the railway to Kasese, the establishment of the departments of geology, fisheries, tsetse control, and the setting up of the Uganda Development Corporation (U.D.C.). By provision of the infrastructure such as the hydroelectric power, it was hoped that cheap electricity would encourage the expansion of secondary industries, especially around Jinja.

The agricultural policy, which during the wartime was self-sufficiency in the matter of food production whilst aiming at the maximum production of cotton and coffee, was amended to include the export of all available foodstuffs whilst maintaining a normal cotton crop. Increase in production was achieved besides through campaigns, by guaranteeing and fixing of prices for all major crops and also by larger quantities of land and labour being used in the agricultural production. As has been stated earlier, the system of agriculture based on manual labour and small plots was considered a limiting factor to increasing agricultural production. So the Plan strategy for agricultural development, besides the provision of transport facilities, railways and roads which are crucial for agricultural development, provided for the collection and analysis of meteorological records, the provision of water supplies in rural areas, the carrying out of biological surveys, and the formulation of a tsetse control programme, all of which are important in agricultural development. Other suggested schemes included increase in the number of technical staff in the Department of Agriculture; provision of food storage; trials of mechanical implements, establishment of market gardening near towns; establishment of a professorship of agriculture at Makerere and the carrying out of pilot schemes for intensive agricultural production. But the effect of these schemes on the system of agriculture and the work habits of the African population would be so small that they could not lead to the required production increase during the Plan period.

Resource Availability and Allocation

The strategy for increasing the wealth of Uganda was based on maximum utilisation and conservation of its main natural resources, namely land and water. Of the total area of 93,981 square miles, some 13,610 square miles are open water, leaving a land area of 80,371 square miles, of which 3,000 square miles were under game reserves and 2,470 square miles were under swamps. It was also estimated that more than one-third of the whole land area was infested with tsetse fly, which made such vast areas uninhabitable to human and livestock. 1/ The African population was considered an adverse rather than a favourable factor in the development of the country's potential wealth because of being indolent, ignorant, irresponsible and suspicious of foreign

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1/ *ibid.*, p.iii.

intervention. 1/ The Plan was being devised to eliminate these handicaps and yet the availability of trained staff was one of the unknown variables. 2/

As regards the financial resources, the Plan was based on estimated annual revenues amounting to £35 million, surplus balances of £1.4 million, cotton and Hard Coffee funds of £3.5 million, loans of £2 million, and Colonial Development and Welfare grant of £2.5 million, making a total of about £44.4 million. It was realised early in 1948 that the cost of executing the Development Plan would be very much greater than originally estimated. Prices and wages had sharply risen since the Plan was prepared partly as a result of accepting the recommendations of the East African Salaries Commission. And partly because it was discovered that large expenditure would be necessary to fill in the gaps and deficiencies which the 1946 estimates on which the Plan was based, which was not strictly a normal year in peacetime, had introduced. It was further found that insufficient allowances had been made for minor works and services

1/ For a full discussion see the Governor's Foreward to the Worthington Plan, ibid., pp. iii-xii.

2/ ibid., p.5.

which were essential as a basis on which further development could be superimposed. 1/ It was therefore decided that the whole Plan must be revised by Sir Douglas Harris, who had been appointed a Development Commissioner in 1947 and charged with the duty of keeping a general surveillance of development expenditure and to ensure that the Development Plan was carried out as a whole.

In the revised Plan, revenue estimates were based on actual figures obtained during the early years of the Plan which were much greater than Worthington had estimated (see Table IV-2, p.216). The estimated revenue for the remaining eight years of the Plan was £49.2 million as compared to Worthington's estimate of £35 million for the decennium. The contribution from the Cotton and Hard Coffee Funds had increased from £3.5 million to £6 million and the Colonial Development and Welfare allocation had increased to £3.3 million. Over 71 per cent of the revised Plan was to be financed from local resources, indicating a high degree of self-help in Uganda's development. The contribution from the Colonial Development and Welfare fund has been criticised

1/ United Kingdom, Annual Report on Uganda 1948 p.7

TABLE IV - 2

FINANCIAL RESOURCES *

Source	Worthington £	Worthington Percentage	Harris £	Harris Percentage
(a) Total Annual Revenues	35,000,000	78.83	49,281,700	78.54
(b) Surplus balances	1,398,000	3.15	2,005,912	3.20
(c) Cotton and Hard Coffee Funds	3,500,000	7.88	6,020,000	9.59
(d) Loans	2,000,000	4.51	2,093,750	3.34
(e) Colonial Development and Welfare Uganda Allocation	2,500,000	5.63	3,341,727	5.33
TOTAL	44,398,000	100.00	62,743,089	100.00

*Source: Uganda Government, A Development Plan for Uganda, and the 1948 Revision of the Plan, pages 10, 4 and 5.

by R. Mukherjee, who wrote:

> "Even the Colonial grants received from the metropolitan country to finance a much smaller part of the plan are in fact only a fractional return of the colonial tributes collected by Britain over a number of years, especially during the last war." 1/

Elsewhere it has been said that Uganda in fact received much less from the Colonial Development and Welfare funds than other comparable colonies. The revised Plan, which showed an increase from £44.4 million for the decennium to £62.7 million for the remaining eight years, was considered 'balanced' in the sense that funds were well allocated to the various activities of the Government and that the estimated revenue funds covered the planned expenditure which itself was well phased over the plan period. The word 'balance' is used advisedly here as it is well known from the literature on economic development that such a balance is not necessarily desirable since higher rates of growth could be attained by deficit financing, by using foreign loans or aid or through 'unbalanced' development expenditure at home. 2/

1/ Mukherjee, R., The Problem of Uganda, Akademie-Verlag, Berlin, 1956, p. 221.

2/ For a full discussion, see Hirschman, A.O., The Strategy of Economic Development, Yale University Press, London 1962, chapters 3 and 4.

Table IV-3 shows a detailed financial allocation between the various sectors and departments for both the Worthington Plan and Harris' revision of the Plan. From the Table, it can be seen that out of the planned total expenditure of £43.8 million under the Worthington Plan, some £6.1 million was allocated to productive activities, of which nearly £2 million or 4.5 per cent was for agriculture. The whole agricultural sector was allocated £4.2 million or 9.5 per cent. Under the Revised Plan, however, £8.3 million or 14.1 per cent was allocated to the productive activities of which agriculture claimed £2.5 million or 4.2 per cent. The productive activities including communications and special development projects, which the Plan emphasised were allocated a total £9.9 million or 22.6 per cent in the Worthington Plan and £14.2 million or 24 per cent in the Revised Plan. Although the allocation to agriculture and the agricultural sector increased, the percentage share for agriculture fell slightly whereas that for the agricultural sector as a whole increased by nearly 0.2 per cent. Whether the Plan allocation to the agricultural sector, especially to agriculture, was sufficient, given the overwhelming importance of agriculture to the economy, will be assessed after the proposed agricultural projects have been analysed.

TABLE IV - 3.

A DEVELOPMENT PLAN FOR UGANDA - 1947 - 1956 *

Item	Total Recurrent Expenditure Based on 1946 Estimates	Per-centage	Worthington Development Expenditure		Total Estimated Expenditure	Per-centage	Harris	
			Allocation	Per-centage			Allocation	Per-centage
	£		£		£		£	
Administration: Law, Order & Defence	8,054,000	28.36	1,195,000	7.78	9,249,000	21.13	7,064,500 5,897,200	11.95 9.97
Urban Services	551,000	1.94	2,050,000	13.34	2,601,000	5.94	3,874,500	6.55
Productive Activities	3,054,000	10.75	3,080,500	20.05	6,134,500	14.02	8,327,500	14.09
(a) Agriculture	1,133,000	3.99	855,000	5.56	1,988,000	4.54	2,451,500	4.15
(b) Forestry	384,000	1.35	205,500	1.34	589,500	1.35	910,700	1.54
(c) Game and Fisheries	94,000	0.33	140,500	0.91	234,500	0.54	385,800	0.65
(d) Tsetse Control	380,000	1.34	380,000	2.47	760,000	1.74	1,084,300	1.83
(e) Veterinary	376,000	1.32	212,000	1.38	588,000	1.34	877,100	1.48
Agricultural Sector (a) to (e)	2,367,000	8.33	1,793,000	11.67	4,160,000	9.50	5,708,900	9.66
Communications	1,313,000	4.62	1,249,000	8.13	2,562,000	5.85	4,578,600	7.74
Special Development Schemes	-	-	1,185,000	7.71	1,185,000	2.71	1,293,900	2.19
Social Services	7,448,000	26.23	3,438,000	22.37	10,886,000	24.87	14,893,800	25.19
Special Departments) Miscellaneous)	7,980,000	28.10	3,170,000	20.63	11,150,000	25.80	4,961,700 8,235,100	8.39 13.93
TOTAL	28,400,000	100.00	15,367,500	100.00	43,767,500	100.00	59,126,800	100.00
Reserve			632,500		632,500	1.42	3,616,300	5.76
GRAND TOTAL	28,400,000		16,000,000		44,400,000		62,743,100	

* Source: Uganda Government, A Development Plan for Uganda and the 1948 Revision of the Plan, Government Printer, Entebbe, 1949. Pages 11 and XII.

<u>Agricultural Policy and Schemes</u>

In order to achieve the objectives of the agricultural policy of protecting, improving and utilising the available land and labour resources in order to encourage the maximum production of export crops and raw materials, it was necessary to tackle and eliminate factors which limited the desired progress. The limiting factors to increased agricultural production, were lack of knowledge about the agricultural potential of different parts of the country; inadequate transport facilities; insufficient storage; lack of water; tsetse fly infestation; inadequate agricultural implements; inability of the farmers to work hard; and shortage of technical staff. The agridultural development projects in the Plan were proposed with the above limiting factors in mind. 1/ Table IV-4 shows the agricultural development schemes as proposed in the Worthington Plan and revised by Harris. According to Worthington, increase in the technical staff was the most important development project, taking 26.5 per cent of the proposed development expenditure, next was grain storage, then cotton seed

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1/ Uganda Government, <u>A Development Plan for Uganda</u>, <u>op. cit.</u>, p.31.

T A B L E I V - 4

AGRICULTURAL DEVELOPMENT SCHEMES *

Scheme	Worthington		Harris	
	£	Percentage	£	Percentage
Contributions	100,000	13.25	65,200	12.57
New Technical Staff	200,000	26.49	25,900	4.99
Grain Storage	160,000	21.19	178,400	34.38
Mechanical Implements	100,000	13.25	142,800	27.52
Market Gardening near Town	20,000	2.65	10,000	1.93
Cotton Seed Bulking Stations	125,000	16.55	46,600	8.98
Chair of Agriculture at Makerere	50,000	6.62	50,000	9.63
TOTAL	755,000 1/	100.00	518,900	100.00

*Source: Uganda Government, A Development Plan for Uganda and the 1948 Revision of the Plan, pages 32 and 30.

1/ Exclude normal expenditure and housing.

bulking stations, mechanical implements and contributions. In the Revised Plan, however, the order was somehow changed, with grain storage heading the list, followed by mechanical implements, contributions, with cotton seed bulking stations and new technical staff in the fifth and sixth places respectively. The whole development expenditure was reduced from nearly £.8 to £.5 million in the Revised Plan.

The significance of these shifts lies in the aims and objectives of the various projects. The increase in technical staff was designed to overcome the limitations imposed by lack of knowledge by making extensive agricultural surveys and census possible, on which detailed agricultural plans could be based. Increase in staff was also needed to improve agricultural education and propaganda which were necessary for increasing agricultural production. According to Worthington, the productive capacity of Uganda at that stage of development was likely to increase within limits in direct proportion to the number of trained technical officers who were employed to supervise the agricultural processes. 1/ The increase in staff was considered necessary for the implementation of the new schemes such as pilot schemes

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1/ ibid., p. 30.

proposed in the Plan. The Chair of Agriculture at Makerere was proposed as a start for establishing an Agricultural Faculty for the training of African agriculturalists who would assist the European officers.

The proposed grain storage was meant to overcome the ravages of pests which were estimated to destroy about one-quarter of the country's agricultural production. The cotton seed bulking stations were intended to ensure that the improved cotton seed varieties produced by research workers at Namulonge are distributed to the farmers. The importance of cotton to the Uganda economy called for such an investment as it was the most important cash crop of the farmers, bringing to them an income of some £4 million in 1946 out of the estimated £5.1 million from cotton and coffee. The contributions were largely used for financing inter-territorial research organisations whose activities supplemented the work done on the research stations in Uganda.

The need for trials with mechanical implements in order to assess their suitability and performance under Uganda's conditions arose out of the realisation that the rate of agricultural progress cannot be accelerated as long as the Ugandan farmer was tied to simple implements such as a hoe and knife for his agricultural activities. Although Worthington thought that market gardening would develop naturally around towns because of possible high returns, he provided for some assistance in the Plan for ascertaining the most suitable methods of cultivation and preparation of the land were adopted. All projects except market gardening were carried out within the Plan period.

(1) Mechanical Cultivation

The post-war attempts to increase agricultural production revealed the limitation to productive capacity imposed by the unit of production, the farmer and his hoe. This was recognised by the Director of Agriculture who wrote:

> "Future prospects for progressive agricultural development are good but are restricted by the limitation of manual output and the present system of small plot farming. Investigations into the possibility of introducing mechanical means of cultivation have, however, been started. It is obvious that, even should mechanical cultivation prove to be an economic proposition under Uganda conditons, a radical change will be required in the present small plot farming system." 1/

By the middle of 1947, arrangements were completed for the hire of the Kawanda D.4 Caterpillar tractor with Dragon disc plough to tenants on Kawanda Seed Farm when the tractor was not required for departmental work. About ten acres only

1/ Uganda Government, Annual Report of the Department of Agriculture, 1946. P.6.

were ploughed on tractor hire. The difficulty of moving the unit limited its usefulness although its performance was good. Towards the end of the year, a Fordson Major was purchased for use on African farmers' land in Ngogwe area and another Fordson Major on half-tracks, with a three furrow mould-board plough of the trailer type ploughed and disc harrowed three acres for one farmer at Bukalasa. In order to encourage farmers to adopt better methods of land utilisation, a steeply graded price was adopted for ploughing. The rate for fields of over five acres in size was sh 12/- per acre, rising up to sh 20/- per acre for fields of two acres, which was the minimum size for tractor hire. 1/

Besides the expansion of tractor hire service in Buganda, tractor units were established in other districts. In 1950, a unit was established at Serere for hiring out to cotton growers in the segregated area and another unit of two tractors was sent to Toro. In 1951 a unit was established in Lango and in 1953 the Buhyoro hire service started. By March 1954 there were 43 tractors in use by the tractor hire service; of these tractors, 25 were in Buganda, nine in Lango and Acholi,

1/ Uganda Government, Annual Report of the Department of Agriculture, 1947, p.29.

four in Bunyoro, two in Teso, two in Busoga and three in Toro. 1/

In 1954 the total contract work was 4,339 acres ploughed, 954 acres harrowed, 325 acres drill planted and some 1,657 tractor hours used on transport and other operations. 2/ As a result of better utilisation and maintenance of the tractors, the amount of subsidy on the service had decreased to a level where full running costs were being recovered from the farmers and the only element of subsidy was that of supervisory expenditure and an allowance for depreciation. 3/

Among the problems encountered in the early period of the tractor hire service were the relative immobility of the tractors, being of the caterpillar type and half-tracks and the choice of implements was also limited. Disc ploughs were not available until 1949 and row crop weeding equipment was unobtainable. Lack of experienced drivers,

1/ Uganda Government, "Development of Mechanical Farming in Uganda" reprinted in Tropical Agriculture, Vol. 31, No. 4, 1954, p.282.

2/ Uganda Government, Annual Report of the Department of Agriculture, 1954, p.84.

3/ For a detailed discussion of the problems and success of mechanical cultivation see Joy, J.L., (Ed.) Symposium on Mechanical Cultivation in Uganda, Department of Agriculture, Uganda, 1960.

coupled with poor 'on job' training, resulted in low standard of operation and maintenance of the equipment. There were also high costs of supervision and repairs due to wide area of operation. In Buganda the limitations to the amount of work done were enumerated as shortage of suitable land near enough to homesteads, shortage of cash; lack of desire to expand and the general unsuitability of the area for the form of mechanisation attempted. 1/ The yields of crops on tractor ploughed land were poor because of late ploughing and planting, insufficient gap between the cultivation and planting operations, and inability of the family labour to weed larger acreages. In Buganda, however, mechanical cultivation achieved a limited and short-lived success which coincided with vigorous extension work and high crop prices. In fact, the amount of tractor work done in South Kyagwe tailed off to almost nothing with a fall in maize prices. Thus mechanical cultivation required for its success a change in the structure of farming to large scale operations, better cropping and husbandry practices, and good yields of high priced crops. It is also vital to make sure that enough labour will be available to harvest the crops.

1/ Joy, J. L., op. cit., p.29.

(2) Pilot Schemes

In the Worthington Plan it was also proposed that certain areas should be selected for more intensive development as pilot schemes designed to bring unused land and water into production. The pilot scheme was expected, besides providing ample and balanced diet for the inhabitants, to produce revenue through large surplus production of export crops. The basis of a pilot scheme was envisaged as an area of about 500 square miles with a group of European officers in close control. Two kinds of pilot schemes were proposed, one involving close settlement in an uninhabited area, the other involving recasting the system of land use in a settled area. The ultimate objective of the pilot scheme would be to demonstrate on a large and revenue-producing scale that a high degree of supervision would solve the problem of achieving a rate of sustained production per unit area and per capita that is much higher than is achieved under peasant agriculture.

Of the total area of 500 square miles, 10 per cent would be forest, 10 per cent unusable swamp or rocky land, and 400 square miles would be available for cultivation and animal industry. It was proposed that out of the possible 6,000 families, 5,000 families might be engaged in agriculture, the remainder in forestry, trading, fishing, and as artisans. There would be on average 50 acres of land per family, of which ten acres would be under cultivation. There would be a central Government farm which would by mechanical cultivation grow a variety of expert crops in order to get away from too much reliance on cotton and coffee. Among the suggested areas for such pilot schemes was South Busoga.

In 1949 the Government decided not to carry out the large and ambitious agricultural pilot scheme covering 900 square miles in South Busoga as proposed in the Worthington Plan on grounds that it was inadvisable to risk so much capital on one experimental scheme whose results might not be applicable to the different parts of the country. Instead it was decided to attempt several modest schemes covering the principal variations of soil and climate which affect agriculture in Uganda. In fact, two schemes, one in South Busoga near Jinja and the other in Bunyoro, were undertaken. 1/

(a) South Busoga Scheme

Early 1949, the then Governor of Uganda directed that

1/ United Kingdom, Annual Report on Uganda 1949. H.M.S.O., London, P.6.

preliminary investigationsbe carried out into a scheme for the bulk production of African staple foodstuffs by mechanisation in the vicinity of Jinja. This scheme was known as Busoga Farms. The scheme was planned to produce enough foodstuffs to feed 5,000 labourers in Jinja on a 5,000 acre farm where main crops would be sweet potatoes, cassava, finger millet, sorghum, beans and groundnuts grown on a six-year rotation of three years cropping and three years rest. Besides providing food for a large force which was expected to be employed on development projects such as the building of the Owen Falls Dam, the scheme was also an experiment which was expected to give information as to the economics of mechanised farming under Busoga conditions.

The scheme, which was to be operated on commercial lines, was a joint enterprise with the Gov ernment contributing £8,000 of the capital required. The Board of Management was formed and the first Manager of the farms, an Agricultural Officer, was appointed in October 1949. In 1950 approximately 200 acres were prepared for cultivation and planted to sweet potatoes, beans, sorghum, finger millet and sunflower. The yields of the crops were poor due mainly to the excessively rough soil conditions and to difficulties of working machinery in land recently opened, and also because of the isolation nature of the area, damage by birds to the grain crops was severe. 1/

The assumption that the expanding African population of Jinja could not be fed from local sources proved incorrect and by 1951 it was clear that the increased food demand in Jinja could be met from normal sources of supply. As a consequence, the aims of the scheme were modified to the following:

"(a) to safeguard the bulk food requirements of the Jinja area;

(b) to develop the land in such a way as to make it suitable for farming under African co-operative or company enterprise;

(c) to investigate the practice, management, organisation and economics of mechanised African farming; and

(d) to open up additional land for African settlement in an area previously closed to habitation on account of sleeping sickness." 2/

Indeed, by early 1951, the Board of Management was recommending to Government that until such time as food requirements in Jinja exceed normal production, the Busoga farms should be free to grow crops either for food or for

1/ Uganda Government, Annual Report of the Department of Agriculture. 1950, p.22.

2/ Uganda Government, Report of the Agricultural Productivity Committee. Government Printer, 1954, p.88.

export, depending on economic considerations. For it had been realised that the high clearing and running costs could not be covered by the returns from food crops grown whose yields and prices were low. Besides, the Busoga farms were over-capitalised and the managerial efficiency was low mainly due to frequent changes of the Manager. In addition, the administrative set-up vested the responsibility of taking decisions in the hands of the Chairman, who was an assistant Director of Agriculture and lived in Entebbe. This resulted in inefficient management as the Manager had too little autonomy and the Chairman was far off. 1/

In 1954, when the scheme was wound up, a total of 750 acres had been cropped at a development cost of £25 per acre. The farms' working capital account showed an accumulated loss of £85,303, of which some £30,482 was due to supervisory expenses, which worked out to a little over £14 per acre per year. K. N. Jones concludes that as a profit making venture, Busoga farms scheme was a failure, but pointed out that the scheme was also experimental, the nature of which was incompatible with profit making. The losses, it

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1/ For a detailed discussion see Jones, K. N., "Busoga Farms Bunya" in Joy, J. L., op. cit., pp. 75-86.

is admitted, would have been reduced had the Farms concentrated only on crops which showed the best commercial prospects. 1/ But, as it is, the scheme failed even to achieve its experiment objectives.

(b) The Bunyoro Agricultural Company Limited

Another agricultural development scheme which was conceived in 1949 was to be undertaken as a joint enterprise by the Government and two commercial firms. The primary objectives of the scheme from the Government's point of view were to open up a sparsely populated and tsetse fly infested area, to investigate the cropping rotations most suited to the area, and the feasibility of mechanising such farming, and finally, settling tenants on the developed land. The total area allocated to the scheme was 28 - 30,000 acres, of which 5,000 were intended to be dealt with first. The nominal capital of the company was £100,000, of which £80,000 was paid up, and £20,000 was written in the Articles of Association in favour of Bunyoro Local Administration.

In the early stages the Company made satisfactory progress and by the end of 1952 some 580 acres of land were available for cropping. The main crops grown were tobacco, which was flue-cured; maize; groundnuts and beans. By February 1954

1/ ibid., p. 86.

it was felt that enough was known about the growing of crops, cheap methods of land clearing and satisfactory use of machinery. Water had been provided and Africans with necessary experience were available to make it possible for the Company to take on the first six selected tenants as a test. It had been the intention to establish tenants on the cleared land after the initial investigations. The tenants were charged ± 30/- per acre as a contribution to the capital cost of land clearing and the Company provided on credit mechanised cultivations, seed and seedlings, and technical advice and assistance. The tenants in turn undertook to sell all their crops to the Company. The tenants were also paid in order to keep control of their activities.

In 1955 the number of tenants was increased to 66, operating in nine groups, covering 584 acres of cultivated land. In addition to the hire charges, a management and supervisory charge of ± 20/- per acre in addition to a rent at ± 1/- per acre of fallow land, were also charged. Monthly cash advances were paid to tenants for the purpose of paying labour and other current needs. The results indicated that the value of crops produced by each group of tenants was insufficient to meet the total indebtedness to the Company, and in only one case was the revenue sufficient to meet their idebtedness without the rent and management charges. Three groups of tenants were reported to be indebted to the Company in one year to the tune of Shs 9,959/- on 171 acres cultivated, that is Shs 58/- per acre per year. 1/ The tenant scheme came abruptly to an end after the initial enthusiasm and momentum of the scheme had ceased and the commercial elements had become disillusioned about the speed with which viability could be achieved.

The main lessons to be learnt from the experiment and the main causes of failure of the tenant farming scheme has been summarised by A. D. Llewellyn-Jones 2/ in the Symposium on Mechanical Cultivation in Uganda as follows: that tenant schemes cannot be run as commercial undertakings in the initial stages. They should be organised and financed by Government since such small tenant farming schemes cannot carry high administrative and overhead charges. That credit facilities should be provided to the tenants, where possible, in kind rather than in cash. That tenants should not be allowed to cultivate areas that are too large for their own resources. That without land shortage in Bunyoro there was no incentive to farmers to become tenants. And that it is important to have an agreement with each tenant.

1/ *ibid.*, p.73
2/ *ibid.*, p.74

Lastly for such capital intensive schemes to succeed crops with high yields and prices are vital and necessary.

(3) Other Agricultural Schemes

Other agricultural schemes which were planned and carried out in the Plan period included tsetse fly control, grain storage, road expansion, staff increase, and professorship in agriculture at Makerere. The tsetse control department was established in 1947 and was allocated some £1.03 million under the Revised Plan, to be expended as shown in Table IV-5 p.237). By 1948 a barrier clearing 1,000 yards wide and three miles long was completed in South Busoga, the fly-line was driven back some 20 miles in Buruli and a 35-miles long road barrier clearing in South Ankole was kept up. Up to the end of 1952 some 3.25 million acres had been reclaimed. 1/ The grain conditioning and storage plant was established in Jinja, as was the Chair in Agriculture at Makerere. The road development and expansion continued, the all-weather roads maintained by the Government increased from 2,457 miles in 1948 to 2,839 miles in 1954, and the minor roads maintained by the local administrations increased from 6,000 to 8,300 miles in the same period. 2/

1/ United Kingdom, Annual Report on Uganda 1952. H.M.S.O., p.42.

2/ ibid., Annual Reports on Uganda 1948 and 1954.

TABLE IV - 5

TSETSE FLY CONTROL ALLOCATION

UNDER THE REVISED PLAN *

(£)

Year	Maintenance of Existing Activities Allocation	Development Allocation	Total Allocation
1947	55,600	-	55,600
1948	102,300	-	102,300
1949	79,600	22,900	102,500
1950	79,900	34,000	113,900
1951	80,300	29,000	109,300
1952	80,600	29,000	109,600
1953	80,800	29,000	109,800
1954	81,100	29,000	110,100
1955	81,300	29,000	110,300
1956	81,500	29,000	110,500
Total	803,000	230,900	1,033,900
Residual 1957	33,600	1,100	-

* Source: Uganda Government, A Development Plan for Uganda 1948 Revision, op. cit., p.115.

The lack of staff, shortage of materials, and inadequate housing were the major obstacles which hindered progress of the Department of Agriculture on the projects contained in the Worthington Plan. The staff employed on extension work including education increased as follows:

Staff employed on extension work	1946	1956
Agricultural Officers	22	28
Assistant Agricultural Officer and Field Officers	61	77
Agricultural Instructors	460	76
Assistant Instructors		538
Total	543	719

Source: G. B. Masefield, "Agricultural Change in Uganda 1945-1960"; Food Research Institute Studies, Vol. III, No. 2, 1962, p.117; and Annual Reports of the Department of Agriculture; and files on Staff List and Annual Return of Staff.

At the end of the Plan period there were ten vacancies of Assistant Agricultural Officers, thirteen vacancies of Agricultural Instructors, in addition to 538 posts which were filled by Assistant Instructors. A detailed analysis of the staffing and education policy of the Department of Agriculture will be given later, but it seems that the training of the middle and low cadre of technical staff was given neither the emphasis nor the resources it required.

Plan Implementation

In terms of total Government expenditure, the Plan could be said to have been implemented, as can be seen by comparing the planned expenditure, Table IV-3, and actual expenditure, Table IV-6. The Revised Plan total expenditure of £62.74 million had almost doubled to £123.96 million, and the expenditure on the agricultural sector had increased from £5.70 to £11.58 million, which represented a relative fall of 0.3 per cent of the total expenditure. The expenditure on agriculture increased from £2.45 to £6.27 million and the percentage share increased from 4.2 to 5.1 per cent. The enormous increase in expenditure was made possible by unexpected large increases in revenue resulting from the increase in cotton and coffee prices. This increase in expenditure has been critisised as being ad hoc and not carefuly thought out. 1/ Ideally, the Plan should have been revised again to utilise the increase in resources on projects which would maximise production.

The success or failure of the Plan must be viewed in

1/ Elkan, W., The Economic Development of Uganda. Oxford University Press, London 1961, p.50.

TABLE IV - 6

TOTAL GOVERNMENT EXPENDITURE 1947 - 1956 *

Item	Total Expenditure (£)	Per-centage
Administration	6,717,211	5.42
Law, Order and Defence	12,680,015	10.22
Public Debt and Pensions	5,129,101	4.14
Revenue Collection and Financial Control	2,309,451	1.86
Development of Natural Resources:	16,545,429	13.35
(a) Agriculture	6,273,146	5.06
(b) Forests	1,195,487	0.96
(c) Games and Fisheries	575,821	0.46
(d) Locust Control	1,327,920	1.07
(e) Tsetse Control	971,763	0.78
(f) Veterinary	1,239,452	1.00
Agricultural Sector (a) to (f)	11,583,589	9.34
General Economic Development (infrastructure)	28,005,195	22.59
Social Services	28,531,081	23.02
Service Departments	9,599,049	7.74
Miscellaneous	14,448,255	11.66
GRAND TOTAL	123,964,767	100.00

* Source: Harris, Sir Douglas, op. cit., p.15, and Uganda Government, *Statistical Abstracts*.

relation to the achievement of its objective which was to increase production. Although almost all agricultural projects in the Plan were carried out, with varying degrees of success, it is said that the "Plan did little that would not otherwise have been done for agricultural development." 1/ The main weaknesses of the Plan was lack of a comprehensive agricultural policy to combine the transformation projects such as mechanical cultivation and pilot schemes with the improvement approach of introducing marginal innovations such as correct spacing, mulching, spraying, and fertilizer application. In addition, improvements in research and extension services and elimination of institutional gaps in the marketing organisations and price incentives might have resulted in greater agricultural production. These and other policy issues will be examined fully in the next chapter.

Another general weakness of the Plan was inherent in the way it was formulated as a collection of projects, most of which had already been suggested by the various departments. The projects, therefore, were not coordinated so as to give a balanced plan designed to achieve the production targets within a chosen strategy for development.

1/ Masefield, G. B., op. cit., p.118.

Not enough projects had been identified to cover the various commodities and districts. And those included in the Plan had been chosen administratively without proper economic evaluation. Even in the absence of a large number of clearly defined projects, the use of investment criteria might have been useful for ascertaining the justification of the projects and determining the sequence of operation or phasing of the selected projects. For example, an economic evaluation of the Busoga farms scheme would have indicated the potential increase in food production around Jinja, the possible increase in the labour population, the type of diet required and the social problems likely to arise in finding the settlers. Similarly, an analysis of the mechanical cultivation scheme might have revealed the relative abundance of cheap labour, the possible labour bottlenecks at harvest and the required level of technical skill to make mechanisation feasible.

Lastly, the Plan contained no implementation measures and no attempt was made to assess the priorities of the proposed expenditure. This important matter was left for the departments concerned to settle in consultation with the Government. 1/

1/ Uganda Government, A Development Plan for Uganda et. op. cit., p.6.

C H A P T E R V

THE FIVE-YEAR CAPITAL DEVELOPMENT PLAN (1955-1960) PERIOD

Introduction

The post-war policies for economic development which emphasised the need to raise the standard of living of the people of Uganda were still a major preoccupation of the Government. However, at the end of 1954, when the Five-Year Capital Development Plan (1955-1960) was drawn up, there had taken place some major changes, namely, a new Governor, Sir Andrew Cohen, had replaced Sir John Hall and assumed office in January 1952. As it has been pointed out earlier, the Governor determines and influences the basic economic policies of the Colonial Government. As Sir John Hall switched emphasis from social to productive activities in the Worthington Plan, so the appointment of Sir Andrew Cohen gave rise to another such change.

In contrast to Hall's strong views on expanding the productive activities while maintaining expenditure on social services in order to combat the evils of overpopulation and cause the per capita income of the country to rise, Cohen's views were that the elimination of disease, the raising of educational standards, and general community development schemes were to be regarded not merely as luxuries which higher productivity can avail but also as a means of attaining that very rise in productivity. Hence, according to Cohen, social and economic development were to be pursued simultaneousl although his emphasis was placed more on all forms of social development.

Also, the new Governor did not accept his predecessor's views on overpopulation, the fears of which has already been allayed by the 1948 population census. Nor did Cohen accept Hall's views that the African population and their system of agriculture were limiting factors to increasing agricultural production. In his first review of the year to the Legislative Council, Cohen expressed his firm and boundless confidence in the future of Uganda, stating that:

> "We have a firmly established and highly productive peasant agriculture and livestock industry which is bringing much wealth to African farmers and cattle keepers. We have a people which is anxious for progress and in fact steadily advancing to higher standards of living and greater economic activity."1/

1/ United Kingdom: Report on Uganda for the Year 1952 H.M.S.O., 1953, p.3.

These views coupled with the expressed aim of Her Majesty's Government to develop Uganda into a self-governing state led to the remarkable economic, social and political advance which characterises the Cohens' period of governorship and the late 'fifties. There was a lot of political activities, formation and expansion of political parties, exile and return of the late ex-Kabaka, the introduction of the Ministerial system of government, the holding of elections to the Legislative Council, and the 1959 trade boycott in Buganda, are some of the notable events of the period. It was under these conditions that the Five-Year Capital Development Plan was formulated and implemented.

<u>Objectives and Strategy of the Plan</u>

The five-year capital development plan which was drawn up by the Development Council representing government, statutory corporations and the public, was published at the end of 1954 and adopted by the Government in February 1955. Unlike the Worthington Plan, which encompassed both capital and recurrent expenditure, this Plan concentrated only on capital expenditure and acted as a framework within which capital expenditure amounting to £28.39 million would be allocated and phased in the quinquennium ending June 1960.

The major objectives of the Plan have been summarised as better farming, development of education and medical services, better roads, steady development of mineral and other economic resources, growth of co-operative movement, provision of credit, and general improvement of all services.1/ Thus the major emphasis was still placed on the need to develop the country's productive capacity, especially agriculture. It was recognised that Uganda, as long ahead as could be foreseen, relied for its main sources of wealth on peasant agriculture, and its economic and financial stability depended, therefore, on the proper development of the land through the application of sound methods of agriculture and animal husbandry. Thus, better farming methods, better roads, and improved services were planned as means to increase production and lay the foundation for better living standards of the people.

The general strategy for developing the country remained in the main the same as that in the Worthington Plan, with the government providing the infrastructure, and the private enterprise carrying on the

1/ United Kingdom: Report on Uganda for the Year 19[illegible] H.M.S.O., p.8.

actual production, although the Government was also taking part in productive activities through the Uganda Development Corporation. The strategy for agricultural development in the Plan was based on the recommendations and policies contained in the Report of the Agricultural Productivity Committee.1/ Unlike the Worthington Plan, which lacked a comprehensive agricultural policy, the Five-Year Capital Development Plan was supplemented by the Agricultural Productivity Committee Report which outlined the basic agricultural policy and on whose recommendations the agricultural projects and policies in the Plan were based.

The Committee which was appointed by the Governor in June 1954 had the following terms of reference:

> "To prepare for the consideration of the Development Council as part of the Five-Year Development Plan, a programme for raising agrarian productivity and standards of farming in the Protectorate, bearing in mind that the agricultural and livestock industries must primarily be based on peasant production, and to make recommendations as to how the programme should be put into effect."2/

The Committee made it clear in its introductory chapter

1/ Uganda Government: Report of the Agricultural Productivity Committee, Government Printer, Entebbe, 1954.

2/ ibid., p. (ii).

that it was not going to take a narrow view of its terms of reference by limiting itself to items of capital expenditure, but that it would also indicate what is required in the way of new items of recurrent expenditure considered necessary for raising agrarian productivity. In the same spirit, the Committee stated that "we do not consider ourselves bound by preconceived ideas of peasant farming; one of our main preoccupations in this report has been to consider what can be done to assist the natural evolution of new pattern of land utilisation".1/

The Committee, which concentrated on the measures for increasing productivity, had as its main strategy for agricultural development the introduction of more efficient methods of farming and more efficient use of the country's resources, subject to attitude of mind and traditional patterns of behaviour of the individual producers. One of the fundamental assumptions of the Committee is that the process of economic growth in a system of peasant farming rests primarily on the labour, enterprise and aptitudes of the many farmers and that Government could assist the process by imparting the

1/ <u>ibid.</u>, p.5.

new skills, creating institutions essential to a more highly developed cash economy, by widening the economic horizon of the people through education, by initiating schemes in which new patterns of work are evolved, by research and by developing and providing the necessary infrastructure. The Committee considered that investment in people through education and technical training should have priority over investment in material resources as it did not consider that spectacular capital investment by the Government in major projects was ipso facto likely to increase the productivity of the country as a whole.1/ Further discussion of the agricultural development policy will be given later when the various schemes are examined.

As it had been expected even before the Plan was published that there would be need to review and revise it. This need became clear as a result of practical experience of the Plan operation and because there was change in circumstances and some new policies had been adopted. The main reasons for the revision of the Plan were, firstly, the Government had accepted the recommendations of the Frazer Committee on Medical

1/ ibid., p.4.

Services, whose implementation required an additional capital expenditure estimated at about £2.5 million; secondly, as a result of the Royal Commission on East Africa 1953-1955 Report, the Government recognised the need for more capital expenditure on roads, urban services, agriculture and rural water supplies. Finally, there was need to review the approved development expenditure so as to relate it to the estimated available capital development funds. The aim of revising the Plan, it is said, was to give priority to schemes designed to increase production. Whether this was what was achieved by the actual allocation of development resources will be examined below.

<u>Resource Availability and Allocation</u>

Although the revised Plan contained new projects totalling over £8 million, that sum had to be found in part by reducing the allocations in the original Plan and the remainder by an increase from £30 million to £35.8 million in the estimated financial resources. The main sources of the capital development funds is given in Table V-1, which shows that nearly 87 per cent. of the estimated capital resources was to be raised from local resources. The major internal sources

TABLE V-1

FINANCIAL RESOURCES*

Source	Amount £ Million	Per-centage
Export taxes (cotton and coffee)	4.3	12.01
Contribution from Revenue Budget	6.5	18.16
African Development Fund	4.1	11.45
Surplus Balances	4.6	12.85
Internal Loans	11.5a/	32.12
External Loans	4.0	11.17
Colonial Development and Welfare Grants	0.8	2.24
TOTAL	35.8	100.00

* Source: Uganda Government: A Five-Year Capital Development Plan 1955-1960, The First Revision Government Printer, Entebbe, 1957, p.3.

a/ Of the Internal Loans, £7.5 million was expected to come from the Cotton and Coffee Price Assistance Funds. Together with Export taxes and African Development Fund they would account for £15.9 million or 44.41 per cent.

were the various funds which had been accumulated from cotton growers through export tax on cotton and other funds such as the African Development Fund, surplus balances, and the Cotton Price Assistance Fund. These funds were expected to yield some £18 million or 50 per cent. of the expected financial resources.

The Five-Year Capital Development Plan, unlike earlier ones, made a breakthrough from the traditional conservative notion of financing development projects from domestic revenues after allowing for a large margin for the reserve fund; by making provisions for financing some of the development projects through both internal and external loans. These two sources were expected to provide some £15.5 million or 43.3 per cent. of the required resources. It was also suggested in the Plan that the uncommitted surplus balances which stood at £11.6 million on 30 June 1956 should be reduced to £7 million, thereby releasing some £4.6 million to finance the Plan.

Table V-2 shows the <u>ex post</u> sources of capital development expenditure which amounted to £30 million. Besides, the colonial Development Grants amounting to £1.02 million, a mere 3.4 per cent., all the finance

T A B L E V-2

A FIVE-YEAR CAPITAL DEVELOPMENT PLAN 1955-1960

SOURCES OF ACTUAL EXPENDITURE*

Source	Amount £	Percentage
Export taxes (cotton and coffee)	7,708,827	25.65
Contribution from Revenue Budget	1,800,000	5.99
African Development Fund	7,965,866	26.50
Internal Loans	5,000,000	16.64
Colonial Development and Welfare Grants	1,020,499	3.40
Surplus Revenue Balances	4,600,000	15.30
Miscellaneous	1,961,340	6.52
TOTAL	30,056,532	100.00

* Source: Uganda Government, Reports of Accounts for the Years 1955/56 to 1959/60, Government Printer, Entebbe.

came from local sources of which the African Development Fund, export taxes, and internal loans were the major contributors. It should be noted that the African Development Fund was originally established with money from the Cotton Price Assistance Fund and the £5 million interest free loan was also made from the same fund. Indeed, in January 1954 some £4.4 million was transferred from the reserve Fund for Post-War Development and the Reserve Fund for Projects Outside the Development Plan (Worthington Plan). These funds had been established mainly with money from the cotton profits. Thus, assuming that about £3.89 million of the export taxes came from cotton, the amount by which annual cotton export duty exceeded the £2 million mark; the total contribution to capital development expenditure from the efforts of the cotton growers was of the order of £21.5 million, which is over 71 per cent. of the total development expenditure. Of course, most of the money which was transferred from the Cotton Price Assistance Fund and its forerunner, the cotton profits, was siphoned off over a number of years starting with the war period. The accumulation and utilisation of these 'forced savings' from the cotton growers have already been examined; it suffices to say that their funds made considerable contribution to capital development plan expenditure.

The sectoral allocation of the financial resources is given in Table V-3 below. This table shows that in the original Plan, some £9.9 million or 35 per cent. of *ex-ante* capital expenditure was earmarked for the development of natural resources, communications and commerce and industry. The allocation to the social services amounted to £5.3 million or 18.7 per cent. This, however, conceals the major emphasis which was placed on social services in the recurrent expenditure. The agricultural sector was allocated some £1.7 million or 6 per cent., of which £1.4 million or 4.9 per cent. was for agriculture.

Although the aim of revising the Plan was to give priority to schemes which would result in an increase in production, a historical balance was maintained between expenditure on productive sectors and social services. Provisions were also made for the investment of public corporations such as the Uganda Development Corporation and the Uganda Electricity Board.

T A B L E V - 3.

A FIVE-YEAR CAPITAL DEVELOPMENT PLAN 1955-1960 *

	Original allocation (£)	Percentage	Revised allocation (£)	Percentage of Government Plan	Percentage of the Whole Plan
Administration	2,534,338	8.93	3,930,788	11.53	7.69
Law, Order and Defence	3,765,716	13.26	4,209,686	12.35	8.24
Urban Services	6,815,000	24.00	6,925,868	20.32	13.56
Natural Resources 1/	2,101,690	7.40	2,461,278	7.22	4.82
Agriculture	1,406,200	4.95	1,429,118	4.19	2.80
Forests	99,800	0.35	76,385	0.22	0.15
Game and Fisheries	13,000	0.04	25,291	0.07	0.05
Tsetse Control	3,700	0.01	10,647	0.03	0.02
Veterinary Services	199,800	0.70	83,535	0.25	0.16
Agricultural sector 2/	1,721,500	6.06	1,624,976	4.76	3.18
Commerce, Industry & Trade	1,818,400	6.41	1,611,131	4.73	3.15
Communications	6,056,800	21.33	7,159,386	21.01	14.02
Social Services	5,300,890	18.67	7,785,154	22.84	15.24
Government Total	28,392,834	100.00	34,083,291	100.00	
Public Corporations	-	-	17,000,000	-	33.28
GRAND TOTAL			51,083,291	-	100.00

* Source: Uganda Government, A Five-Year Capital Development Plan 1955-1960, The First Revision, Sessional Paper No.13 of 1956/57, Government Printer, Entebbe, p.58.

1/ includes grain storage

2/ includes agriculture, forestry, game and fisheries, tsetse control and veterinary services.

Some £17 million or 33.3 per cent. of the total development expenditure was to be incurred by these public corporations. In the Revised Plan, the allocation to the social services increased from £5.3 to £7.8 million or 22.8 per cent. whereas the development of the natural resources received a slight increase which resulted in a relative decrease of 0.2 per cent. in its share of the capital expenditure. In fact, in the revised Plan a number of agricultural schemes were left out.

Besides poultry development, meat processing and fish farming, which fall under animal industry, the agricultural projects can be grouped under agricultural education, research, mechanical cultivation and ox-cultivation, financial assistance, and miscellaneous projects. Out of the total allocation to agriculture of £1.3 million, some £500,000 or 37.6 per cent. was earmarked for agricultural education which includes agricultural colleges, farm institutes and farm schools. Some £300,000 or 24.5 per cent. was for research, and £130,000 or about 10 per cent. for mechanical and ox-cultivation. The financial assistance was to be in form of loans, cotton seed dressing and cotton spraying subsidies. (See Table V-4 below)

T A B L E V-4

A FIVE-YEAR CAPITAL DEVELOPMENT PLAN 1955-1960 AGRICULTURE *

Item	Capital allocation		Actual total Capital and recurrent expenditure	
	Values (£) Schemes	Percentage	Value (£)	Percentage
1. Agricultural Education (colleges, farm institutes and schools)	499,292	37.60	549,850	11.00
2. Research	325,617	24.52	989,303	19.80
3. Mechanical cultivation and ox-cultivation	131,192	9.88	310,798	6.22
4. Financial Assistance (loans, cotton seed, dressing, coffee spraying)	179,400	13.51	79,370	1.59
5. Miscellaneous	192,293	14.49	3,067,567	61.39
TOTAL	1,327,794	100.00	4,996,888	100.00

* Source: Uganda Government, A Five Year Capital Development Plan 1955-1960, The First Revision, Government Printer, Entebbe, 1957, pp. 90-91 and Uganda Government: Reports of Accounts, 1955-1960, Government Printer, Entebbe.

Agricultural Policy and Schemes

The agricultural policy was examined and amplified by the Agricultural Productivity Committee which was charged with the responsibility of preparing a programme for raising the agrarian productivity. As has already been discussed, the general strategy for agricultural development suggested by the committee and accepted by the Government was that the Government policy should be directed primarily towards raising crop and stock yields per man/acre by better methods of farming. The committee emphasised its recommendation that:

> "in regard to the various factors of production - man and his technical skill, the land and its fertility, and capital equipment - the policy of the Government should be directed mainly towards increasing farming skill and the fertility of the soil and towards facilitating the efficient and economic application of capital."1/

This recommendation is vague and does not give any operational guidelines as to the selection of the alternative means of increasing productivity. The Economic Adviser in his report commented on the use of the concept "yield per man/acre" that it prevented the limiting factor being distinguished and pointed out that the

1/ Report of the Agricultural Productivity Committee, op. cit., p.41.

situation in Uganda was that labour rather than land was the main limiting factor, in which case the main concern should be with yields per man-hour rather than per acre. He had to admit, however, that the knowledge of the former was practically non-existent and that all discussions of productivity had to be conducted in terms of the latter.1/

The Committee was aware that its suggested agricultural policy and programme had to contend and to overcome the effects of the limiting factors such as lack of incentives, traditional influences, land tenure, paucity of rural savings, disease and malnutrition, and inadequacy of extension staff. A discussion of these limiting factors and other factors affecting agricultural development was given in Chapter two. It is enough to say here that these limiting factors were taken into consideration when the Committee was formulating the agricultural development programme. The programme which the Committee recommended the Departments of Agriculture and Veterinary should aim at achieving over the Five-Year Capital Development Plan period was based on the following

1/ Uganda Government: Economic Policy in Uganda. Ministry of Finance, 1959, (Mimo principles:

"(a) a considerable, but in our view realistic, expansion in research which we consider is necessary to pave the way for more rapid improvement in the standard of farming;

(b) expansion of farming education on the lines already envisaged in the de Bunsen Report; and improved training for departmental staff, chiefs, teachers and private farmers;

(c) improvement of extension work by raising the standard of departmental staff, and by increasing their numbers in certain places where they are required; by improving the information service for farmers; and encouraging in every way possible the mergence of a class of professional farmers from the mass of semi-subsistence cultivators."1/

The Committee's suggested programme which was based on the improvement approach was supplemented and reinforced by the recommendations of the East Africa Royal Commission 1953-1955. The Commission criticised the agricultural approach in Uganda as being a cautious one with emphasis being placed on improving production from existing systems by better husbandry practices rather than by any radical alteration of the customary system itself. But also suggested that

"agricultural policy must be based on a plan of objectives clearly related to the scarcity of the factors of production ..... It is far more

1/ Report of the Agricultural Productivity Committee, op. cit., p.41.

important to concentrate on measures which will bring about immediate and certain, even if only small-scale, improvements, from which communities, and individual producers, can build up a surplus for further investment."1/

The Governor in his Despatch to the Secretary of State for the Colonies reiterated that:

"whether or not we have been too cautious in the past I can assure you that we are not complacent about what is needed in the future. As the Agricultural Productivity Committee has pointed out, the time is now ripe for a more papid transition towards specialisation in farming and an exchange economy."2/

An examination of the major agricultural schemes undertaken during the period will indicate the success or otherwise of agricultural policies and programmes. It should be pointed out that neither the policies nor the individual projects were evaluated using any of the investment criteria we discussed in Chapter three. Indeed, the Agricultural Productivity Committee pointed it out that it was concerned with productivity as opposed to production and did not prepare a production plan listing the production targets for the various crops. The Committee stated that:

"It may be asked to what extent the geographical

1/ United Kingdom: East Africa Royal Commission 1953-1955 Report, H.M.S.O., 1955, cmd. 9475, pp. 292 and 313.

2/ Uganda Government: Despatch from the Governor of Uganda to the Secretary of State for the Colonies on the subject of the Report of the East Africa Royal Commission, 1953-1955, Sessional Paper No.4 of 1956/57, Government Printer Entebbe, 1956, p.47.

> income of the Protectorate might be expected to increase as a result of the programme of expenditure which we recommended ..... There can therefore be no yardstick by which such an increase can be measured; ..... We can only say that the economy of Uganda is steadily expanding, and we are confident that by the introduction of more efficient methods of farming and by more efficient use of the country's resources on the lines which we recommend the process will be accelerated."1/

It is clear, however, that the Committee was talking about technical efficiency based on technical research findings and recommended practices. The adoption of such practices, may or may not lead to economic efficiency. And since the agricultural policies and schemes proposed in the Plan were not evaluated, it is doubtiful whether these were the best alternatives. The use of the investment criteria would have helped in the allocation of the limited resources in such a way as to increase the rate of economic growth.

1. Agricultural Extension Service

Agricultural extension is the process of injecting capital and farm management skills into agricultural production with the purpose of inducing agricultural development by persuading the farmers of the

1/ Report of the Agricultural Productivity Committee, op. cit. p. (ii) benefits of innovation and adoption of improved efficient methods of crop and livestock husbandry. The extension may be geared to matters affecting efficiency in the short run, taking the institutional organisation, marketing facilities, capital resources and labour/land ratio, as given, or it may be aimed at introducing more radical alternative methods of production and thus transforming the present structures and institutions.1/ Agricultural extension plays such a vital role in agricultural development that W.A. Lewis asserts that for priority, expenditure on bringing new knowledge to peasant farmers is probably the most productive investment which can be made in any of the poorer agricultural economies. This assertion is exemplified by the increase in production, which can be obtained by the application of known techniques such as better seeds, use of artificial fertilisers,

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1/ For detailed discussion see Belshaw, D.G.R., and Hall, M., "Economic and Technical Co-ordination in Agricultural Development Policy in Uganda", Uganda Agricultural Society Journal, Vol.1, Nos. 1 & 2, 1968, pp.68-90 and Belshaw, D.G.R., "Agricultural Extension, Education and Research" in Helleiner, G.K. (Ed). Agricultural Planning in East Africa, East African Publishing House, Nairobi, 1968, pp. 57-78.

pesticides and better conservation and utilisation of water.1/ In Uganda, the Director of Agriculture asserted that:

> "If present agricultural knowledge were applied by farmers, a very substantial improvement in production and general well-being could be achieved. For this reason a vital function of the Department is to spread new knowledge through instruction and education in its widest sense."2/

The extension service is designed to achieve this very purpose. But it is important to ensure that the extension advice is technically sound and economically profitable as tested at the farm level. For the farmers may fail to apply the new knowledge if there is lack of sufficient stimulus and incentive or if, the extension advice appears impossible to implement because of practical reasons; calls for too much extra effort in relation to expected returns or if the farmers doubt the efficacy of the recommended practices.

The Agricultural Productivity Committee proposed and the Government accepted the programme for expanding the field activities of the Agricultural and Veterinary Departments, the purposes of which were to

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1/ Lewis, W.A.: Theory of Economic Growth, Unwin University Books, London 1963, p.187.

2/ Annual Report of the Department of Agriculture 1956, p.2.

enable more control to be exercised over the occupation and settlement of new areas which are brought into cultivation as a result of the normal increase in population. And to increase and improve extension work with the object of raising the yield per acre and improve the general farming standards. It was the view of the Committee which is shared by other experts on agricultural development that at the stage of Uganda's development then; it was likely within limits to increase agricultural productivity in direct ratio to the number of trained technical officers employed in the agricultural sector. The programme was also intended to spread widely the practice of mixed farming and to encourage the general use of oxen for transport and cultivation.1/

On the general extension work, the Committee distinguished two levels, one dealing with comparatively straight-forward matters such as proper methods of cultivation, spacing, time of planting and weeding, and soil conservation methods which could be put across by rule of thumb by the chiefs, community development staff, and the middle and lower cadre of the agricultural extension staff.

1/ Report of the Agricultural Productivity Committee, op. cit., p.54.

This was the instructional type of extension service. The second level deals with more fundamental matters such as farm management and layout which is more of a 'Farmers' Advisory Service' and requires more qualified technical staff working through the personal contact approach to put it across to the individual progressive farmers.

The Committee also recommended that the aim should be to have an Assistant Agricultural Officer for every county and an Agricultural Instructor or Assistant for every sub-county together with the equivalent veterinary staff in pastoral areas. The Committee stressed that as a pre-requisite to the efficient execution of balanced development programmes inter-departmental co-operation was considered of the utmost importance. Pointing out that for effective extension work, the proficiency of the staff was as important as the quantity and the efficiency of the service was dependent on well-planned and co-ordinated touring of the staff. As the extension service uses the personal contact approach, staff continuity was considered important.

For the Agricultural Department, the Committee recommended the appointment of two women agricultural officers to be attached to the main Farm Institutes to train African women agricultural students; appointment of three field officers for extension work on group farms and the use of draught oxen. In addition 60 assistant agricultural officers, were required for the implementation of the recommendation of having an assistant agricultural officer per county. The total recurrent cost of the proposed expansion over the five-year period was estimated at £94,000 with a consequential recurrent expenditure in 1960/61 of about £30,000 above the 1954 level.

Thus, the personal emoluments for the staff of the Department of Agriculture, which was £242,142 in 1954/55, was expected to increase to £272,142 in 1960/61 as a result of the increase in staff. The actual expenditure, however, turned out to be £319,417 in 1960/61. In fact, the total expenditure[1] on extension service, including personal emoluments, leave, mileage allowance, and transport of staff increased from £284,798 in 1954/55 to £488,254 in 1959/60, an increase of over 71 per cent. or 14 per cent. per annum. This increase in expenditure on the extension service was due to the filling of the vacancies which arose from the recommendations of the Committee and also as a result of filling the posts created during the implementation of the 'Worthington Plan'. Table V-5 shows some items of expenditure of Department of Agriculture. It can be seen from this Table that expenditure on extension increased from £68,937 in 1946 to £248,798 in 1954/55, an increase of over 352 per cent.

The increase in the recurrent expenditure on extension service is directly related to the increase in the number of staff engaged on the extension, including education and special development activities. The number of staff increased as follows:

	1956	1960
Agricultural Officers	28	34
Assistant Agricultural Officers or Field Officers	77	94
Agricultural Instructors or Assistants	76	265
Assistant Instructors	538	379
Total	719	772

The increase in the Agricucultural Instructor cadre from 76 in 1956 to 265 in 1960 and the reduction in the number of Assistant Instructors from 538 to 379 in the same period was in keeping with the recommendation of

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T A B L E V - 5.

ITEMS OF EXPENDITURE - DEPARTMENT OF AGRICULTURE, 1946 - 1962/63 *

(£)

	1946	1947	1948	1949	1950
1. Extension Service (emoluments, leave and transport)	62,937	78,302	117,049	122,593	102,122
2. Education (Colleges, schools and publicity)	222	451	3,879	5,380	2,941
3. Research	18,934	34,012	36,068	73,985	83,301
4. Mechanical Cultivation	-	22	1,573	18,027	19,914
5. Financial Assistance (Cotton seed dressing, Coffee spraying and subsidy schemes)	1,102	2,274	3,287	15,666	15,768
6. Contribution to outside Organizations	36,204	40,087	31,556	23,645	39,060
7. Miscellaneous	4,067	18,049	10,290	17,199	469,376
Total Expenditure	123,466	173,197	203,702	274,495	732,482
Agricultural Expenditure as a per centage of Total Government Expenditure	3.44	3.87	3.12	4.10	9.16

* Source: Uganda Government, Reports on the Accounts, Government Printer, Entebbe.

TABLE V - 5. (Continued)

ITEMS OF EXPENDITURE - DEPARTMENT OF AGRICULTURE, 1946 - 1962/63 *

(£)

	1951	1952	1953	1954 (June)
1. Extension Service (emoluments, leave and transport)	141,017	162,588	187,205	105,982
2. Education (Colleges, schools and publicity)	8,595	7,428	6,169	15,710
3. Research	61,986	118,698	167,180	51,822
4. Mechanical Cultivation	30,665	33,183	32,516	16,515
5. Financial Assistance (Cotton seed dressing, Coffee spraying and subsidy schemes)	18,832	22,690	71,181	37,183
6. Contribution to outside Organizations	167,690	270,917	189,824	104,644
7. Miscellaneous	281,065	1213,036	717,697	58,348
Total Expenditure	709 850	1828,540	1371,772	390,204
Agricultural Expenditure as a per centage of Total Government Expenditure	5.75	11.46	7.87	4.52

T A B L E V - 5. (Continued)

ITEMS OF EXPENDITURE - DEPARTMENT OF AGRICULTURE, 1946 - 1962/63 *

(£)

	1954/55	1955/56	1956/57
1. Extension Service (emoluments, leave and transport)	284,798	302,938	333,539
2. Education (Colleges schools and publicity)	14,165	44,189	224,407
3. Research	119,182	115,169	170,238
4. Mechanical Cultivation	41,885	70,753	94,011
5. Financial Assistance (Cotton seed dressing, Coffee spraying and subsidy schemes)	105,242	34,209	7,751
6. Contribution to outside Organizations	305,247	114,568	88,038
7. Miscellaneous	42,155	143,704	93,928
Total Expenditure	912,672	825,530	1,011,912
Agricultural Expenditure as a per centage of Total Government Expenditure	4.36	4.02	4.21

TABLE V - 5. (Continued)

ITEMS OF EXPENDITURE - DEPARTMENT OF AGRICULTURE, 1946 - 1962/63 *
(2)

	1957/58	1958/59	1959/60
1. Extension Service (emoluments, leave and transport)	417,618	451,815	488,254
2. Education (Colleges schools and publicity)	79,174	66,423	135,657
3. Research	282,628	216,920	204,348
4. Mechanical Cultivation	46,360	52,668	47,006
5. Financial Assistance (Cotton seed dressing, Coffee spraying and subsidy schemes)	18,152	17,409	1,849
6. Contribution to outside Organisations	68,211	69,965	45,908
7. Miscellaneous	110,281	120,520	118,280
Total Expenditure	1,022,424	995,720	1,041,302
Agricultural Expenditure as a per centage of Total Government Expenditure	4.01	3.68	4.18

T A B L E V - 5. (Continued)

ITEMS OF EXPENDITURE - DEPARTMENT OF AGRICULTURE, 1946 - 1962/63 *

(£)

		1960/61	1961/62	1962/63
1.	Extension Service (emoluments, leave and transport)	380,054	354,245	480,208
2.	Education (Colleges schools and publicity)	153,571	146,323	211,227
3.	Research	233,288	345,889	276,875
4.	Mechanical Cultivation	46,606	61,339	56,021
5.	Financial Assistance (Cotton seed dressing, Coffee spraying and subsidy schemes)	12,440	[illegible],741	926,896
6.	Contribution to outside Organizations	47,926	[illegible],971	45,184
7.	Miscellaneous	199,488	16,641	80,863
	Total Expenditure	1,073,423	[illegible],149	2,076,274
	Agricultural Expenditure as a per centage of Total Government Expenditure	3.98	[illegible].13	6.13

the Agricultural Productivity Committee which was designed to improve the standard of the sub-ordinate staff by recruiting only instructors who had completed a full three-year training course.1/ The increase in the number of agricultural instructors was made possible by the execution of the agricultural education programme in the Plan, since none of them was recruited from outside Uganda.

The recruitment of staff was so vigorously pursued that by the end of 1955 four agricultural officers, seventeen assistant agricultural officers, one senior agronomist, two botanists, one entomologist, one soil fertility chemist posts were filled. In July 1956, out of the total establishment of 105 posts of assistant agricultural officers, ten were vacant, and of 627 agricultural instructor posts, only 76 were filled, 538 were filled by assistant instructors, and 13 were vacant. In the same year, one senior agronomist, two principals of the main Farm Institutes, two entomologists, three soil surveyors, and one cotton breeder were appointed, leaving four agricultural officer, four assistant agricultural officer, one senior entomologist, three botanist, one chemist and

1/ ibid., p. 64.

one agronomist vacancies unfilled by the end of the year.

In 1957 three agricultural officers, nine assistant agricultural officers, one soil chemist, one taxonomic botanist, and a senior botanist, were appointed. In 1958 the first African agricultural officer was appointed and a second was appointed Agricultural Economist. One agricultural officer, nine assistant agricultural officers, one senior chemist, one plant pathologist, and one pasture agronomist were also appointed, but the staff position deteriorated with the resignation of three botanists, one entomologist and one chemist.

In 1959 the first group of 25 agricultural assistants trained at Bukalasa Farm Institute were appointed, in the Department of Agriculture. In the same year, in order to intensify the production drive, 18 assistant agricultural officers for extension work, six for Farm Institutes, four Marketing Officers, one woman agricultural officer and another woman assistant agricultural officer were appointed. At the end of the year, the vacant posts included only two botanists and one chemist.

In 1960, the last year of the Five-Year Capital Development Plan period, great difficulty was experienced in recruiting both field and specialist officers, and at the end of the year there were nine posts of assistant agricultural officers and four senior posts in research unfilled, and only one agricultural officer was appointed. The difficulty in recruitment might have been caused by the uncertainties caused by the great political advance towards independence and the effects of the trade boycott in 1959. Also, 50 posts of agricultural instructors were vacant besides the 439 which were filled by temporary staff.

In spite of the staffing difficulties there was a marked improvement in both the numbers and disposition of agricultural extension staff. Table V-6 and Table V-7 show the extension staff disposition in 1956 and 1960 respectively. The disposition of agricultural officers, assistant agricultural officers and agricultural instructors shows a tendency to concentrate in the districts where there were more agricultural activities and greater agricultural development potential. For example in 1956, the concentration of extension staff was in East and West Mengo, Lango and Kigezi Districts.

T A B L E V-6

EXTENSION STAFF DISPOSITION, 1956 *

District and Region	Agric. Officer 1/	Asst. Agric. Officer	Agric. Instructor	Asst. Agric. Instructor
Masaka	1	3	1	29
Mubende	-	2	4	26
East Mengo	-	5	5	26
West Mengo	1	5	14	24
Buganda	6	15	24	105
Busoga	1	4	4	41
Bukedi	-	5	2	26
Bugisu	-	6	1	35
Teso	1	3	4	46
Eastern	6	18	11	148
Acholi	1	3	2	32
Lango	1	3	14	n/a
West Nile/Madi	1	2	6	40
Karamoja	1	5	-	21
Northern	5	13	22	93
Ankole	-	3	5	31
Bunyoro	1	2	5	23
Kigezi	1	8	4	36
Toro	2	4	2	35
Western	4	17	16	125
Total	21	63	73	471

* Source: Annual Reports of the Department of Agriculture, Files on Staff List and Annual Returns of Staff, Department of Agriculture.

1/ Agricultural Officers include Regional Agricultural Officers and others on general extension.

TABLE V-7

EXTENSION STAFF DISPOSITION, 1960 *

District and Region	Agricultural Officers 1/	Assistant Agricultural Officers	Agricultural Instructors
Masaka	2	3	19
Mubende	1	2	14
East Mengo	3	13	21
West Mengo	2	9	20
Buganda	9	27	74
Busoga	1	5	26
Bukedi	1	4	20
Bugisu	1	6	13
Teso	1	6	18
Eastern	7	21	77
Acholi	1	4	9
Lango	1	2	16
West Nile/Mad	1	2	9
Karamoja	-	3	1
Northern	4	11	35
Ankole	-	4	11
Bunyoro	-	4	12
Kigezi	-	5	7
Toro	2	5	17
Western	3	18	47
Total	23	77	233

* Source: Annual Reports of the Department of Agriculture and files on Staff List.

1/ Agricultural Officers include Regional Agricultural Officers and others on general extension.

The intensive farming development scheme accounted for the number of field officers and agricultural instructors posted to Kigezi District, whereas cotton cultivation and tractor hire service were the reasons for Lango. The Mengo Districts had a lot of agricultural activities including cotton, coffee and maize cultivation and mechanical cultivation.

The pattern of extension staff disposition did not change significantly in 1960 except in a few cases such as Busoga, Bukedi and Teso Districts where cotton production assumed an important role. In fact, in 1956, of the 46 assistant agricultural instructors employed in Teso, seven were employed on cotton variety trials, similarly, 11 assistant agricultural instructors in Mubende, and six in Bunyoro Districts were employed on tobacco cultivation. The increased extension staff in Toro District was related to increased activities on resettlement schemes, tractor hire service and cotton cultivation in the Busongora area and the development of tea outgrowers' scheme.

The extension staff was engaged on extending soil and water conservation measures; conducting short courses for farmers; advising on proper husbandry for both crops and animals and the integration of livestock into the farming systems. Also on organising farm layout and planning of resettlement schemes; advising farmers on the use of tractor and ox-drawn implements; and working in co-operation with the chief's and other field staff in the production drive campaigns and the execution of agricultural bye-laws. In 1955, the Director of Agriculture in his annual report stated that:

> "Any schemes for better land utilisation in Africa must be preceded by campaigns for the protection of the soil against erosion. These drives must be directed at the entire population of cultivators, for soil erosion means loss of natural wealth and until soil movement is checked better farming methods cannot be adopted. Soil conservation campaigns have been in force in most districts in Uganda for some years; and a large proportion of the field staff of the Department has spent much time on such activities."1/

Besides the extension staff encouraging farmers to take steps to protect their cultivated and grazing lands against erosion, annual soil conservation competitions were organised in all parts of the country. The results of such campaigns have been good, especially in the densely populated and hilly districts such as Kigezi and Bugisu. Indeed, the soil conservation is considered the most outstanding agricultural

1/ Annual Report of the Department of Agriculture 1955, p.9.

practice which has been widely adopted in Uganda.

In addition to encouraging soil and water conservation measures, the extension staff spent a lot of time on campaigns designed to raise agricultural production, especially the production of the main cash crops, coffee and cotton. Cotton production drive has been a constant job for extension staff in the cotton growing districts and other things being equal, farmers have tended to respond well to campaigns to plant more cotton and plant it early. In fact, the 1959 Annual Report of the Department of Agriculture claims that the 1958/59 cotton crop was the second largest on record then, largely due to the successful early planting campaign in 1958. Occasionally the considerable effort and energy put into the cotton campaign may be nullified by the adverse weather conditions as was the case in the 1961/62 season.

However, agricultural progress resulting from extension work cannot be readily assessed or measured as it is of a joint cost nature with education and research activities and its main product is through gradual evolution of better farming. The methods used in extension work which include personal contact, competitions, agricultural shows, newsletters, posters, films, broadcasting and demonstrations do not contribute directly to an increase in agricultural production in any particular year. To the extent that better soil and water conservation measures and better husbandry practices such as mulching, pruning, manuring and pest control were adopted, it can be said that the extension service achieved some success. Though the impact on production must have varied from locality to locality. This limited success based on extension techniques designed to take agricultural advice to the mass of cultivators was considered inadequate by the Director of Agriculture, who proposed a change in approach to the extension service on grounds that:

> "Despite the efforts of the Department over the past 40 years the general level of farming is still at the subsistence level and the problem in front of us is so urgent that we can no longer afford to dissipate our forces, limited as they are, in an attempt to help those who will not help themselves. Concentration of effort is essential and it was, therefore, decided to give the maximum assistance to the progressive or emergent farmers in order to develop a class of yeoman farmer."1/

Under this policy, other farmers would receive routine guidance on better husbandry practices but the progressive farmers would receive more attention in

1/ Annual Report of the Department of Agriculture, 1960, p.1.

connection with farm planning, farm management and would benefit from credit facilities. This was the focal point approach to extension.

2. Agricultural Education

Agricultural education, like general education, is a very important pillar of the agricultural infrastructure and contributes significantly to agricultural and general economic development. The importance of agricultural education was stressed by the Agricultural Productivity Committee as a means of increasing agricultural productivity using the human resources. The Report stated:

> "It is possible to increase material resources by the investment of large sums of capital but, without the people to make efficient use of them, the result can only be waste and inefficiency. Provision of agricultural education therefore is one of the basic requirements for raising standards of farming; and without it full use cannot be made of the land and its fertility nor of the results of research."1/

The need for agricultural education was assessed in terms of provision of more highly qualified African staff for extension, teaching and research; improvement in the quality of the subordinate staff; the provision of courses for farmers and chiefs; the intensification of adult education and the teaching

1/ Report of the Agricultural Productivity Committee, op. cit., p. 69.

of agriculture in schools.

Although some agricultural education had been disseminated to farmers through extension service and to the agricultural subordinate staff, chiefs and teachers through courses offered at the two departmental training centres, it was terribly inadequate. In this thesis, I hold the view that the provision for education in general and agricultural education in particular had been terribly inadequate and must have retarded the rate at which farmers adopted new farming techniques and acquired new skills with the resultant depression of the rate of economic growth of the economy as a whole. Up to this time, very little had been done to increase facilities for agricultural education, indeed, before 1948 less than 0.5 per cent. of the total expenditure of the Department of Agriculture was being spent on education, including short courses for farmers, chiefs, teachers, prison warders, apprentices and agricultural instructors. In fact, in 1945 only £222 was spent on agricultural education in Uganda whereas some £800 was being spent as a contribution to the Imperial College of Agriculture, Trinidad, in which Uganda's interest was limited to the post-graduate diploma in tropical agriculture which the college offered to the British trained agricultural officers before they were posted to Uganda and other countries.

The agricultural development policy which was in the main based on the improvement approach should have had a package containing extension service, agricultural education and research in good proportions. But, looking at Table V-5, it is clear that in 1946 when 51 per cent of the total agricultural expenditure was on extension service, over 15 per cent. on research, a negligible amount of about 0.2 per cent. was spent on agricultural education. Agricultural education, therefore, seems to have been the missing link for rapid agricultural development.

At the time, no facilities existed for agricultural training at the degree level, so the Committee recommended that agricultural and veterinary departments should each be allotted three scholarships every year for getting officers trained to the degree level. This, clearly, was inadequate as it would have taken many years before enough Africans were trained to fill the district agricultural officer posts. The Agricultural Diploma output at Makerere University College was negligible with some years without any Ugandan student in the final year. It was therefore, necessary to increase the output of these assistant agricultural officer by every possible means.

For the training of the middle and lower cadre of the departmental staff it was proposed to establish a number of farm institutes. The institutes which were to be the training centres for agricultural and veterinary department staff, chiefs and farmers, were designed to form the foundation for the agricultural education. The main two institutes, at Bukalasa and Arapai, were planned to produce staff for the other district farm institutes. In 1955, plans for the two main farm institutes were pressed ahead and by the end of the year the building plans at each of the institutes had been completed. The foundation stones for the two main farm institutes, Bukalasa, and Arapai, were laid in 1956. The Bukalasa Farm Institute was opened in 1957, whereas Arapai was not ready until 1958. The first of the District Farm Institutes to be opened were Ngetta and Ikulwe which were opened in 1960. With the opening of the main farm institutes, the number of students taking certificate courses rose from 97 in 1957 to 220 in 1959. These would be the low cadre extension staff in-charge of sub-counties.

3. Adult Farmer Training

It has now been realised that in agricultural production the farmer himself is as important as his products, that his training, knowledge and skills constitute what is termed non-conventional inputs in the production function. These acquired capabilities of the farmers are of primary importance in modernising agriculture and it is increasingly recognised that many developing countries may be held back not so much by shortage of savings as by a shortage of skills and knowledge which result in limited capacity of their organisational framework to absorb available capital in productive investment. These capabilities, like capital goods, are produced means of production, and are in essence an investment in human resources.

The Agricultural Productivity Committee recommended the intensification of adult education mainly through the extension service supplemented by short courses at the district farm institutes. J. R. Moris has stressed the importance of adult farmer education and pointed out that traditional forms of agricultural extension which deal with approved husbandry practices, new technology and new crops are product orientated; concentrating on the innovations rather than the innovator. In his view,

> "no amount of meetings, posted notices, short talks and other standard techniques can compensate for the farmers own fundamental weakness in skill and motivation. If the farmer cannot read, if he does not grasp the basic worth of farm planning, if he does not value improved yields, if his concepts about plants and animals are technically erroneous ..... then advice is of little use. The farmer must have a certain minimal threshold of basic skills and understanding before 'extension' as customarily defined 'works'".1/

It was because of the general lack of this minimal threshold of basic skills and understanding within the people of Uganda that in 1946 the Governor considered them an unfavourable factor in the production of wealth. He stated that the Africans of Uganda are indolent, ignorant, irresponsible and not infrequently suspicious of foreign intervention while at the same time appreciating that these weaknesses were curable by education.2/

The number of adult farmers who attended short courses was very small before the opening of the

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1/ Moris, J.R.: "Farmer Training as a Means of Rural Development", R.D.R. Paper No.28, 1967.

2/ Uganda Government: A Development Plan for Uganda and the 1948 Revision of the Plan, Government Printer, 1949. p. iv.

District Farm Institutes in 1960. The number varied between about 1,000 in 1947 to 150 in 1957 the year when such courses were discontinued at Serere. This coupled with the slow start in introducing formal agricultural education, in part explains the slow rate of growth of the agricultural sector and the lack of marked agricultural transformation. To be in line with the old colonial policy of 'indirect rule' through local people, agricultural extension would have made great impact had the approach been that of producing local agricultural assistants, who would, because of their background, be easily accepted and trusted by the farmers, rather than concentrating on expatriate agricultural officers who were more suited for supervising the extension work than doing the extension themselves. The local extension worker who speaks the local language and understands the customs and social structure is definitely in a better position to advise on possible improvements in the agricultural system. Although most of the assistant agricultural officers had been Africans, the number has been very small until facilities for agricultural education were expanded in the early nineteen sixties.

The supporters of the slow improvement approach may point to the fact that Ugandan agriculture has developed appreciably over the last few decades without huge investment in general or agricultural education of the peasant farmers. This argument ignores the fact that Uganda was fortunate to develop her agriculture on the impetus of the export crops which had established markets. The increase in production of these export crops, cotton and coffee, involved mainly bringing more land under cultivation. But agricultural development requires more than mere increase in production, it requires also an increase in factor productivity which requires in the case of agricultural labour, a certain amount of education.

Table V-4 shows that in the revised Five-Year Capital Development Plan, agricultural education schemes were allocated some £499,893 or 37.6 per cent. of the total allocation to the Department of Agriculture. Agricultural education, therefore, was given the greatest share of the financial resources allocated to agriculture. This must have been the consequence of recommendation and emphasis of the Agricultural Productivity Committee Report on education and is a marked contrast to the 'Worthington Plan' which paid practically no attention to general agricultural education except the proposal for establishing a Chair for Agriculture at Makerere. The foundation for agricultural education which was established during the Five-Year Capital Development period served as the basis of the rapid expansion in the agricultural education in the sixties which we shall discuss later.

4. Farm Planning

The Agricultural Productivity Committee emphasised the lack of special advisory service for progressive farmers desiring to raise the standard of their farming above the semi-subsistence level. The Committee pointed out that little work had been done by the Government on the problem of African farm management economics and farm layout and suggested one level of extension work should deal with the above problems and devise suitable balances between the various crops and livestock.

To fulfil the need for injecting into the progressive farmers the management skills, the Farm Planning Unit was established in 1956 with its headquarters at Soroti. The newly formed Farm Planning Unit began work during 1957. In Teso six farms were planned and in Kigezi 17 farms were re-designed to increase the efficiency of the farming system.

In 1960 the farm planning became an integral part of the normal district extension service with the object of giving each and every progressive farmer a planned layout. Since the response by farmers to the farm planning service was favourable but progress had been limited by the available staff who could undertake the farm planning. It was assumed that making farm planning an integral part of the general extension would enable more farms to be planned. Unfortunately, the general extension staff was not suited for this specialised work and the result has been the abandonment of the scheme. But by 1960, 30 farms had been planned in the Eastern, 34 in Buganda, six in Bunyoro, and a start had been made in Northern Regions, where six farmers in Acholi and 12 in Lango were given farm layouts. In Kigezi over 300 farms were given improved farm layout and enclosed with live hedges.

The farm planning unit was expected to become one of the major instruments for facilitating the transformation from subsistence agriculture to commercial and specialised farming.1/ Like the Economic

1/ Uganda Government: Economic Policy in Uganda, op. cit., p.37.

Adviser, the Economic Development Committee recommended in 1958 that farm planning service should be intensified. Instead of being intensified the service was integrated into the extension system and lost its main function of supervising and analysing detailed farm records from the planned farms. And using such records to test the soundness and profitability of research findings and recommended practices. Such analysis would enable the farm planning unit to devise more profitable farming systems for the various areas. It is therefore, considered that farm planning is a vital and essential service needed to combine with extension and research services in accelerating the rate of transformation from semi-subsistence agriculture to commercial farming.

5. Agricultural Research

Research is another vital part of the agricultural infranstructure which offers the means of producing greater quantities and better qualities of agricultural produce from existing resources. Agricultural research is considered a pre-requisite to extension as the extension worker has to take to the farmers knowledge of improved techniques and husbandry practices which have been developed through research.

Although in Uganda research had received a lot of attention, the Agricultural Productivity Committee recommended a more intensified programme for research, pointing out that research was essential for paving the way for the transition from subsistence cultivation to farming. The complex problems in the way of raising farming standards and improving the farming systems could only be solved by research.

Table V-5 shows the amount of money which has been spent on the research, both within Uganda and as contributions to the research organised on the East African basis. Although it is not possible to say what proportion of the total available national resources should be allocated to agricultural research, it seems as if a good proportion was in fact allocated. The percentage of the total Government expenditure on agriculture which was allocated to research varied between about 10 and 30 per cent. In fact, during the Five-Year Capital Development Plan period, some £325,617 or 25 per cent. was allocated to research. The actual total expenditure during the period amounted to £989,303 or nearly 20 per cent. which was the greatest of all the activities of the Department of Agriculture (See Table V-4).

The limitations to the use of the research findings has been the shortage of staff which has resulted in experiments and research data not being analysed and written up in a form which could be used easily by the extension staff in the districts. The publication and distribution of simple research bulletins summarising the findings of the research workers would undoubtedly give the extension staff something to extend which could help the farmers to obtain the maximum returns from their labour and land resources.

The Agricultural Productivity Committee proposed a research programme designed to cater for subjects which were inadequately covered by research. The programme included ecology and soil survey, food and fodder crops, cash crops and agronomy. Since the contribution of research to the national economy could not be measured easily, the suggested programme was based on the long-term benefits of research such as the introduction of know-how into farming and the expected increase in efficiency and productivity. The research was intended to answer the direct needs of the peasant farmers, it was, therefore more of applied rather than basic research.

I have already described the progress made in recruiting staff for research work for the implementation of the Agricultural Productivity Committee recommendations and the Five-Year Capital Development Plan. The staff increases were as follows:

	1951	1956	1960
Specialist Officers or Agricultural Officers	10	21	16
Assistant Agricultural Officers	12	12	15
Agricultural Instructors or Laboratory Assistants	16	33	70
Total	38	66	101

During 1955, funds were provided and final plans approved for new laboratory buildings at Serere which was to be equipped as a full Research Station. During 1956, the Coffee Research Unit was established and the staff of the Research division greatly strengthened. Considerable progress was achieved in finding the answers to some of the farming problems and by 1960 the soil and land use surveys were all completed and presented as research memoirs.1/

1/ Annual Report of the Department of Agriculture 1960, p.27. Most of the research findings have been reported in the Annual Reports and in the various Technical Bulletins written by the research specialists.

6. Mechanical Cultivation

The Government efforts to mechanize the peasant agricultural production through the tractor hire service which started on an experimental basis in 1947 was continued and expanded during the Five-Year Capital Development Plan period. The proposals for future expansion of the service were spelt out in 1954 in a Government White Paper entitled "Mechanisation of African Farming in Uganda". In accordance with the overall Government policy, the policy of the Department of Agriculture, through its Special Development Section, was to extend the use of mechanical cultivation along the following lines:

"(1) To maintain existing contract hire services and to extend them on a limited scale while aiming to raise hire charges progressively to equate them with operating costs, including depreciation;

(2) To encourage commercial enterprise to provide approved contract services.

(3) To give active assistance to farmers who wish to own and use their own equipment either as individuals, or in co-operative societies, or other groups, by training them in the operation and maintenance of tractors and ancillary implements."1/

The Agricultural Productivity Committee, while recognising the factor that the tractor hire service

1/ Annual Report of the Department of Agriculture 1956, p. 21.

had become an important feature in the development of African farming, emphasised the investigational aspect of it, adding that

> "it should be clearly stated that it is not the function of the Agricultural Department to farm the land on behalf of the farmers."1/

Hence, the expansion of the tractor hire service was to be limited and subjected to efficiency criterion to ensure that running costs were covered by the hiring charges. Since tractors require reasonably large fields within a small radius of their base in order to operate economically, the Committee pointed out that tractor cultivation should be restricted to under-developed areas or to areas where farmers were prepared to regroup their fields. In other areas, ox-drawn implements could be used, either as the main motive power for all operations or complementary to the tractor for such operations as cultivating, harrowing, planting and inter-row weeding, after the tractor has done the preliminary opening up of the land.

This cautious approach to mechanical cultivation resulted in less funds being allocated to the service. Unlike the 'Worthington Plan' where over 18 per cent. of the total agricultural development expenditure was

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1/ Report of the Agricultural Productivity Committee op. cit., p.60.

allocated to mechanical implements and the Harris revision where over 27 per cent. was so allocated. In the Five-Year Capital Development Plan less than 10 per cent. of the *ex ante* agricultural development expenditure was allocated to mechanical and ox-cultivation. Table V-4 shows that £131,192 or 9.8 per cent. was allocated to mechanical cultivation which included ox-cultivation. The actual total expenditure of £310,798, was only 6.2 per cent. of the total agricultural expenditure of the period. This reflected fully the general change in economic policy from the transformation approach in the 'Worthington Plan' to the improvement approach implicit in the Five-Year Capital Development Plan period.

Although there was a relative shift in emphasis from mechanical cultivation, the absolute expenditure on mechanical and ox-cultivation greatly increased. From Table V-5 it can be seen that total expenditure on mechanical and ox-cultivation for the eight and a half years of the 'Worthington Plan', namely 1947 - 1954/55, amounted to £184,300, whereas the expenditure during the five years, 1955/56 - 1959/60, amounted to £330,798. This increase in expenditure is not related to any increase in the number of tractors run by the tractor hire service because the number decreased from 45 tractors in 1954 to 34 in 1960. Table V-8 shows the number of tractors which worked under the tractor hire service for the five-year period under review. From this Table it can be seen that the total acreage cultivated increased from 5,508 acres in 1956 to a peak of 7,753 acres in 1958, and then fell to 5,739 acres in 1960. The average hours worked per tractor increased to a maximum of 556 hours per year in 1957 and then decreased to 459 in 1960. From these figures one can conclude that the increased expenditure on the tractor hire service must have been the result of increased running and overhead costs.

The problems of general unsuitability of some areas for mechanical cultivation; the low factor of aggregation and the resulting high cost of supervision and repairs which tended to inflate the total cost of the tractor hire service, were still unsolved. In 1956 attempts to lower the operating costs of tractor hire service were made by allocating one type of tractor with standard equipment and implements to each unit. Also some types of tractors which were difficult to operate were withdrawn. Even then,

T A B L E V-8

ACREAGE CULTIVATED UNDER TRACTOR HIRE SERVICE *

Year	Number of Tractors	Plough-ing	Disc Harrowing and Tilling	Plant-ing	Weeding and Ridging	Total Area Culti-vated	Average Hours Worked per Tractor per Year
1956	43	4,478	872	87	65	5,502	415
1957	37	4,983	1,077	46	66	6,172	556
1958	43	6,040	1,445	90	178	7,753	500
1959	41	4,936	1,024	126	428	6,514	435
1960	34	4,246	1,252	163	78	5,739	459

* Source: Annual Reports of the Department of Agriculture.

there was a tremendous increase in the costs of operation as can be seen from Table V-9 and Table V-10, which show that the average running costs for Lango and Acholi, which were Shs.13/30 per hour in 1955, had increased to about Shs.20/- per hour in 1960. Some of the increase undoubtedly is due to the lower average hours worked per tractor in 1960 than in 1955 and some due to increases in wages and depreciation.

It had been the intention of the tractor hire service to increase the utilisation of the tractors to an average of 1,000 hours worked per tractor per year. This, however, was made impossible by lack of demand which forced some units such as the one in Busoga to close down in 1957 and other units to work at less than optimum capacity. Also, when the tractor hire charges were increased in 1955 from Shs.40/= per acre for ploughing to Shs.50/= per acre, the farmers were so discouraged that there was a decrease in demand. So the charges had to be reduced thus making it impossible to achieve the policy of equating hire charges to costs of operation. In some areas, like Acholi and Lango, the demand for tractor hire service decreased as a result of the increase of the privately owned tractors, which had increased to 16 in 1960.

T A B L E V-9

TRACTOR HIRE SERVICE

COSTS OF OPERATION *

(SHS.)

Year	1955 Average for 11 Tractors in Lango and Acholi	1958 Uganda Average for 43 Tractors	1960 Uganda Average for 34 Tractors
Running Costs:			
Fuel and Oil	5.07	6.18	3.84
Drivers' expenses	2.10	4.31	4.07
Mechanics, spares and repairs	2.23	5.04	7.30
Depreciation	3.50	5.73	8.55
TOTAL	13.30	21.26	23.76
Overhead costs:			
Senior Officers' supervision	2.11	10.09	9.60
Plot Measurers	0.95	1.66	2.53
Transport	-	1.38	1.58
Clerks, Askaris, etc.	-	1.38	2.65
TOTAL	3.06	14.51	16.36
GRAND TOTAL	16.36	35.77	40.12
Revenue earned per hour	11.13	16.73	16.48
Average hours worked per tractor	1,004	500	459

* Source: "Annual Reports - Special Development Section" in the Annual Reports of the Department of Agriculture, 1955-1960.

TABLE V-10

TRACTOR HIRE SERVICE

COSTS OF OPERATION 1960 *

(SHS.)

District Number and Type of Tractors	Busoga Two Fordson Major Diesel	Bunyoro Five Farmall Kerosene	West Acholi Seven Ferguson 35 Diesel	Lango Four Fordson Extra Diesel	Toro Two Fordson Major Diesel
Running costs:					
Fuel & oil	3.45	6.61	4.19	2.14	3.37
Drivers' expenses	2.92	4.35	4.09	3.37	2.03
Mechanics, spares and repairs	6.47	7.86	5.97	4.04	4.39
Depreciation	5.15	12.75	7.70	7.16	4.24
TOTAL	17.99	31.57	21.95	16.71	14.03
Overhead costs:					
Senior Officers' Supervision	5.55	9.06	6.39	11.55	7.22
Plot Measurers	0.91	3.12	1.59	2.36	1.18
Transport	0.67	-	2.10	0.58	-
Clerks, Askaris, etc.	-	2.73	2.58	2.06	1.21
TOTAL	7.13	14.91	12.66	16.55	9.61
GRAND TOTAL	25.12	46.48	34.61	33.26	23.64
Revenue earned per hour	12.91	18.53	19.28	20.74	15.17
Average hours worked per tractor	640	370	539	460	936

* Source: Annual Report of the Special Development Section, Department of Agriculture, 1960

The concerted effort to increase the efficiency of the tractor hire services by use of more modern equipment and increased annual hour output per tractor were continued in 1960. The average number of hours worked per tractor increased from 455 in 1959 to 459 in 1960, which was still less than the 556 hours worked per tractor in 1957. The average time taken to plough an acre was 1.88 hours in 1960 compared with 2.01 hours in 1959, this increase in efficiency of operation is attributed to the use of new tractors and better implements. The average running costs for all operations worked out at Shs.23/73 per hour 1/ which was an increase over the previous average of Shs.22/97 per hour in 1959 which was also greater than the average running cost per hour of Shs.21/26 in 1958. Table V-9 shows the main items of increase.

The detailed analysis for the costs of operation of the tractor hire service is given in Table V-10. The Table shows the variation in both running costs and overhead costs for five tractor hire service units consisting of 23 tractors out of a total 54 tractors which worked under the service in 1960. The average

1/ Annual Report of the Department of Agriculture 1960, p.22.

running cost per hour for the 54 tractors was Shs.23.76, while the average revenue earned was Shs.16.48 per hour indicating a subsidy of Shs.7.28 per hour. The running costs which include fuel and oil, drivers and mechanics' expenses, spares and repairs, and depreciation, represent the sort of costs which an African farmer owning a tractor could emulate if not improve upon.

In addition to the running costs there are over-head costs which include senior officers' supervision, wages for clerks, askaris and plot measurers, and transport charges. These overhead costs are inherent in a Government operated tractor hire service and need not be met by the private tractor owner. The total costs of operation, which worked at Shs.16/36 for 11 tractors in Lango and Acholi in 1955, was Shs.35/77 for 43 tractors worked by the tractor hire service in 1958. This average total cost of operation increased to Shs.40/12 in 1960 (see Table V-9). Although fuel and oil had been increasing in price, the cost of fuel and oil per hour was reduced to about one-half. The main items which accounted for the increase in the costs of operation were increases in wages of mechanics and workshop staff coupled with rising costs of spare parts.

A close look at Table V-10 reveals the variation both in running costs and overhead costs for five tractor hire units. The running costs vary from Shs.14/03 in Toro to Shs.31/57 in Bunyoro and over head costs vary between Shs.7/13 in Busoga and Shs. 16/55 in Lango. The difference in running costs between two Fordson Major Diesel Tractors in Busoga and those in Toro is due mainly to the higher annual average hours worked per tractor in Toro (936 hours) compared with 640 hours worked per tractor in Busoga. The revenue earned per hour was Shs.15/17 which covered the running costs of Shs.14/03 per hour in Toro. The running costs of Shs.21/95 for Ferguson 35 Diesel tractors in West Acholi exceed the running costs of Shs.16/71 for Fordson Extra Diesel in Lango in spite of the higher average hours worked per tractor in West Acholi indicates that Fordson Dextras are cheaper to run than Ferguson 35s. Again, diesel tractors are cheaper to run than Kerosene or petrol models, as evidenced by the very high running costs of the Farm all Kerosene tractors in Bunyoro which worked at Shs.31/38 per hour.

The very wide variation in both the running and overhead costs indicate the possibilities of reducing the total costs of operation by choosing suitable tractors and running them efficiently. The major item in the overhead costs is the senior officers' supervision charge. The senior officers were also engaged in other extension work such as supervising the spraying of cotton against Lygus and ox-cultivation. This cost could therefore be taken as a general extension service.

By and large, the greatest single factor in reducing the total costs of operation is the increase in the average hours worked per tractor per year. In the case of Toro, where the average hours worked per tractor was near the 1,000-hour mark, the total costs of operation were the lowest. If the cost of supervision is left out as being extension service, the total costs of operation amount to Shs.16/42 which could easily be covered by a slight increase in hire charges. Since an increase in the hire charges would lead to a reduction in the acreage mechanically cultivated, it would be necessary to increase either the prices or the productivity of the mechanically cultivated crops. The demand for the tractor hire service tended to increase or decrease with the price rise or fall of the crops for which the land was cultivated. The crops were mainly cotton, maize and tobacco. In 1955 the tractor hire operations in Toro were confined to the Busongora area where cotton was grown, in Acholi over 55 per cent. of the mechanically cultivated land was for cotton or tobacco whereas in Lango about 75 per cent. of the mechanically cultivated land was for cash crops, mainly cotton. Since cotton was the main source of farmers' income in the areas where the tractor hire units were situated, the price and total production of cotton seems to have had a definite influence on the total acreage cultivated by tractors. The following table shows this relationship:

TABLE V-11

COTTON PRODUCTION AND TRACTOR HIRE SERVICE*

Crop Year	Average Price to Growers per 100 lb. Seed Cotton Shs.	Total Value to Growers £'000	Total Acreage Mechanically Cultivated 1/
1955/56	52.11	12,576	5,502
1956/57	53.34	13,081	6,172
1957/58	54.90	12,798	7,753
1958/59	44.20	11,720	6,514
1959/60	44.81	10,517	5,739

* Source: Annual Reports of the Department of Agriculture

Thus it is clear that there is some correlation between the price to growers for their cotton seed and the acreage cultivated by the tractor hire service. The drop in the cotton price for 1958/59 crop year was a contributory factor of the fall in acreage mechanically cultivated during the 1959 calendar year.2/ While the prices for cotton to the growers were falling and the total growers' income from the crop decreasing

1/ Acreage refers to the later year.
2/ Annual Report of the Department of Agriculture, 1959, p.19.

the building of the Cotton Price Assistance Fund went on; in fact, to the fund which stood at £20.52 million on 1 July 1958 was added £480,000 in June 1959. This and other Government price policies have already been discussed but it is clear that had the Government maintained either the price or the growers' total income from cotton, the mechanically cultivated acreage would not have decreased and the economics of mechanical cultivation would have been improved.

7. Other Agricultural Schemes

Agricultural schemes such as tsetse fly control, grain storage and road expansion and improvement, which started during the 'Worthington Plan' were continued. Out of the total allocation of £7.16 million for communications in the revised Capital Development Plan, some £60 million or over 17 per cent. of the Government planned expenditure was earmarked for roads. Importance was also attached to the development of minor roads as a means of opening up the productive rural areas by providing facilities for rapid and cheaper movement of goods and agricultural produce. In 1955 the Public Works Department maintained 2,820 miles of all weather roads of which 326 miles were bitumenised; by 1960 the Works Department was maintaining 2,989 miles of all weather roads of which some 606 miles were bitumenised.

Other schemes included the Karamoja land utilisation and rehabilitation and the Kigezi intensive farming development which, as has been indicated earlier, called for more field officers to be posted in the districts concerned. Other notable agricultural schemes which were undertaken during the period were the establishment of the Bunyoro Ranching Company and the expansion of the resettlement schemes.

(a) Bunyoro Ranching Company Ltd.

The ranching scheme was recommended by the Agricultural Productivity Committee as the best means of re-stocking an area of over 800 square miles which had been cleared from tsetse fly. In view of the large amount of capital required to maintain stocking densities at a level which is sufficient not only to utilise fully the reclaimed area but also to prevent the re-entry of tsetse fly, the Committee recommended the establishment of a Bunyoro Cattle Ranch to be run as a company in which the Uganda Development Corporation and the Bunyoro District Administration would be the main shareholders.

(b) The Bunyoro Ranching Company Limited was incorporated in August 1956 with an authorised capital £100,000. This ranch of about 100,000 acres of grass and forest land was established during 1956 with the intention of building up a beef herd which would be stabilised at some 5,000 head of cattle in ten years time. Considerable progress in the development and stocking of the ranch was made in 1957 although cattle losses due to endemic diseases was higher than had been anticipated, which resulted in the company making a loss. The accumulated loss was £16,992 at the end of 1959 and this was expected to reach a peak of £39,000 at the end of 1963 and it was anticipated that it would take ten years before the ranch became a viable project.1/

By the end of 1960, the herd of 5,000 head of cattle had been built up over the four-year period but unfortunately the tsetse fly had not been completely eradicated. The recurrence of the tsetse fly led to infection and restricted the general success of the project.

1/ Uganda Development Corporation Ltd., Annual Report and Accounts 1959, p.14.

(b) Resettlement Schemes

In 1946 the first resettlement scheme was inaugurated in Kigezi to relieve the pressure on the overpopulated areas in the neighbourhood of Kabale by emigration to the unpopulated northern parts of the district on the Lake Edward escarpment. The scheme was entirely voluntary and the assistance given to the emigrants was in the form of transport, relief from taxation, and the provision of food on arrival in the new area.

Although the earlier resettlement schemes had made some notable progress in terms of numbers of persons resettled and increased farm incomes due mainly to increased land holdings. But very little change in terms of farm planning and layout and increased productivity of the factors of production had been attained. The Agricultural Productivity Committee pointed out that the essential objective of any resettlement scheme should be to effect a redistribution of population in such a way as to render both the land and the people concerned more productive than they were before. To achieve this objective it was suggested that the reception area should be properly surveyed and laid out on contour and the areas where the settlers have moved should be organised and farm planned.

The Committee suggested that some 80,000 people or about 16,000 families may have to be moved from the congested areas of Kigezi at a cost of about £200,000 for the five-year period. The revised Five Year Capital Development Plan provided that sum for resettlement. This was about 0.6 per cent. of the proposed Government capital expenditure.1/

(c) Agricultural Schemes Undertaken by the Uganda Development Corporation Limited (U.D.C.)

The Uganda Development Corporation was established in 1952 by an Act of Parliament to be responsible for the commercial enterprises controlled by the Government and for the commercial interests of Government in enterprises which are not Government controlled. The focus of attention at the formation of the Corporation was almost entirely on the need to industrialise the

1/ For a detailed discussion of the resettlement schemes see Katarikawe, E.S.: "Some Preliminary Results of a Survey of Kiga Resettlement Schemes in Kigezi, Ankole and Toro Districts, Western Region" R.D.R. 31. 1966.

country and it was not until 1955 that the first U.D.C. holding in agriculture was acquired. In April 1955 the Agricultural Enterprises Limited, a subsidiary of the U.D.C., was incorporated to acquire the Salama Estate Group from the Government. The Government had purchased the group in 1958 from a British firm, Buchanan's. In transferring the group to the Agricultural Enterprises Limited, the original objectives of the Government in purchasing the group were maintained and indeed the company was formed in order to further African agricultural estate enterprise throughout Uganda.

Agricultural Enterprises Limited (A.E.L.) was charged with extending the existing areas of agricultural products, improving the techniques employed and investingating the possibility of developing previously unexploited agricultural projects. The company was designed to fulfil the role of injecting money, personnel and management skills into agriculture. It was the Agricultural Enterprises Limited which handled all agricultural activities of the U.D.C. and by the end of June 1956 some £500,000 equity capital and £24,100 loans were invested in the Agricultural Enterprises Limited out of the total U.D.C. investments of £4,582,800.

The Economic Adviser to the Uganda Government considered the A.E.L. investment in fixed assets of less than £.5 million as inadequate in relation to the problem of developing and transforming the agricultural sector. He suggested the establishment of a separate agricultural development corporation which would deploy its capital in such a way as to increase agricultural incomes and encourage innovation rather than operating on commercial lines for making a profit like A.E.L.1/ Given the great risks inherent in agricultural innovations and the general inability of agricultural projects to carry high proportions of loan finance, establishing an agricultural development corporation which could invest in equity capital and participate in management, would have resulted in a greater agricultural development.

By the end of 1960 A.E.L. was controlling, in addition to the Bunyoro cattle ranch, seven tea estates with over 2,000 acres planted under tea. Associated with the various central tea factories was the scheme for encouraging the growing of tea by African farmers as outgrowers, thus enabling many

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1/ Uganda Government Economic Policy in Uganda, op. cit., p.37.

farmers to participate in growing of the plantation crop for which they need not have the processing facilities and skills. The role of the A.E.L. in respect of tea outgrowers will be examined again in the next chapter.

Plan Implementation

It was realised that the estimated £35.8 million was the maximum sum available of which £34 million had been allocated to projects. There was a small margin for financing new projects of high priority but as a general rule such new projects would be financed by the reduction or deferment of approved projects. It was thus anticipated that should financial difficulties arise, some projects in the Plan might be dropped out. So with the progressive reduction of government reserves coupled with the tendency for recurrent expenditure to increase at a faster rate than revenue, it became necessary during the Plan period to slow down the planned rate of capital expenditure. In 1958, the Five-Year Capital Development Plan was replaced, in the interests of flexibility, by a three-year capital expenditure forecast which had to be reviewed annually.

The first of these three-year forecasts was presented to the Legislative Council in March 1958 and it scaled down the level of projected capital expenditure from £6.3 million in 1957/58 to £6 million in 1958/59.1/ These forecasts were also designed to set the policy and phasing of government expenditure.

To supplement all these developmental efforts, the Government appointed, in January 1958, the Economic Development Committee with the following terms of reference:

> "To consider and to make recommendations on major economic policy and on the best means of developing Uganda's economic resources".2/

The Committee made valuable recommendations on issues of policy including its suggestion that the criterion to be adopted in deciding whether a particular government service is justified should be its potential contribution to production, and that the assessment of the proximity, certainty and magnitude of the possible increase in production should be a test for the allocation of the government resources. The Government, however, was unable to accept this criterion

1/ United Kingdom: Report on Uganda for the Year 1958 H.M.S.O. p.7.

2/ Uganda Government: Economic Development Committee Report 1958. Government Printer, Entebbe, p.5.

T A B L E V - 12

GOVERNMENT EXPENDITURE 1955/56 - 1959/60 *

Item	Capital £	Percentage	Recurrent £	Percentage	Total Expenditure £	Percentage
Administration	1,041,212	3.29	6,639,932	7.24	7,681,144	6.22
Law, Order and Defence	3,463,389	10.93	12,551,652	13.68	16,015,041	12.97
Public Debt and Pensions	732,455	2.31	7,158,304	7.80	7,890,759	6.39
Revenue Collection and Financial Control	76,733	0.24	2,673,196	2.91	2,749,929	2.23
Development of Natural Resources	1,993,607	6.29	12,109,562	13.20	14,103,169	11.43
Agriculture	-	-	-	-	4,996,888	4.05
Agricultural Sector a/	1,544,070	4.87	8,137,988	8.87	9,682,058	7.84
General Economic Development (Infrastructure)	16,772,696	52.95	8,756,831	9.54	25,529,527	20.68
Social Services	5,572,798	17.59	30,594,376	33.34	36,167,174	29.30
Service Departments	427,860	1.35	6,299,483	6.87	6,727,343	5.45
Miscellaneous	1,600,448	5.05	4,976,215	5.42	6,576,663	5.33
TOTAL	31,681,196	100.00	91,759,551	100.00	123,440,749	100.00

* Source: Uganda Government, Statistical Abstracts, Government Printer, Entebbe.

a/ as defined in Table V-3.

unreservedly because of the necessity of considering other criteria which are based on political or social considerations as much of the government expenditure on social services and infrastructure has to be under-taken regardless of its future contribution to production.

Table V-12 gives the actual government expenditure during the period 1955/56 to 1959/60. The total capital expenditure amounted to £31.68 million, just slightly less than the Plan target of £34.08 million. (See Table V-3) Although capital expenditure on general economic development, mainly infrastructure, accounted for more than 52 per cent. of the total capital expenditure, it only amounted to just over 20 per cent. of the total recurrent and capital expenditure. The total expenditure on the development of the natural resources amounted to 11 per cent. whereas that on the agricultural sector was 7.8 per cent. The table also shows the great emphasis which was placed on social services which accounted for an overall 29.3 per cent, making the claim that the Plan gave priority to schemes that would increase production weak.

CHAPTER VI

THE FIRST FIVE-YEAR DEVELOPMENT PLAN PERIOD (1961/62 - 1965/66)

Introduction

The First Five-Year Development Plan was the first major effort at comprehensive planning embracing the public, parastatal corporations and the private sectors of the economy. Like the Worthington Plan, the main emphasis in the Plan was on productive expenditure which meant a change in policy from putting much stress on social services as was advocated by Sir Andrew Cohen during the 'fifties. The change in policy was not only due to the departure of Sir Andrew Cohen as Governor, who was enthusiastic about the social and political development of the country, but also due to the changed economic conditions. The very high export prices received for cotton and coffee in the early 'fifties had dropped drastically and the large reserve funds which had been accumulated as a result of those high prices had been used up.

As compared with the early 'fifties, when the country had no real economic policy for development and when everything was done on *ad hoc* bases due to the abundance of funds which appeared to make planning unnecessary and led to the 'Worthington Plan' being overtaken by events. The early 'sixties was a period of financial stringency with no surplus available from the revenue budget to finance development.1/ Yet, with the coming of Independence in October 1962, Uganda was destined to face more financial obligations connected with international organisations, foreign relations and domestic defence. Independence, besides aggravating the financial situation by bringing about expenses connected with the birth and maintenance of a nation, also brought about national aspirations and desires for rapid economic development. Thus, the serious financial stringency and strong desire for economic development made comprehensive and effective planning a must.

Although in the 'fifties no general development planning was ever attempted, and the post of 1/ the

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1/ Uganda Government: Background to the Budget 1962-1963, Government Printer, Entebbe, 1962, p.12.

Development Commissioner which was created as result of the recommendation in the 'Worthington Plan', was allowed to lapse. The post which was designed to ensure that the development plan was implemented and if there was need for any changes that sufficient reasons were given and fully appreciated. Nevertheless, some effort was made to ensure that economic problems were discussed and the government policy was based on sound economic considerations. When the post of the Development Commissioner was abolished it was anticipated that the general watch on economic development would be kept by the office of the Minister of Finance to which an Economic Adviser was appointed in 1956. The Economic Adviser, besides dealing with specific problems, carried out an overall survey of economic policy which he submitted at the end of his residential tour as a report.1/ The Economic Adviser also acted as Secretary to the Economic Development Committee which was appointed annually to consider and make recommendations on major questions of economic policy. All these measures were piecemeal and were no substitute for proper economic planning.

1/ Uganda Government: Economic Policy in Uganda, Ministry of Finance, 1959 (mimeo).

But, they served a useful purpose in highlighting the main economic considerations and indicating matters which required further examination by the World Bank Survey Mission. Fortunately, as a background preparation for the First Five-Year Development Plan, the Governments of Uganda and United Kingdom, which was the protecting power, had requested the International Bank for Reconstruction and Development to send an economic survey mission to Uganda.

The task of the mission as agreed between the two Governments and the World Bank was:

> "To present practical recommendations with supporting analysis and suggestions as to specific actions to be taken, which could serve as the basis for a development programme covering the period 1961/62 - 1965/66."1/

The World Bank Survey Mission's report which was confined to capital expenditure with additional developmental recurrent expenditure of the Government, parastatal corporations and local administrations was published in Uganda in 1961.2/

1/ International Bank for Reconstruction and development. (I.B.R.D) The Economic Development of Uganda Hopkins Press, Baltimore 1962, p.vii.

2/ Although, the World Bank Survey Mission's Report is very important document, it is not intended to analyse it separately but to regard it as the background to the First Five-Year Development Plan (1961/62-1965/66) and discuss them together in this chapter.

Objectives and Strategy of the Plan

The First Five-Year Development Plan was closely modelled on the recommendations and strategy for development contained in the World Bank Mission's report which the Government had broadly accepted. The general objective of the Plan and the central aim of the Government's development policy was stated as:

> "To achieve the maximum possible increase in the prosperity and welfare of the people of Uganda. This means that gross national product must be greatly increased; but also it means that the rate of increase of the gross national product must be greater than the current rate of population increase."1/

In order to achieve this general objective, the World Bank Mission suggested that an integrated development plan was necessary; a plan which would allocate resources in such a way as to result in the highest returns to the economy as a whole and thus foster a vigorous rate of economic growth. For such a plan, it was suggested that major emphasis should be placed

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1/ Uganda Government: The First Five-Year Development Plan 1961/62 - 1965/66, Government Printer, Entebbe 1963, p.8.

on schemes which increase production whereas expenditure on social services should be kept steady and that on administration should be minimised. The organisational set-up should be improved at the same time.

The Government's strategy for achieving increased production was based on the proposition that a higher rate of economic growth would be achieved by prudently combining scarce resources of skilled manpower and capital with the relatively abundant fertile land and labour subject to the general social and political constraints. Thus, like the Worthington Plan, the First Five-Year Development Plan, while recognising the developmental importance of expenditure on the social services, laid more emphasis on expenditure on productive activities because in the long run public expenditure on social services can only be paid out of revenues derived from increased production.

Resource Availability and Allocation

The financial resources required for the First Five-Year Development Plan were substantially larger than what was recommended by the World Bank Mission.

Instead of the Mission's proposed Government programme of £33.8 million and a total development expenditure of £52 million, the Plan contained a Government programme of £42.8 million out of a total development expenditure of £71.7 million. (see Table VI-1) Table VI-1 shows that out of the proposed total development expenditure of about £70 million, some £26.8 million or 38.4 per cent. was allocated to the productive activities of which £8.2 million or 11.8 per cent. was earmarked for the agricultural sector. The social services were allocated some £11.6 million or 16.6 per cent. whereas the basic economic overheads were allocated £15.7 million or 22.5 per cent., which clearly indicates that in the Plan more emphasis was placed on productive activities and general infrastructure vis-a-vis social and administrative services.

When the Plan was drawn up, it was anticipated that out of the capital finance of £39 million required for the central Government programme, some £18.8 million was already available and the remaining £20.2 million was expected to be raised. Of the available £18.8 million, some £8.5 million or 45.2 per cent. was from local sources and the remainder from external sources in the form of

T A B L E V I - 1

THE FIRST FIVE-YEAR DEVELOPMENT PLAN
1961/62 - 1965/66*

(£m)

	Government	Percentage	Other +	Total	Percentage
Administration	3.2	7.84	-	3.2	4.59
Law, Order and Defence	4.6	11.28	-	4.6	6.60
Productive - Activities	7.9	19.36	18.9	26.8	38.45
(a) Agriculture	4.5	11.03	0.2	4.7	6.74
(b) Veterinary	2.4	5.88	-	2.4	3.44
(c) Fisheries (d) Forestry	0.5	1.23	-	0.5	0.72
(e) Game	0.3	0.74	0.3	0.6	0.86
Agricultural Sector (a) to (e)	7.7	18.87	0.5	8.2	11.76
Basic Economic Overheads (infrastructure)	7.7	18.87	8.0	15.7	22.53
Social Services	11.6	28.43	-	11.6	16.64
Local Authority Services	5.8	14.22	2.0	7.8	11.19
Total	40.8	100.00	28.9	69.7	100.00
Reserve	2.0	-	-	2.0	-
GRAND TOTAL	42.8	-	-	71.7	-

*Source: Uganda Government: The First Five-Year Development Plan, 1961/62 - 1965/66, Government Printer Entebbe, 1963, p.24.

+ Other: Refers to public corporations and local authorities.

grants, technical assistance and loans. Out of the remaining £20.2 million, only £2 million was expected to be raised from local borrowing and the rest from external sources. Thus, of the total £39 million required for Government capital finance, only £10.5 million or 26.9 per cent. was expected to be raised from local sources leaving the greater part of over 73 per cent. to come from external sources.1/

This heavy reliance on external sources for capital finance was the result of extreme financial stringency brought about by the depletion of the accumulated reserves. Until 1954 the surplus on the revenue budget exceeded the deficit on the capital budget which enabled the Government to finance capital expenditure and still have some surplus to add to the reserves. Indeed, Table V-2(p.253) shows the significant contributions which the revenue budget and the reserves made in financing the Five-Year Capital Development Plan 1955 - 1960 and the relatively minor part which external sources played.

Table VI-2 shows the *ex post* sources of capital development financewhich amounted to £39.4 million,

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1/ Uganda Government: The First Five-Year Development Plan, 1961/62 - 1965/66, Government Printer, Entebbe, 1963, p.61.

TABLE VI-2

SOURCES OF CAPITAL DEVELOPMENT FINANCE (1961/62 - 1965/66)*

Source	Amount £	Per-centage
Balance of Capital Development Fund	1,255,821	3.18
Miscellaneous capital revenue	3,889,619	9.88
From general revenue	9,500,000	24.14
From cotton, coffee, tobacco and tea funds	1,587,627	4.03
Transfer from other local funds	1,428,000	3.63
Grants	4,875,184	12.38
Loans	8,913,502	22.64
Deficit (short-term borrowing)	7,924,168	20.12
TOTAL ...	39,373,921	100.00

*Source: The Public Accounts of the Government of Uganda.

of which some £17.7 million or 44.9 per cent. came from local funds. The deficit of £7.9 million was financed by short-term borrowing which was largely from local sources, thus making a total of £25.6 million or 65 per cent. of the capital finance from the local sources, leaving £13.8 million or 35 per cent. to come from external sources as grants and loans. This represents a tremendous self-help effort by the country and a reverse of the plan expectations.

Agricultural Policy and Schemes

The principal feature of the agricultural policy as embodied in the Plan was stated as:

> "Attempting to render more productive the factors of production in rural areas - the human worker, the land and its fertility, and capital equipment - and thereby both improve the standard of living of individual producers and also the country's material and human resources. ..... skills and institutions, which do not exist or are rudimentary, have to be built up and traditional and customary modes of behaviour transformed. The

Government can particularly assist in this process by seeing that new skills are imparted by creating institutions essential in a more highly developed economy and by widening the economic horizon of growers through education."1/

It was believed that the Ugandan farmer was under-capitalised and with neither the incentive nor the means and technical know-how to improve his standard of farming. There were proposals in the Plan for breaking away from the low standard of small-scale farming techniques by inducing the farmers to adopt new methods, to use their land rationally, and to diversify the agricultural production.

The World Bank Survey Mission asserted though not unequivocally, that the major opportunities for economic development of Uganda for years to come were in agriculture and that an investment in agriculture would bring greater returns in terms of increased output and incomes than comparable investments in other sectors of the economy. The Mission emphasised the need for increased investment in agriculture in order to bring about a substantial increase in agricultural

1/ ibid., p.25.

production, to diversify the agricultural exports and to raise labour productivity of the Ugandan farmers. The Mission identified two main obstacles to raising the productivity of the factors of production in the rural areas as the low level of resource management and the lack of capital. The proposals for research, extension and education were designed to improve the management skills whereas credit and subsidies for technical change, were designed to increase the capital available to the farmers. These proposals will be examined in detail later when the individual schemes are considered.

Although the Plan gave the pride of place to the commodity producing sectors and in particular to agriculture, the total allocation to the agricultural sector of £8.2 million or 11.8 per cent. of the development programme was virtually the same as that which was proposed by the World Bank Mission. The Mission's proposals for public investment in agriculture have been ably analysed by Belshaw in an article which considers the findings, basic principles and recommendations of the Mission. It has been demonstrated that the proposed capital expenditure on agriculture was similar to the proposals in the Five-Year Capital

Development Plan 1955-60 which were themselves inadequate.1/

The planned Government development expenditure on agriculture of about £4.5 million was slightly more than that proposed by the World Bank Missions (see Tables VI-3 and VI-4). Since the development expenditure was meant to raise the productivity of labour and to increase the flow of capital into agriculture in order to remove the obstacles to increasing agricultural production, the greatest percentage was allocated to financial assistance to farmers in the form of subsidies for crop protection. According to the world Bank Mission's proposals, 50 per cent. of the expenditure was for subsidies and 10 per cent. was for expanding the extension service. (see Table VI-4) In the Plan, however, the allocation for financial assistance decreased from 66 to 51 per cent. and "the allocation for agricultural education increased from 1 to 16 per cent. and a 10 per cent. provision for mechanical and ox-cultivation inserted.

1/ For a full discussion see
Belshaw, D.G.R.: "Public Investment in Agriculture and the Economic Development of Uganda", *East African Economics Review*, Vol. 9, No.2, 1962, pp. 76-77.

TABLE VI - 3

THE FIRST FIVE-YEAR DEVELOPMENT PLAN 1961/62 - 1965/66

AGRICULTURE AND CO-OPERATIVES*

ITEM	Plan Allocation		Actual Development Expenditure	
	Scheme Value £	Per-cent-age	£	Per-cent-age
Agricultural Education (Colleges, Farm Institutes and Schools)	727,375	16.26	518,295	9.75
Research	155,690	3.43	78,962	1.49
Mechanical Cultivation and Ox-Cultivation	484,450	10.83	2,122,411	39.92
(a) Ox-Cultivation	66,450	1.[illegible]	61,772	1.16
(b) Bush Clearing	82,000	1.[illegible]	142,591	2.68
Group Farms	63,000 1/	1.[illegible]	404,727	7.61
Crop Development (cocoa, tea, tobacco, coffee, groundnuts)	332,233	7.43	193,682	3.64
Financial Assistance	2,309,930	51.63	1,476,761	27.78
(a) Cotton spraying subsidy	1,582,540	35.[illegible]	1,095,468	20.60
(b) Agricultural equipment subsidy	399,140	8.[illegible]	176,897	3.33
Miscellaneous	403,120	9.[illegible]	521,993	9.81
TOTAL	4,473,800	100.[illegible]	5,316,831	100.00

1/ This provision was notional.

* Source: Uganda Government, The First Five-Year Development Plan 1961/2-1965/6, pp. 77-84, and Reports of Accounts.

T A B L E   V I - 4

WORLD BANK MISSION

PROPOSED CAPITAL AND DEVELOPMENTAL RECURRENT EXPENDITURE ON CROP AGRICULTURE

1961/62 - 1965/66*

I t e m	Five-Year Total £	Per centage
1. Agricultural Education	47,000	1.18
2. Research	143,400	3.61
3. Extension	400,000	10.07
4. Financial Assistance -	2,629,000	66.17
(a) Subsidies	1,999,000	50.32
5. Miscellaneous	753,500	18.97
TOTAL	3,972,900	100.00

*Source: International Bank for Reconstruction and Development: *The Economic Development of Uganda*, John Hopkins Press, Baltimore 1962, pp. 201 and 202.

1. <u>Agricultural Education, Extension and Research</u>

The importance of agricultural education, extension and research in raising the productivity of the factors of production in the rural sector was stressed both in the World Bank Mission Report and in the Plan. The main emphasis was on the expansion and improvement of the services. It is stated in the Plan that in support of the programme for small-scale agriculture, there were substantial programmes for expanding and improving agricultural education and extension services. In this regard eleven new District Farm Institutes and improvements on the two Agricultural Colleges (Bukalasa and Arapai) were planned. The programme also provided for increased research activity including the establishment of a tea research station in Toro and an Arabica Coffee Research Station in Bugisu.1/

The World Bank Survey Mission in its proposed programme for agriculture also laid a lot of stress on agricultural education, extension and research and their effect on increasing agricultural production. The Mission pointed out that the main problem in

1/ Uganda Government: <u>The First Five-Year Development Plan 1961/62 - 1965/66.</u> <u>op. cit.</u>, p.23.

raising the productivity of labour on the land was the diffusion of knowledge of new techniques and securing their adoption through education and demonstration. The Mission's short-term programme consisted of a large expansion of the extension service together with some changes in the methods of extension in addition to a large provision of subsidies and credit. In fact, the Mission believed that few investments were more worthwhile than the expansion of the extension service.1/ The need for bringing the extension workers of all grades in direct association with research workers through conferences, meetings and short courses was also stressed. Indeed, the need for a closer and more effective integration of the three major components of agricultural development, namely education, extension and research, was also stressed by the Uganda Education Commission.2/ The report suggested that institutions of agricultural education should be more associated with research and field extension work so as to bring them into more intimate contact with the farmers and other agricultural workers.

1/ I.B.R.D. The Economic Development of Uganda, op. cit., p.98.

2/ Uganda Government: Education In Uganda, Report of the Uganda Education Commission, Government Printer Entebbe, 1963, p.34.

The attainment of the planned expansion of the extension and research services was subject to qualified personnel being recruited either from abroad or from the local agricultural institutions. The production of qualified local agriculturalists was itself restricted by the lack of qualified candidates and facilities for training. And yet, the middle and lower cadre of agricultural workers had to be trained locally. Luckily, through the expansion of the general educational system it was possible to raise the standard of entry to certificate of Agriculture Course at the Agricultural Colleges to a Cambridge School Certificate in 1961. In the same year some students were admitted to study for the Diploma in Agriculture at Bukalasa. The following year, the Diploma course was also started at Arapai Agricultural College. The certificate holders are appointed agricultural assistants, who in the extension service are in-charge of sub-counties whereas the diplomates become assistant agricultural officers in-charge of counties. The Certificate courses were later discontinued and the Colleges had to concentrate on the Diploma courses.

This change in the educational policy has resulted in the rapid increase in the number of assistant agricultural officers and the relative decrease in the number of the agricultural assistants. Table VI-5 shows the number of staff employed in the Department of Agriculture by divisions. It will be seen that the number of staff engaged on general extension work has decreased between 1961 and 1966 except for the assistant agricultural officer cadre which has increased due to the introduction and expansion of the Diploma courses at the Agricultural Colleges. Not only has the number of agricultural officers engaged on extension work decreased, there has been almost a complete Africanisation due to the great exodus of the expatriate officers.

The numbers of staff engaged on research has increased with the exception of the agricultural assistant cadre which has decreased due to the discontinuation of the Certificate courses. The numbers of staff engaged on education and mechanisation programmes have increased due to the increased emphasis put on these schemes. On the whole there was a decrease in the absolute numbers of staff. Table VI-6 shows vacant posts in the Department of Agriculture in 1961 and 1966. On the general extension, the vacancies for assistant agricultural officers decreased whereas in research both the vacancies for specialists and

TABLE VI-5

STAFF EMPLOYED IN THE DEPARTMENT OF AGRICULTURE 1/*

	1961	1966
General Extension Service 2/		
Agricultural Officers	32	25
Assistant Agricultural Officers	79	90
Agricultural Assistants	275	256
Field Assistants	343	101
Research		
Agricultural Officers or Specialists	17	30
Assistant Agricultural Officers	12	21
Agricultural Assistants	95	77
Field Assistants	8	26
Education		
Agricultural Officers	9	17
Assistant Agricultural Officers	17	21
Agricultural Assistants	-	24
Field Assistants	-	3
Mechanical Cultivation		
Agricultural Officers or Engineers	2	8
Assistant Agricultural Officers	10	63
Agricultural Mechanics	-	15
Agricultural Assistants	-	13
Field Assistants	-	1
TOTAL	895	791

1/ The officers who were on overseas courses are excluded.

2/ Extension staff includes some on education and mechanical cultivation.

* Source: Uganda Government Staff List and annual staff returns of the Department of Agriculture

T A B L E V I - 6

VACANT POSTS IN THE DEPARTMENT OF AGRICULTURE JULY 1961 AND 1966*

	1961	1966
General Extension Services		
Agricultural Officers	1	3
Assistant Agricultural Officers	75	29
Agricultural Assistants	350	521
Research		
Agricultural Officers or Specialists	4	15
Assistant Agricultural Officers	6	-
Agricultural Assistants	8	50
Education		
Agricultural Officers	1	3
Assistant Agricultural Officers	-	4
Agricultural Assistants	-	7
Mechanical Cultivation		
Agricultural Officers or Engineers	-	6
Assistant Agricultural Officers	-	25
Agricultural Mechanics	-	3
Agricultural Assistants	-	23
Other Development Schemes		
Agricultural Officers	-	4
Assistant Agricultural Officers	1	-
Agricultural Assistants	-	104
Total posts vacant	444	595
Posts held by officers on study	9	14

* Source: Uganda Government Staff List and annual staff returns of the Department of Agriculture.

agricultural assistants increased. In education, mechanical cultivation and other development schemes, vacancies indicate posts which were created but could not be filled due to shortage of qualified persons.

The replacement of old and experienced expatriates by young and newly qualified Ugandans means that there was a considerable loss of experience which must have been partially responsible for the slow rate of agricultural development. Lack of experienced staff means poor training for the newly recruited staff. The agricultural progress was also handicapped not only by the shortage of staff and lack of experience but also by the very rapid changes of staff which resulted in lack of continuity. The rapid changes of staff were inevitable due to rapid and accelerated promotions of Ugandans to fill posts vacated by expatriates. Lack of housing in the rural areas also tended to keep the agricultural extension workers far from the farmers thus limiting their contacts.

Although the shortage of staff must have resulted in insufficient coverage of agricultural extension work, the opening up of new District Farm Institutes and the resultant increase in the number of farmers attending agricultural courses somewhat alleviated the problem.

The number of people attending agricultural courses at the District Farm Insitutes rose from 900 in 1961 when five District Farm Insitutes were in operation to over 10,000 in 1966, when 10 District Farm Institutes were operating.

2. Mechanical Cultivation

The Government policy of extending the use of mechanical cultivation on a limited scale while raising the hire charges to cover the operating costs was to be changed during the First Five-Year Development Plan period according to the recommendation of the World Bank Mission, which stated that:

"we foresee no great advantages from mechanisation of production on peasant farms for some years to come. Mechanisation through the provision of tractors cannot be superimposed on traditional forms of production."1/

The Mission, however, felt that there was scope for mechanisation of land clearance and suggested that a system of more rational land use and mechanisation through Co-operative farming should be experimented. Bolshaw, commenting on investment priorities within

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1/ I.B.R.D. The Economic Development of Uganda op. cit., p.244

the agricultural programme as proposed by the World Bank Mission, explained the switch of emphasis from mechanical cultivation in terms of the failure of the previous mechanisation programmes to fulfil the hopes which were placed in them.1/

These views, overstressed the economic aspects of mechanisation and underrated the political need to evolve a system of mechanisation which would be less costly and at the same time eliminate the great limitation on increasing the agricultural production imposed by the handhoe. The Mission's programme on crop agriculture as indicated in Table VI-4 paid little attention to mechanisation, except ox-cultivation. And yet, in the 'Worthington Plan' as revised by Harris, the acquisition of mechanical implements was allocated over 27 per cent. of the financial resources devoted to agricultural schemes (see Table IV-4 p.221). In Five-Year Capital Development Plan, however, the allocation to mechanical and ox-cultivation was reduced to nearly 10 per cent and the actual total expenditure was only slightly above 6 per cent. This trend was expected to continue and the Plan shows that very little was

1/ Belshaw, D.G.R., op. cit., p.85.

spent on the tractor hire service during the first two years of the Plan period until the policy change in 1963.

In spite of the recommended switch of emphasis from mechanical cultivation; the actual plan allocation for mechanical and ox-cultivation was over 10 per cent. of the agricultural programme. Of the 10 per cent. allocation about 3 per cent. was for ox-cultivation and bush clearing, the schemes which the World Bank Mission had emphasised. (see Table VI-3. p.337) This was the first indication of the change in policy towards increased emphasis on mechanisation resulting from the change in government and the attainment of independence. In fact, by the beginning of 1963 the big swing towards increased mechanisation through the Tractor Hire Service and the establishment of group farms had become apparent. In the same year, 100 new tractors were delivered and a further 250 tractors ordered. The following year, 1964, saw the implementation on a wide scale of the massive mechanical cultivation expansion with the buying of 250 new tractors and the recruitment of over 40 expatriate officers to manage the group farms on which most of the tractors were employed.

The following table shows the increase of tractors and the expansion of the area cultivated.

TABLE VI - 7

EXPANSION OF MECHANICAL CULTIVATION*

Year	Number of Tractors	Total Area Cultivated (acres)	Average hours worked per tractor per year
1961	34	8,187	654
1962	34	6,413	541
1963	146	11,708	606
1964	394	34,039	318
1965	341	80,846	558
1966	489	104,362	476

* Source: Reports of the Department of Agriculture.

Table VI-7 shows the very rapid increase of tractors, from 34 in 1962 to 489 in 1966, and by the end of 1967 there were 876 tractors. This excessive increase in the number of tractors far outstripped the growth in demand for the tractor hire service and the availability of complementary inputs with the resultant increase in the total cost of operation per hour. Table VI-8 shows the average cost of operation per hour for 1961, 1963 and 1966. As has been indicated earlier, the greatest single factor in reducing the total cost of operation is the increase in the average number of hours worked per tractor, per annum. But in Table IV-8 there was a decrease from 645 in 1961 to 476 hours in 1966. The total running costs per hour increased from Shs.20.67 in 1961 to Shs.25.27 in 1966, thus widening the gap between the running cost and the revenue earned per hour from Shs.5 to Shs.7 per hour. The overhead costs, on the other hand, decreased slightly.

Among the factors which contribute to the high cost of operation of the tractors are the unsuitability of some areas for mechanical cultivation and the very low factor of aggregation. The group farms were established in suitable areas as large farming units which could permit a more efficient and economic use of machinery. Table VI-9 shows the cost of operation per hour for 201 tractors under the Tractor Hire Service and 78 tractors under the group farms scheme. On the group farms the average hours worked per tractor was higher, which resulted in the lower running cost per hour as compared with the tractor hire service.

TABLE VI - 8

TRACTOR HIRE SERVICE

COSTS OF OPERATION PER HOUR*

(SHS.)

Year	1961 Average for 34 Tractors	1963 Average for 46 Tractors	1966 Average for 489 Tractors
Running Costs:			
Fuel and Oil	4.21	3.94	4.46
Mechanics and Work-shop	2.17	3.37	1.83
Spares and Repairs	5.20	4.11	4.13
Drivers' Wages	3.30	2.64	5.45
Depreciation	5.79	4.47	8.50
Total Running Costs	20.67	18.53	25.27
Overhead Costs:			
Senior Officers' Supervision	6.96	6.91	5.43
Plot Measurers	1.63	1.93	1.76
Transport	1.43	1.12	1.06
Clerks, Askaris, etc	1.53	1.66	2.42
Total Overhead Costs	11.55	11.62	10.67
Grand Total	32.22	30.15	35.94
Revenue earned per hour	17,46	16.52	18.25
Average hours worked per tractor per annum	645	606	476

* Source: Reports of the Department of Agriculture.

T A B L E V I - 9

COSTS OF OPERATION PER HOUR 1964.
(SHS.)

	Tractor Hire Service 201 tractors	Group Farm 78 tractors
Running Costs:		
Fuel and Oil	4.45	3.20
Mechanics and Workshop	1.66	1.48
Spares and Repairs	3.35	1.32
Drivers' Wages	9.89	7.80
Depreciation	9.34	5.54
Total Running Costs	28.65	19.34
Overhead Costs:		
Senior Officers' Supervision	8.73	7.51
Plot Measurers	4.05	3.66
Transport	2.28	1.40
Clerks, Askaris, etc.	1.67	.70
Total Overhead Costs	16.73	13.27
Grand Total	45.38	32.61
Revenue earned per hour	13.64	14.35
Average hours worked per tractor per annum	290.4	395
Actual revenue per revenue earning hour	21.57	25.45

* Source: Reports of the Department of Agriculture.

The operational transport as a percentage of the total revenue-earning was also low being 53 per cent. whereas on the tractor hire service it was 47 per cent. However, due to the need to provide communal facilities at the group farms, the percentage of revenue-earning hours to total hours worked was lower, being 53 per cent. whereas on the tractor hire service it was 66 per cent. Because of better supervision at the group farms, the actual revenue per revenue-earning hour was Shs.25.45, whereas on the tractor hire service the revenue was Shs.21.57 per hour.

Two other Tables, VI-10 and VI-11, show the variation in the costs of operation for selected group farms and tractor hire service stations for 1965 and 1966. In Table VI-10 two group farms and two tractor hire service stations are analysed. One of the group farms achieved an average of 981 hours per tractor, low running costs and very low overhead costs, resulting in the total operational cost of Shs.20.51 per hour as compared with Shs.61.56 for the second group farm. The second group farm, although with only 350 hours worked per tractor, 91 per cent. of those hours were revenue-earning whereas only 60 per cent of the total hour worked for the first group farm were revenue-earning.

TABLE VI - 10

COSTS OF OPERATION PER HOUR - 1965*

(SHS.)

Number and Type of Tractors	Bituli Group Farm 5B414	[illegible] Group Farm 8 B414	Karamoja T.H.S. 4 B414	Acholi T.H.S. 10 S. Dexta 1 A/Chalmer
Total hours worked	4,906.18	700.	643.60	7,955.20
Average hours per tractor	981.23	50.	160.90	722.20
Running Costs:				
Depreciation	4.26	10.93	26.92	3.67
Fuel, Oil and Grease	4.04	5.45	4.15	5.03
Mechanics and Workshops	1.93	1.41	2.72	0.76
Spares and Repairs	1.50	7.16	8.06	5.86
Drivers' Wages	3.97	2.79	5.42	4.13
Total Running Costs	15.70	27.74	47.27	22.45
Overhead Costs:				
Senior Supervision	2.33	29.40	12.99	5.31
Plot Measurers	0.65	1.50	2.43	0.30
Clerks, Askaris, etc.	0.34	-	1.16	0.67
Casual Labour	0.77	2.92	-	0.29
Transport, etc.	0.52	-	2.27	0.46
Total Overhead Costs	4.61	33.82	18.85	7.03
Total Operational Costs Per Hour	20.31	61.56	66.12	29.48
Revenue earned Shs.	49,368.50	15,455.30	10,850.00	92,667.50
Revenue earned per hour	10.06	22.07	16.86	11.65
Actual revenue per revenue-earning hour	15.53	24.15	24.08	20.04

* Source: Reports of the Department of Agriculture.

Again, for the second group farm, operational transport as a percentage of revenue-earning hours was only 9 per cent whereas for the first, it was 36 per cent. Thus, the actual revenue per revenue-earning hour for the second group farm was Shs.24.15 as compared to Shs.15.55 for the first.

The two tractor hire service stations in Table VI-10 show similar variations in the costs. The one with the lower total operational cost of Shs.29.48 per hour averaged 722 hours worked per tractor, whereas the other with the total operational cost of Shs.66.12 per hour only achieved 160 hours per tractor. The very low number of hours worked per tractor meant that both running costs and overhead costs which are independent of the number of hours worked, are spread over the low number of hours resulting in higher costs as can be seen from the Tables. The tractor hire service with the very low number or hours worked had 70 per cent. of those hours revenue-earning and practically no operational transport whereas the other tractor hire service had only 54 per cent. of the hours worked as revenue-earning and the operational transport was 50 per cent of the total revenue-earning hours resulting in the actual revenue per revenue-earning hour of Shs.24.08 and Shs.20.04 respectively.

Table VI-11 gives costs of operation for a tractor hire service station, a group farm, a combined group farm and tractor hire station and the country average. The tractor hire service, though with the lowest hours worked per tractor has the highest actual revenue per revenue-earning hour of Shs.30.22, mainly due to the high proportion of revenue-earning hours of over 74 per cent. and a fairly low percentage of operational transport to revenue-earning hours of 25 per cent. Whereas the group farm, 66 per cent. of the hours worked were revenue-earning and the operational transport was 40 per cent. of the revenue-earning hours. The very high proportion of operational and departmental transport resulted in a low actual revenue of Shs.17.53 per revenue-earning hour. The combined group farm and tractor hire service station had 70 per cent. of the worked hours as revenue-earning and was bedevilled by the 44 per cent. operational transport to revenue-earning hours. Compared with the group farm, which had three types of tractors, resulting in a high spares and repairs cost, these costs were low for the combined group farm and tractor hire service.

The analysis of these costs clearly points to the need to achieve a high annual average hours worked per

TABLE VI - 11

COSTS OF OPERATION PER HOUR - 1966*

(SHS.)

Number and type of Tractors	Lango T.H.S. MF 165 = 9 FSD = 5	[illegible] Group Farm MF 165 = 1 [illegible] = 5 [illegible] = 1	Saam Group Farm + T.H.S. MF 162 = 2	Uganda Average 489 Tractors
Average hours worked per tractor	445	485	668	476
Running Costs:				
Depreciation	7.98	4.94	7.48	8.30
Fuel and Oils	4.78	5.47	3.79	5.56
Mechanics and Workshop	1.29	1.82	2.35	1.83
Spares and Repairs	4.30	6.53	2.35	4.13
Drivers' Wages	5.95	4.46	3.44	5.45
Total Running Costs	24.30	23.22	17.06	25.27
Overhead Costs:				
Senior Supervision	5.41	5.32	9.74	5.43
Plot Measurers	2.34	0.48	0.89	1.76
Clerks, Askaris, etc.	3.15	3.20	3.08	2.42
Transport	0.32	0.23	0.33	1.06
Total Overhead Costs	11.22	9.23	13.98	10.67
Grand Total	35.52	32.45	31.04	35.94
Revenue earned	148,815/=	43,376/=	26,759/=	4,241,374/=
Revenue earned per hour	23.90	[illegible].84	20.03	18.23
Total hours worked	6,226	3,393	1,336	232,682
Actual revenue per revenue-earning hour	30.22	17.53	28.74	24.41

* Source: Reports of the Department of Agriculture.

tractor, high proportion of the hours worked being revenue-earning and a low ratio between operational transport and revenue-earning hours. These points can be illustrated by comparing the costs for Suam Group Farm in Table VI-10 and Suam combined group farm and tractor hire service in Table VI-11. Within the period of one year, the utilisation of the tractors was increased from 350 to 668 hours worked per tractor, thus reducing the running costs, overhead costs and increasing the revenue per revenue-earning hour. It can also be seen that although the actual revenue per revenue-earning hour in most cases covers the running costs, it does not cover it for Uganda as a whole. This means that the mechanical cultivation programme has been heavily subsidised.

As it was anticipated in the Plan that in order to induce farmers to adopt new techniques, which would enable them to expand acreage and increase yields, the agricultural programme provided for a scheme for subsidising certain items of equipment and also provided for a considerable expansion in the tractor hire service at subsidised rates.1/ The subsidy was justified on the grounds that mechanisation would increase agricultural output through increased acreage under

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1/ Uganda Government: The First Five-Year Development Plan 1961/62 - 1965/66, op. cit., p. 87.

cultivation, higher yields and improved quality. Mechanization was also expected to eliminate labour peak bottlenecks and through the demonstration effect bring about widespread adoption of mechanical implements. The amount and rate of subsidy, however, were not specified, and as it turned out the scheme was expanded from 10 to about 40 per cent. of the agricultural development expenditure (see Table VI-3), and the subsidy element increased from Shs.14.76 in 1961 to Shs.17.71 per hour in 1966 (see Table VI-8).

In 1964/65 the operation and maintenance costs amounted to £305,770, while the revenue was only £101,442. In 1965/66 the operation and maintenance costs amounted to £470,882 whereas the revenue collected was £152,288. The trend continued, and in 1966/67 the operation and maintenance cost for mechanical cultivation amounted to over £675,000, whereas the revenue was £195,999.1/ As these figures exclude capital costs the magnitude of the subsidy for the mechanical cultivation is even greater.

It was calculated for 1965 that for tractor hire service to breakeven, mechanical cultivation alone would have to result in an increase of 793 lb. of seed cotton per acre mechanically cultivated that year. Or, assuming an average yield of 400 lb. of seed cotton per acre, the total acreage mechanically cultivated would

1/ The Public Accounts of the Government of Uganda, 1967, p.14.

have to be 61,562 acres. In fact, the total acreage under mechanical cultivation for that year was 31,047 acres.1/ Since neither the yield increase nor the acreage expansion was achieved, one can reasonably say that the high subsidy and rapid expansion of the mechanization programme was not justified. A slower rate of expansion would have been more desirable in order to maintain greater utilization of the tractors while meeting any possible increase in demand for mechanical cultivation.

It is also doubtiful whether the favourable effects of mechanization in demonstration and education could justify the excessive cost involved. Although there was an increase in the number of tractors owned by Ugandan farmers from 70in 1963 to 128 in 1966; the increase which was encouraged and supported by the agricultural equipment subsidy scheme; it is not expected that all these tractors were efficiently used given the prevalent lack of mechanical skills and small scale farming.

Table VI-7 shows the expansion of mechanical cultivation, which started in 1963, when the large scale development in mechanical agriculture was lauched with the delivery of over 100 tractors and the ordering of

1/ Uganda Government: Report of the Committee of Inquiry into the Cotton Industry 1966; Government Printer, 1966. Appendix V, p.78.

a further 250 tractors. This followed 1962, the year when the total acreage mechanical cultivated had dropped and the average hours worked per tractor had also decreased due mainly to the shortage of money with the growers as a result of the failure of the cotton crop in 1961/62 season, due to adverse weather conditions. The drop in demand for mechanical cultivation was not only due to the failure of the cotton crop in the 1961/62 season but also due to the increased amount of work which was undertaken by the privately owned tractors. In fact, the tractor hire service unit in Bunyoro was closed down in 1961 due to competetion resulting from the privately owned tractors. In the same year, it was anticipated that there would be a drop in demand due to the increased number of privately owned tractors in Acholi. The number of privately owned tractors was 87 in 1963, when the mechanical cultivation expansion was launched.

The great increase in tractor numbers would have resulted in further drop of the average hours worked per tractor had the Ryan Credit Scheme not been introduced. Under this scheme, credit was extended for mechanical cultivation. Hitherto, all tractor cultivation had been on a strictly cash in advance basis and yet at cultivation time farmers are shorter of cash than any other time of the year. In 1963, due to the credit scheme both the total acreage mechanical cultivated and the average hours worked per tractor increased. The following year, 1964, saw further expansion of mechanical cultivation programme with the arrival of 250 new tractors and the start of the group farming schemes in the country. These group farms had priority on tractor distribution, consequently very little work was done in some districts on tractor hire service. Although the total acreage cultivated trebled, the average hours worked per tractor decreased to a very low figure of 318. (See Table VI-7 p.349) The following year, 1965, was mainly for consolidation and was used to overcome the problems caused by shortage of implements, staff and credit repayments. The average hours worked per tractor increased to 553 a year and the total area cultivated more than doubled. Yet 1966, saw a further increase of tractors to a total of 489 which were distributed on political grounds so as to cover the whole country. This kind of distribution has as its main weakness the possibility of allocating the tractors to places where there are many privately owned tractors or where there is insufficient work and unsuitable land. The utilisation of the tractors was reduced from 565 to 476 hours worked per tractor per year. Although other factors such as late arrival of the new tractors, late approval of credit facilities, adverse weather conditions and shortage of spares due to the British seamen's strike might have contributed to the reduction in the utilisation of tractors, the main factor remains the rapid increase of tractors outstripping both demand and training of staff. Also the tractor fleet in 1966 was made up of eight types and fifteen different models of tractors which made the cost of stocking spares and repairs rather high. The crash programme to train drivers and mechanics contributed to poor performances due to inexperience, inefficiency and lack of supervision, resulting in high breakdowns. Thus one can conclude that even if the very high subsidy involved in the mechanical cultivation programme is accepted, the rate of expansion should have been geared to the rate of increase in demand, the availability of trained staff and the distribution of tractor units should have been based on need, rather than political fairness.

The World Bank Mission's main proposal for credit and subsidy programme was designed to assist three important technical changes, namely the use of oxen for cultivation, the introduction of mixed farming, and the spread of measures for crop protection. The Mission noted the partially successful efforts of the Department of Agriculture to popularise the use of ox-plough and ox-cultivation and stressed the need to overcome the obstacles to the rapid progress in spreading ox-cultivation. Adding that:

> "The Mission considers it of great importance to agricultural development that an all-out effort be now made by departmental propaganda and demonstration, credit facilities and subsidies for agricultural implements, where necessary, to secure the wider adoption of this system of cultivation."1/

The minimum target set was the doubling within five years of acreage cultivated by oxen.

1/ I.B.R.D., The Economic Development of Uganda, op. cit., p.149.

In the Plan some £66,450 or 1.5 per cent. of the agricultural programme was allocated to ox-cultivation. (Table VI-3) This was slightly more than the figure proposed by the World Bank Mission. In 1961, in the Western and Buganda Regions, very little interest was shown in ox-cultivation, whereas in the Eastern and Northern Regions training of oxen and ox-demonstrations made some progress. Apart from demonstration units, the adoption of ox-cultivation was encouraged by the subsidisation of all ox-equipment and the granting of loans for implements and oxen. In spite of all these efforts no country-wide adoption of ox-cultivation has taken place.

3. Co-operative Group Farms

The idea of establishing group farms started in the early 'fifties, especially in connection with the mechanisation of agriculture. In 1952, the Director of Agriculture (now Commissioner) stated that:

> "No development in recent years has shown greater promise not only in relation to the simple efficiency of production but to the better utilisation and better farming of land ...... the movement is strong and appears to arise from

the fact that some form of communal work in crop production is traditional and inherent in the social framework of many tribes. ..... it is probable that group farms and mechanisation will develop side by side to their mutual advantage."1/

In Bunyoro District, twelve groups cultivated a total of 175 acres and co-operated in building and operating communal tobacco barns. In 1954, 18 groups in Lango and 19 groups in Acholi Districts were formed for tractor use.

The Agricultural Productivity Committee asserted that the development of group farms was an important means by which agricultural productivity could be increased pointing out that the essential requirement was that the group should farm larger areas of continuous land under unified control than any of the individual participant could on his own. The Committee indicated the sequence of events in the establishment of co-operative group farms as follows: That the group agrees to co-operate, that agricultural advice is obtained as to how the farm should be laid out and how the farm plan should be implemented. That the group should be registered and the administrative and accounting

1/ Uganda Government: Annual Report of the Department of Agriculture 1952, p.30.

organisation set up and lastly, the produce should be marketed co-operatively.1/

The World Bank Mission also commented on the need for some experimentation in the evolution of a system of more rational land use and mechanisation through co-operative farming and recommended the initiation of a pilot project on co-operative group farming. In the Plan itself there was provision for a scheme to encourage group farming on experimental basis. The provision for the scheme was notional as concrete proposals were still being worked out for pilot projects in selected areas, to encourage farmers to merge their plots in order to provide more economic units for farming. The larger units so formed would be backed up with tractor hire services and improved credit facilities. Some £63,000 or 1.4 per cent. of the agricultural development programme was allocated to the scheme.

With the change of government in May, 1962 came the increased emphasis on the promotion of co-operative group farming schemes which were designed to demonstrate

1/ Uganda Government: Report of the Agricultural Productivity Committee, op. cit., p.45.

the benefits of mechanical cultivation, intensive rotational cropping and the systematic use of livestock for agricultural diversification and maintenance of soil fertility. In the policy statement on the establishment of co-operative group farms, the farms were described as destined to become nuclei of integrated rural development where the Government and members of the group farms would jointly undertake the tasks of land development and agricultural production leading to the improvement of every aspect of rural life. It was stated that the Government would provide the initial development capital for land clearance, the establishment of essential services, and the provision of short-term credit facilities to members of the group farms.

By the use of mechanisation and the adoption of modern agricultural techniques, the farmers on the group farms were expected to produce the maximum amount of crops at the lowest possible cost and at the same time build up soil fertility. This would be achieved through increased acreage per farmer, better timing, improved cultivation and the ability to overcome labour bottlenecks by the use of machinery. Also by concentration of agricultural advisory service and the prompt application of the results of agricultural research.

The expansion of the co-operative group farming scheme was as follows:

TABLE VI - 18.

GROWTH OF GROUP FARMS *

Year	Number of Group Farms	Acres Cultivated
1963	3	326
1964	19	4,070
1965	32	8,900
1966	45	?
1967	30	9,180

* Source: Reports of the Department of Agriculture.

So, the first three group farms under this scheme were established in 1963 and 326 acres were ploughed and planted under cotton. The following year 16 more group farms were established and the number increased to 32 in 1965. In 1965, over 8,900 acres were planted under crops making an average of 2.9 cultivated acres per participant. Of the total acreage under crops, over 5,500 or 62 per cent. was under cotton, 750 under finger millet, 160 under groundnuts, 470 under sorghum and the rest under wheat, bulrush millet and other crops. As it can be seen, the scheme which was planned as a pilot project had expanded at a very high speed and by the end of the plan period some £400,000 or 7.6 per cent. of the agricultural development expenditure had been spent on the scheme. (Table VI-3) The increase was 542 per cent. of the original plan allocation.

Yet, V.D. Stace, an Agricultural Planning Economist with F.A.O., in his report on Co-operative group farming project, stated in December 1963, when only three group farms had been established, that the scheme was already hampered by a severe and growing shortage of technical and administrative staff. He pointed out that the practical advantages of some regional concentration of effort had been sub-ordinated to the political advantages of establishing one or more group farms in each district. He suggested that the establishment of group farms should initially be confined to areas of relatively high fertility and dependable rainfall.1/ But in some districts, the areas offered for group farms have been relatively inaccessible, some in thick forests which made the

1/ Stace, V.D., F.A.O. Report on Co-operative Group Farming Project, 1963 (mimeo).

initial expenditure very heavy. It has also been said with justification that too much was done in a hurry in order to satisfy an immediate political demand. This was done in spite of technical advice based on over ten years' experience with group farms in Uganda and lessons learned from the failure of other similar projects in Africa.

There were social and administrative problems associated with communal labour to be solved, the problems of loan repayments and also the problems of harvesting large acreages of cotton. All these required careful planning and detailed study. The problems of shortage of staff was alleviated by the recruitment of expatriate assistant agricultural officers to work as group farm managers. But this had its own drawback in that these new recruits were unfamiliar with both local farming practices and social customs. Also, sometimes there was quick turnover of managers and thus loss of continuity which inevitably results in some inefficiencies.

As can be seen from Table VI-5, the two schemes of mechanization and group farms were planned to use slightly over 12 per cent. of the development capital for the agricultural programme.

In fact, ex post, these two schemes accounted for nearly 48 per cent of the agricultural development expenditure, thus putting the whole agricultural plan out of gear. The planned share for education, research and financial assistance were accordingly reduced to make room for the mechanisation and group farm schemes. This increased emphasis on the transformation projects as opposed to the improvement projects as originally planned changed the whole agricultural plan strategy. One can say that the anticipated advantages of group farming scheme were lost through uncontrolled, unplanned and un co-ordinated expansion of the scheme. Because of the various problems encountered by the group farms and non-repayment of loans, the number of group farms in operation dropped from 48 in 1966 to 30 in 1967 and the membership fell from 5,176 in 1966 to 1,848 in 1967.

4. Agricultural Subsidy Schemes

It had long been recognised by the Department of Agriculture that farming in Uganda could never rise above the present level with any rapidity until the Ugandan farmer had the tools with which to do the job. The object of the subsidy schemes, therefore, was to make available to as many farmers as possible implements

1/ I.B.R.D., The Economic Development of Uganda, op. cit., p.131.

and insecticides which would improve their farming activities at reasonable prices. The policy was to encourage the integration of livestock into the farming system, the use of ox-drawn equipment to overcome hand labour bottlenecks at peak periods and to popularise the use of appliances which would help to raise the standard and quality of the main export crops. The proposed subsidy schemes were of two main types, those for insecticides for crop protection especially cotton and coffee and those for agricultural equipment and implements.

(a) Cotton Spraying Subsidy Scheme

The Cotton Spraying Subsidy Scheme was drawn up in 1960 to replace a system of small loans to farmers, to enable them to purchase spray pumps and insecticide. This loan system imposed too great a burden on the farmers and increased administrative work in servicing the loans. The World Bank Mission's short run programme for agriculture leaned heavily on a substantial increase in cotton production and the Mission attached the utmost importance to expanding cotton spraying as a means of increasing output.1/

1/ I.B.R.D. The Economic Development of Uganda, op. cit., p.151.

In fact, out of the Mission's subsidy programme of about [illegible] million, about 74 per cent. was earmarked for crop protection. The subsidy schemes accounted for over 50 per cent of the agricultural programme (see Table VI-1).

It was also stated in the Plan that one of the principal objectives of the small-scale agriculture programme during the plan period was to increase production of cotton from an average of 370,000 bales to an average of 500,000 bales per annum. This was necessary in order to achieve a quick increase in national income required to finance further and long-term development. In pursuit of this objective, the Government decided to subsidise the spraying of cotton to destroy pests. In 1960/61 when the price of the insecticide was Shs.50/- per tin, the Government offered a subsidy of Shs.20/- or 40 per cent with no subsidy on spray pumps. Some 9,421 tins were bought and the Government [2] expenditure on the subsidy was 24 per cent. of the approved estimate. This shows that the subsidised retail price of Shs.30/- per tin was considered too high by most cotton farmers in relation to the expected returns.

In 1962, the price of a tin of insecticide was lowered from Shs.30/- to Shs.10/- and then Shs.5/- until towards the middle of the year when the Government supplied the insecticide free. This resulted in a tremendous increase in the number of tins issued for cotton spraying. The following tins of insecticide (DDT) were distributed during the plan period.

TABLE VI - 13

INSECTICIDE DISTRIBUTION*

Year	Number of Tins	Subsidised Price Shs. per Tin	Subsidy per centage
1962	104,000	30 to 0	40 to 100 1/
1963	477,118	0	100
1964	25,076	16	50
1965	54,000	13	50
1966	97,677	5	82

*Source: Reports of the Department of Agriculture
1/ Average subsidy 80%.

In 1964 there was a sharp drop in the use of the insecticide as a result of the lowering of the subsidy and the growers were expected to pay Shs.16/- per tin. The price of Shs.16/- per tin was about a half the price which growers paid in 1960/61, so the price alone cannot explain the drastic drop, other reasons might have been considerable resentment at the imposition of charges to what had been a free good coupled with a reduction in growers' income from cotton due to a price drop for seed cotton during the 1963/64 season. (See Table I-10) The position improved somewhat in 1965 and continued to improve until 1966, when a new policy to fix the subsidised price per tin at Shs.5/- for the Second Five-Year Plan period was announced. The 97,677 tins distributed in 1966 are near enough the planned distribution of 100,000 tins for the 1966/67 financial year.

In Table VI-3, the plan allocation for cotton spraying subsidy of £1.6 million or 35 per cent. of the agricultural programme was reduced to £1.1 million or 20 per cent of the actual development expenditure. This excludes the subsidies paid in 1966/67 financial year in respect of the 1964/65 and 1965/66 financial years. In Table VI-14 the financial analysis of the cotton spraying subsidy scheme is given. This shows that although the approved estimates were about 95 per cent. of the planned expenditure, the actual expenditure was 75 per cent. of the approved estimates and 72 per cent of the planned expenditure. With the exception of 1962/63, when the insecticide was being issued free, the actual expenditure has been considerably less than 60 per cent. of the approved estimates,

TABLE VI - 14

COTTON SPRAYING SUBSIDY SCHEME*

(£)

Year	Approved Estimate	Actual Expend-iture	Unspent Balance	Actual Expend-iture as a Percentage of Approved Estimate
1961/62	95,890	63,334	32,556	66.05
1962/63	775,000	774,393	607	99.92
1963/64	384,710	202,703	182,007	52.69
1964/65	153,210	22,315*	130,895	14.56
1965/66	100,000	32,724*	67,276*	32.72
1966/67	-	44,976a/	-	-
Total	1,508,810	1,140,445	413,341	75.58
Plan	1,588,340	1,140,445	-	71.80

a/ Subsidies for 1964/65 and 1965/66 paid during 1966/67 financial year.

* Source: The Public Accounts of the Uganda Government.

which indicates inconsistency in policy and planning and the inadequacy of the subsidy and distribution facilities. Among the main causes of inadequate distribution of the insecticide is the low profit margin left for the retailers, late awarding of contracts to the main distributors and delayed payment of the subsidy by the Government to the distributors.1/ In fact, with the general decline of insecticide prices from Shs.50/- in 1960/61 to Shs.27/50 in 1966/67 per tin, the Government's annual allocations would have enabled farmers to buy more tins of the insecticide. Since each tin of the insecticide is enough for spraying an acre of cotton and assuming an additional yield due to spraying of 300 lb. per acre, the net return to the economy of using 100,000 tins of the insecticide would be more than £400,000 per year.2/

(b) Agricultural Equipment Subsidy Scheme

The World Bank Mission emphasised the pressing need to infuse capital into the peasant economy to provide simple tools and other equipment. The Mission pointed out the difficulty of getting cultivators to

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1/ For a full discussion see Uganda Government: Report of the Committee of Inquiry into the Cotton Industry 1966. Government Printer, Entebbe. 1966. p. 19.

2/ ibid., Table 9. p. 18.

adopt new techniques and recommended that the Government should subsidise the major part of the cost of the more expensive equipment. The aim of the subsidy was to give the initial encouragement to the farmers to raise their standards of cultivation, improve the quality of their produce and enable them to obtain higher prices for their produce until the advantages of improved practices are better realised.

A provision of £399,140 or nearly 9 per cent. was included in the agricultural programme to cover the scheme for subsidising a variety of selected agricultural implements mainly for the progressive farmers. When the scheme was approved in April 1961 the following items: carts, seeders, and coffee pulpers, were subsidised 50 per cent. and the following items: barbed wire, coffee stores, cattle kraals, and coffee trays, were subsidised at the rate of 40 per cent., the remaining items including ploughs, weeders, local carts, and power hullers were subsidised at rate ranging from 25 to 38 per cent. The 'Plantector' spray pump for cotton insecticide was subsidised at 50 per cent. whereas tractors were subsidised at 25 per cent. or £200 whichever was less. The tractor subsidy, however, was confined only to bona fide progressive farmers who were prepared to run and maintain tractor services, not only for themselves but for their neighbours as well. In addition, the farmer or his farm manager must have obtained an official tractor driver's certificate previously. Both the rate of subsidy and the items to be subsidised were varied from year to year.

Table VI-15 shows selected subsidised agricultural implements which were bought during the plan period. Table VI-16 shows the financial provisions for the scheme during the plan period. An examination of these two tables shows the great variation both in the numbers of items bought and the financial provisions. Although the approved estimates totalled 95 per cent. of the plan allocation, the actual expenditure was only 44 per cent. of the plan. In fact, except for the two years (1962/63 and 1965/66), the actual expenditure was less than 55 per cent. of the approved estimates. Other reasons for the lack of effective utilisation of the scheme by farmers besides the shortage of ready cash; may be found in the way the scheme was operated. At the beginning of each financial year, the Commissioner for Agriculture would make an allocation of funds to the Regional Agricultural Officers, who in turn would allocate the funds to the District Agricultural Officers for the payment of the subsidy on the specified items sold within their districts. These officers would be required to ensure that the amount of subsidy payable on the subsidised items does not exceed the sum of money allocated to the district. This method of allocation results in some delay before the funds are made available and by the time the funds are made available the farmers may have used the cash from the sale of their produce such as cotton and coffee on other requirements. The fact that both items to be subsidised and the rate of subsidy varied from year to year, this caused uncertainty to both the traders and the farmers. As the trader is unlikely to stock any article, if he knows that very few farmers would buy it at its retail price. Even after the subsidy has been announced, the trader could still be uncertain as to how much money has been allocated to his district for any particular article. Again, the system of allocating money to the districts might result in some districts getting funds which they

T A B L E   V I - 15

SELECTED SUBSIDISED IMPLEMENTS*

I t e m	1961	1962	1963	1964	1965
Coffee Trays	5,235	4,559	4,020	3,994	5,766
Coffee Pulpers	298	17	59	6	-
Coffee Stores	1[illegible]	23	46	17	-
Barbed wire (rolls)	2,130	2,949	9,646	5,917	(a)
Cattle Kraals	30	54	146	-	(a)
Wheel Barrows	55	119	516	322	484
Ploughs	12	555	1,388	726	848
Cultivators	112	34	25[illegible]	670	284
Tractors	-	8	12	11	12

* Source: Department of Agriculture: Annual Reports of Regional and District Agricultural Officers.

(a) Items connected with livestock were transferred to the Veterinary Department.

TABLE VI - 16

AGRICULTURAL EQUIPMENT SUBSIDY SCHEME*

(£)

Year	Approved Estimates	Actual Expenditure	Unspent Balance	Actual Expenditure as a Percentage of Approved Estimates
1961/62	83,240	14,639	68,601	17.59
1962/63	85,000	62,274	22,726	73.26
1963/64	100,000	54,197	45,803	54.20
1964/65	100,000	33,920	66,080	33.92
1965/66	12,500	11,867	633	94.94
Total	380,740	176,897	203,843	46.46
Plan	399,140	176,897	-	44.32

* Source: The Public Accounts of the Uganda Government.

cannot utilise whereas other districts, which could use more funds, are deprived of such funds. Here again, the need for planning in order to co-ordinate the subsidy scheme with the seasonal availability of cash to farmers, especially during the marketing seasons and the credit facilities is obvious. The scheme was temporarily suspended in the second half of 1965 due to the shortage of funds.

5. Agricultural Credit Schemes

The need for agricultural credit had long been recognised in Uganda and some credit schemes had in fact been tried. The Uganda Credit and Savings Bank (now Uganda Commercial Bank) was established in 1950 to provide credit to Africans who could not otherwise get such financial assistance from the other commercial institutions. In 1954, the Government established the African Loans Fund to facilitate credit 1/ being extended on the minimum of security, provided the integrity and trustworthiness of applicants was vouched for by local committees. In addition the district local administration was required to guarantee the repayment of 50 per cent. of the outstanding balance of the loan in case of default. The success of these early schemes

1/ [illegible] op. cit., [illegible]

was hampered by the very high rate of non-repayment.

In the Plan, the two agricultural credit schemes which were already in existence were provided for. These were, the Progressive Farmers Loans Scheme, under which selected farmers who are willing to adopt new techniques of agricultural production and land-use may on the recommendation of the District Agricultural Officers obtain loans for the purchase of farm equipment and materials. The other scheme was the Co-operative Credit scheme, whereby selected societies are provided with funds to make seasonal finance available to their members to enable the members to hire tractor or labour to increase their acreages.1/

From 1961 up to 1964, when the progressive Farmers Loans Scheme was suspended due to excessive number of defaulters, a number of loans had been made for tea cultivation, ox-drawn equipment, tractors and other agricultural implements. The loan repayments on the Co-operative Credit Scheme were also very poor, especially on the group farms, due to the relaxation of the conditions which a farmer has to satisfy before he is granted the loan.

1/ The First Five-Year Development Plan, 1961/62 - 1965/66, op. cit., p.37.

A study of the agricultural credit schemes in Uganda by Diana Hunt has highlighted the main achievements and illuminated the defects.1/ In the main, her study reveals that there was no evidence that the provision of credit resulted in a substantial increase in production, although the credit provided to tea outgrowers and flue-cured tobacco producers has undoubtedly had a positive impact on production.

Among reasons advanced by Miss Hunt for the apparent failure of the credit schemes were lack of qualified personnel to supervise the schemes; unprofitable enterprises and techniques; unsuitable equipment and implements; low level of mechanical experience among the farmers and the repayment provisions which were not geared to the kind of loan provided. Her conclusion was that there was need for restricting credit to genuinely profitable enterprises and techniques of production, and for the imposition of a limit to lending in direct relation to the available qualified supervisory staff.

9. Miss Hunt's analysis based on the need to have well tested and well tried implements and techniques,

1/ For a detailed discussion see Hunt, D.M. "Agricultural Credit in Uganda - Ph. D., Thesis in the University of East Africa, 1967.

ignored one of the main purposes for the provision of credit that of assisting technical change and encouraging innovations as part of the longer-term transformation of the farming systems. Surely, farmers could not have experience in the use of ox-drawn equipment until such equipment was made available to them through the credit scheme. The limitation of manual labour to increasing agricultural production has long been recognised and the achievements of mechanical cultivation methods have been studied in Uganda and other countries. So what was required was proper planning and co-ordination of the various schemes together with proper supervision. Unfortunately, since the credit programme was such a vital and important part of the overall agricultural development programme, its apparent failure to achieve the Plan targets must have inevitably resulted in serious distortions of other schemes such as the subsidy, mechanisation and group farming programmes, and consequently the slowing down of the rate of agricultural development.

6. Other Agricultural Schemes

Other agricultural schemes included the programme for large-scale agriculture which includes tea, cassava, sugar cane and irrigation schemes and the development of crops such as coffee, tobacco, groundnuts and cocoa. In the Plan, the agricultural programme contained a provision of £332,255 for expenditure on crop development. On the whole the greater part of the large-scale agriculture was to be carried out by the U.D.C. either solely or in partnership with local administrations or with some farmers as outgrowers. The main outgrowers' scheme in which the U.D.C. participated was that for tea expansion. The sugar-cane outgrowers' scheme was carried out in conjunction with the two commercial sugar cane plantations at Lugazi and Kakira. By 1966, over 2,000 acres were planted to sugar-cane by outgrowers around the Lugazi sugar works and some outgrowers had started growing sugar-cane around Kakira sugar-cane plantation as well.

The Government schemes for crop development made slow progress and by the end of the Plan period only £195,682 or 3.6 per cent. of the agricultural development expenditure was actually spent. The cocoa scheme which started with the establishment of nurseries and a target of 2,500 acres by 1966, made good progress and by 1966 some 2,306 acres had been planted under cocoa. Of this acreage, some 556 acres were in the Western Region, 1,572 in Buganda, and 178 in the Eastern Region. The scheme was at times slowed down by lack of funds.

(a) Tea Expansion and the Outgrowers' Scheme

Besides the activities of private tea estates, the planned tea expansion was to be achieved by the combined efforts of the U.D.C., outgrowers and the Government. In the Plan, it was stipulated that Agricultural Enterprises Limited (A.E.L.) a subsidiary of the U.D.C., would expand the acreage of its nine estates to a total of 5,000 and would continue the expansion of its outgrowers' schemes.1/ In fact, during the period 1961 to 1966, A.E.L. planted some 5,656 acres under tea and supplied some 9.9 million tea stumps to outgrowers. Assuming the recommended spacing of 5 feet by 2½ feet, a total of 3,500 tea stumps would be required to plant an acre. Assuming 15 per cent of the stumps would be required for in-filling,2/ about 2,400 acres were planted with stumps supplied by the A.E.L. out of the total outgrowers' acreage of 5,390 in the whole country.

1/ The First Five-Year Development Plan, 1961/62 - 1965/66, op. cit., p.28.

2/ Pudsey, D.M.: Economic Case Studies of Tea Outgrowers in Uganda, Department of Agriculture, 1966, p.57.

The following table shows the activities of the A.E.L.

TABLE VI - 17

A.E.L. TEA EXPANSION*

Year	Acreage Planted	Stumps Supplied to Outgrowers
1961	853	268,000
1962	1,133	307,000
1963	974	905,527
1964	986	2,814,720
1965	925	1,979,552
1966	785	3,660,275
Total	5,656	9,934,874

* Source: Annual Reports of the Uganda Development Corporation Limited.

The Government scheme for tea development was designed to expand tea production by African out-growers in selected suitable areas. Under the scheme the Government was required to provide new access roads in the main tea areas in addition to providing tea officers for the supervision of tea cultivation and marketing.

As can be seen from Table VI-18, the Plan target of 2,250 acres was almost doubled by the tea acreage expansion in the Western Region alone.

TABLE VI - 18

OUT-GROWER TEA EXPANSION - WESTERN REGION*

(Acres)

	1960	1961	1962	1963	1964	1965	1966
Toro	409	586	847	1,183	1,733	2,243	3,134
Ankole	8	22	65	165	291	554	817
Kigezi	-	46	167	247	296	446	708
Bunyoro	-	-	-	11	49	136	226
Total	417	654	1,079	1,606	2,369	3,379	4,885
Number of Out-growers	52	181	356	609	860	1,062	1,841

* Source: Annual Reports of the Regional Agricultural Officer, Western Region.

Together with the expansion of acreage came the expansion of green leaf production which jumped from 1.8 million in 1964 to over 10.3 million lbs. in 1966 from outgrowers in the Western Region alone. There were also some 505 acres of outgrowers' tea in Buganda, some 86 acres being in Masaka, 85 in East Mengo and 334 in Mubende districts. Some of these must have been in bearing.

The government's efforts to expand tea production were reinforced by the establishment by an Act of Parliament, of the Uganda Tea Growers Corporation in February, 1966.

Among the objectives and functions of the Corporation are to encourage the formation of associations of tea growers into cooperative societies; to prepare overall plans for the development of the tea industry; to negotiate green leaf agreements and to organize the inspection of the green leaf. It is also the duty of the Corporation to provide tea stumps and fertilisers and to procure credit facilities for the tea growers.1/

By the end of the Plan period, the Corporation was just been established and had not as yet played any significant role in the development of tea but it is expected that by its ability to procure credit, to organise tea leaf collection and transport, and to establish tea processing factories it will certainly help the expansion of tea production by Ugandan farmers.

Plan Implementation:

As it turned out, ex post, the actual gross Government expenditure for the Plan period was in line with the Plan allocations as can be seen in Table VI-19. Unfortunately Table VI-19 does not show the development expenditure of the parastatal corporations and local administrations and it is comparable therefore with

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1/ Uganda Tea Growers Corporation Act 1966, Section 3.

the Government Column in Table VI-1. The gross Government expenditure for 1961/62 to 1965/66 shows that £9.2 million or 23.3 per cent. of the capital expenditure was spent onthe development of the natural resources as compared to £7.9 million which was allocated to the productive activities in the Plan. The capital expenditure on the basic economic infrastructure was £6.6 million or 16.9 per cent. which was less than planned. The social services held their percentage share whereas administration, law order and defence, greatly increased their share of capital expenditure. Some £7.2 million was spent on the agricultural sector which was slightly less than what was planned. On the whole, however, the gross capital expenditure of £39.4 million was remarkably close to the planned Government capital expenditure of £40.8 million.

If Table VI-19 is compared with Table V-12 in the previous chapter the substantial change in emphasis in the development expenditure becomes clear. During the 1955/56 to 1959/60 period, the Government spent 6.5 per cent. on the development of natural resources. This percentage has been increased to 23.3 during this Plan period. Although the share of capital expenditure on social services has increased from 17.6 to 28.9 per cent.

T A B L E VI - 19

GROSS GOVERNMENT EXPENDITURE 1961/62 - 1965/66*

I T E M	CAPITAL (£)	Per-centage	RECURRENT (£)	Per-centage	TOTAL (£)	Per-centage
Administration	3,696,043	9.39	18,862,173	11.06	22,558,216	10.75
Law, Order and Defence	6,108,731	15.51	24,880,599	14.60	30,989,330	14.77
Development of Natural Resources	9,193,991	23.35	15,199,224	8.92	24,393,215	11.63
Agricultural Sector	7,209,414	18.31	10,960,948	6.43	18,170,362	8.66
General Economic Development	6,644,667	16.88	12,479,400	7.33	19,124,067	9.11
Social Services	11,387,166	28.92	36,757,436	21.56	48,144,602	22.94
Others	2,343,322	5.95	62,282,290	36.53	64,625,612	30.80
TOTAL	39,373,920	100.00	170,461,122	100.00	209,835,042	100.00

* Source: The Public Accounts of the Government of Uganda.

the overall Government expenditure has decreased from 29.8 to 23.9 per cent. The total Government expenditure on the agricultural sector has slightly increased from 7.8 to 8.7 per cent in spite of having almost doubled in absolute value.

The actual development expenditure, however, was £800,000 higher than planned and the relative distribution had changed. The mechanical cultivation had increased its share from 10 to nearly 40 per cent. and the financial assistance allocation had dropped from 51 to 28 per cent. The expenditure on group farms had increased from a notional figure of 1 per cent. to 7.6 per cent. whereas the expenditure on education was less than planned. These figures understate the amount of financial assistance offered to farmers because the subsidy element in mechanical cultivation and group farms is not included in the financial assistance allocation and yet these services as has been shown were highly subsidised.

Although it is appreciated that development plans should be flexible and subject to revision whereby some projects may be taken out of the Plan and others incorporated or the relative emphasis changed from one project to another, it appears that the changes involving mechanical cultivation and group farms were rather too large. There is a danger that some of these shifts of expenditure took place without a thorough study of their implications to the consistency of the Plan as regards manpower and capital requirements and the achievement of the objectives of the Plan. This is where the application of the investment criteria would have played a vital role in illuminating the consequences of the proposed changes. Unfortunately such an exercise was lacking and decisions on various projects were taken in isolation without proper co-ordination.

CHAPTER VII

AGRICULTURAL SECTOR PLANNING AND THE SECOND FIVE-YEAR DEVELOPMENT PLAN

Introduction:

The Second Five-Year Development Plan unlike the previous ones was intended to be a more comprehensive plan based on explicit quantitative targets for the economy as a whole and for the various sectors, both public and private. It was also the beginning of a serious attempt on agricultural sector planning. The Plan was also meant to be a part of a 15-year perspective plan covering the period 1966 to 1981. The main objective of the perspective plan was to double per capita income by 1981. Hence, the Second Five-Year Development Plan was designed in such a way that not only would it achieve its own targets, but it would also lay the foundation for achieving the overall targets of the perspective plan.

In order to assess the feasibility of achieving the overall target of doubling per capita income in fifteen years, it was necessary to study and analyse the resources endowment with a view of determining how large a total development programme the economy can support and what level of effort and sacrifice would be required. Uganda was fortunate in having at the Makerere Institute of Social Research, (M.I.S.R.) a group of economists, who were interested in making a contribution to the Government's development planning effort. These economists devised a statistical projection model on which the feasibility of the development goals for the perspective plan were tested. The projection was intended to highlight the strategic decisions regarding the size of the overall development programme, programmes and projects to be emphasised and the necessary economic policy decisions which the Government had to take on embarking on such an ambitious plan. As it turned out, doubling per capita income implied a rate of growth of gross domestic product in the monetary sector of about 6.4 per cent per year from 1966 to 1981.1/ But this growth rate was considered ambitious in comparison with past experience in Uganda and near the upper end of the range of growth achievements of other countries throughout the world in the last two decades. In fact, according to W. Arthur Lewis, most underdeveloped countires are not in a position to achieve a growth rate of five per cent unless they possess special circumstances of well advanced economy, rapidly growing agricultural sector and a rapidly expanding mining industry.2/ As for the agricultural sector, though it was recognized that the sector might not keep pace with the target overall rate of growth of the economy; an accelerated rate of growth in agriculture was considered a necessary condition for attaining the overall growth goals given the substantial weight of the sector in the economy.

1/ Clark, P.G. Development Planning in East Africa, East African Publishing House, Nairobi, 1965, p.80.

2/ Lewis, W.A. Development Planning. George Allen & Unwin Ltd., London, 1966, p.154.

The projection model assumed that agricultural exports would have to increase from an average of 4 to 5 per cent. over the whole period 1949/1950 to 1962/63 to 8 to 9 per cent. per year, subject to the Government effort to induce productivity improvements and to change output patterns in peasant agriculture. 1/ These assumptions have been criticised by C.S. Gray on the basis that the agricultural export target is devoid of any mention of the actual commodities in respect of which the Government may be able to induce the required changes.2/ The model also comes under fire for ignoring what it calls 'a small amount of capital formation in agriculture' which as we know is substantial in peasant economy where the major investment is through the trasformation of family labour inputs into land improvement, crop establishment and livestock improvement. The model has also been criticized for ignoring supply

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1/ Clark, P.G. Op. Cit., p.88.

2/ Gray, C.S. "Development Planning in East Africa, A Review Article". East African Economic Review Vol.2. No.2, 1966, pp.1-16.

constraints and agriculture is a major source of domestic savings; an important constraint. 1/

Agricultural Sector Planning.

Given the overall perspective plan objective of doubling per capita income by 1981, the strategy for development as contained in the Second Five-Year Development Plan involves expansion on all fronts, with emphasis on three spearheads namely agricultural development, industrialisation and expansion and improvement of education and health services. Expanding agricultural production was considered fundamental to the Plan because any stagnation would be a major barrier to the general economic development. The reasons for and main benefits from agricultural development have already been discussed in Chapter one and they include food supplies for the increasing population, increasing exports and foreign exchange earnings, expanding the market for industrial products and the provision of investment funds for other sectors.

1/ Massel, B.F. "On Growth Models and Multipliers: The Case of the Missing Constraint" East African Economic Review, Vol. 3, No.1, 1967, pp.73-76.

As far as the agricultural sector was concerned, the main targets were to increase gross monetary product by 5.1 per cent. and subsistence product by 3.2 per cent. thus giving an overall increase of 4.3 per cent. per annum. And to diversify the production in order to make the economy less dependent on the two main export crops - cotton and coffee.1/ To achieve the above rates of growth in production it was anticipated that considerable structural changes and diversification in addition to increased capital investment would be necessary. The investment target for agriculture like other sectors came out of the projection model.

Having established the overall targets for the Plan from the perspective plan and the model, provisional targets for each of the twelve sectors of the economy for 1971 were derived. Approximate estimates were also made of the total capital investment (£250 million) needed for the Plan implementation.

1/ Uganda Government: "Work for Progress - Uganda's Second Five-Year Plan 1966-1971 Government Printer, Entebbe, 1966, p.75.

The division of the total capital investment between the sectors was also done. The next step was to formulate detailed plans for each of the twelve sectors of the economy and for this purpose the Director of Planning set up twelve working parties to cover each of these sectors. The working parties were given broad terms of reference, "Specifying what was the overall aim of development in the field for which each was responsible, indicating roughly the likely limits to available resources, and calling on the working party to advise how best to achieve the aim".1/ Both production and minimum investment targets were indicated and the working parties were also required to advise not only on production but also on the marketing of the produce with which they were concerned. The working parties were not expected, due to shortage to time, to make full project evaluations but just to specify the quantity of the products which could be achieved and the amount of investment which would be required.

1/ Ibid., p.42.

The total capital investment of £230 million was divided out between the various sectors as follows:-

TABLE VII-I

Provisional Sectoral Distribution of Investment

	(£m)
Agriculture and livestock ...	27
Crop processing industries ...	13
Other manufacturing industries...	33
Minerals and Mining ...	1*
Construction ...	25
Transport and Communications ...	20
Electricity	23
Commerce	18
Central Government... ...	6
Local Government	3
Miscellaneous services ...	41
Rents	17
Total	230

* this was in effect a token provision.

Out of the twelve working parties appointed, three were charged with the responsibility of studying the agricultural sector and covered small-scale agriculture and fisheries; large-scale agriculture, irrigation and forestry; and animal industry. Members of these working parties were drawn from the ministries concerned, Makerere University College, the general farming community, parastatal corporations and from private companies engaged in agricultural activities. All working parties were serviced by economists from the Ministry of Planning and Economic Development who acted as joint secretaries. Thus, a genuine attempt was made to involve all sections of the agricultural community.

The procedure followed by the working parties involved calling for papers containing data on the various crops including acreage, yield, prices and total returns as well as expected growth rates. The papers and the calculations were prepared by the Departments of Agriculture, Forestry, Veterinary, Games and Fisheries and the Agricultural Enterprises Ltd. of the U.D.C. These departmental submissions were analysed and discussed by the working parties before conclusions were reached and recommendations made. Each crop, scheme or livestock activity was considered separately.

In the reports of the working parties on agriculture, besides crops, sections were devoted to such schemes as mechanical cultivation, credit, research, extension and education.

The report of the working party on large-scale agriculture, irrigation and forestry was based largely on the Department of Agriculture's schemes some of which had been studied by missions of experts, namely tea and sisal. As the function of the working parties was rather to find out what resources were available and what were lacking and how the deficiencies could be made up in order to achieve the expansion implied in the target for the sector; no scheme or project received a full-scale economic evaluation except the group farms scheme and the Arabica Coffee spraying scheme which was a subject of a special working party. All other schemes however, were critically examined and detailed recommendations made on them.

The reports of the working parties were discussed by officials of the Ministries concerned and the Ministry of Planning and Economic Development and it was agreed that the reports should form the basis of the final agricultural sector plan which would be submitted to the Planning Commission after some details and costs of the major projects had been agreed upon by the Planning and sector ministries.

After the general outline of the agricultural sector plan had been formulated, the great task of project evaluation began. Although a number of projects and schemes had been written up in detail in the working parties' reports, many of them had not been fully costed and all figures had to be re-checked. A team of two economists, one from Planning and the other from Agriculture Ministries carried out the project evaluation and re-writing in consultation with officers in the departments concerned. The evaluated projects were submitted to the Planning Commission after the Responsible Minister's approval.

Due to shortage of time, the chapter on the rural sector of the Plan was written before all the projects in the agricultural sector has been evaluated. It was based on the evaluation work which had been completed and the reports of the working parties together with the draft agricultural sectoral plan which had been prepared out of the reports of the working parties. The output targets and investment figures when put together meant several changes being made in the tables derived from the projection model.

Some alterations arose as a result of evaluation work and others due to some decisions taken by the Planning Commission on the feasibility of the various targets. The final draft of the agricultural sector plan together with all other sectoral plans was considered and approved by the Cabinet which is the ultimate authority above the Planning Commission.

The summary of total projects by sectors which were included in the Government development programme amounted to £106.3 million of which some £26.4 million or 24.9 per cent. was allocated to the agricultural sector. (see Table VII - 2) Crop agriculture was allocated some £19.4 million or 18 per cent. of the total development expenditure and animal industry £4.9 million or 4.6 per cent. of the total development expenditure.

A close examination of the planned Government development expenditure on agriculture and animal industry reveals the main strategy for developing the rural sector, and bringing about structural change and diversification. (see Table VII - 3).

TABLE VII - 2

GOVERNMENT DEVELOPMENT EXPENDITURE
IN THE SECOND FIVE-YEAR PLAN 1966-1971*

I T E M	£'000 Allocation	Percentage
Administration	4,879	4.59
Law and order 1/	9,169	8.62
Productive activities	28,970	27.25
(a) Agriculture ...	19,360	18.21
(b) Veterinary ...	4,930	4.64
(c) Fisheries ...	150	0.01
(d) Forestry ...	280	0.03
(e) Game and Tourism	1,750	1.65
Agricultural Sector (a) to (e)	26,470	24.90
Basic Economic infrastructure	25,983	24.44
Social Services	35,811	33.69
Education	18,500	17.40
Health	12,826	12.06
Local Authorities Services	1,500	1.41
Grand Total:	106,312	100.00

1/ Expenditure on defence has been excluded.
* Source: Uganda Government; Second Five-Year Plan Government Printer, Entebbe, 1966, Table 18, p.52.

TABLE VII - 5

Central Government Development Expenditure on Agriculture and Animal Industry 1966/67-1970/71*

ITEM	Plan Allocation £ million	Percentage
Cotton ...	1.70	8.66
Coffee ...	2.20	11.20
Tea ...	0.91	4.63
Sugar ...	4.00	20.37
Groundnuts ...	0.70	3.56
Tobacco ...	0.46	2.34
Cocoa ...	0.30	1.53
Sisal ...	0.20	1.02
Citrus ...	0.15	0.76
Forestry ...	0.28	1.43
Group farms ...	4.29	21.84
Tractor hire ...	1.50	7.64
Agricultural education	1.32	6.72
Credit ...	1.20	6.11
Extension ...	0.17	0.87
Seed Multiplication	0.01	0.05
Miscellaneous ...	0.25	1.27
Sub-total Agriculture	19.64	100.00
Dairy ...	2.30	45.28
Meat ...	1.70	33.46
Miscellaneous ...	0.93	18.31
Fisheries ...	0.15	2.95
Sub-total - Animal Industry	5.08	100.00
Grand Total	24.72	

* Source: Uganda Government: 'Work for Progress' Uganda's Second Five-Year Plan 1966-1971. Government Printer, Entebbe, 1966, Table 20, p.75.

The importance of agriculture as a major spear-head for development was taken care of by the planned development expenditure on agriculture which was designed to bring about rapid increase in agricultural productivity and production mainly through the transformation approach. The Plan provided for increased capital formation through mechanisation, group farms, tractor hire service and irrigation schemes to which about 30 per cent. of the agricultural development expenditure was allocated. More capital formation was planned through crop development such as tea, sugar, and sisal schemes which account for some 26 per cent. of the proposed expenditure on crop agriculture. In order to supplement the effectiveness of the proposed schemes, considerable expansion of certain essential agricultural services designed to assist the farmer to improve his productivity[1] was also planned. These services which fall under the improvement approach embrace the provision of credit, expansion of agricultural education and extension services and the provision of improved quality seeds. These services were allocated 15 per cent. of the proposed expenditure.

1/ For a full discussion see Gray, C.S. 'Development Planning in East Africa: A Review Article' *East African Economic Review*, Vol.2, 1966, pp.1-15.

As far as the animal industry is concerned the major schemes were those connected with the development of the dairy and meat industries. These accounted for 78.4 per cent. of the Plan allocation to the animal industry. The total allocation of £5.08 million to the animal industry was 20 per cent. of the total allocation to the agricultural sector.

A Critique of the Agricultural Sector Plan.

1. The Model.

Any critical analysis of the agricultural sector plan would have to start with the examination of the relevancy of the assumptions about agriculture inherent in the projection model. Leaving aside the general criticism and scepticism about the usefulness of such an aggregative model based on insufficient and unreliable data being used in the prediction and determination of investment and production targets and future quantitative relationships.1/ The model is a sector model distinguishing six producing sectors, one of which is agriculture which includes crop processing, forestry, fishing and hunting; seven kinds of imports including the imports of food; two classes of exports of which the agricultural exports are the more

1/ For a full discussion see Gray, C.S. 'Development Planning in East Africa: A Review Article' East African Economic Review, Vol.2, 1966, pp.1-16.

important; four forms of capital formation, and four kinds of government taxes. Among the five autonomous variables are the quality of agricultural exports and the prices of those exports. The model however, ignores capital formation in agriculture and this leaves out agriculture as a potential constraint on development expenditure and policies, the constraints being the balance of trade, the government budget surplus or deficit and the required savings.1/ But give the overwhelming importance of agriculture in the economy and its role in the future development, the agricultural sector should have been divided in sub-sectors such as crop processing, large scale and plantation agriculture, dairy, fisheries in order to spell out the quantitative relationships and linkages between agriculture and other sectors.

Although the model properly emphasised that in the development process "what happens domestically is influenced largely though not entirely by agricultural export quantities and prices",2/ the growth of the agricultural sector on which the agricultural exports depend;

1/ Clark, P.G. Op. cit., p.59

2/ ibid., p.65.

is limited by factors which are not present in the model. The most import factors being the ability of the Government to induce productivity improvements and to change output patterns in the peasant agriculture given the special characteristics of agricultural production such as the biological nature which results in seasonality and variability of the production; traditional, customary and institutional rigidities and the small scale and dispersed nature of agricultural production. Clark himself admitted that agricultural exports should have been related to the agricultural product by a parameter based on a careful product by product calculation, such a parameter is missing in the model.1/

The model, however, is used to provide a framework which shows the implications of a development in any one sector for other sectors of the economy. For the agricultural sector the model enables an assessment of the effect of an increase in aggregate agricultural product on transport services, public tax revenue and export earnings. Lastly, the aggregative projection model is useful as an integral

1/ Clark, P.G. "Development Planning in East Africa: A Rejoinder" East African Economic Review, Vol. 3 No.1, 1967, p.58.

part of comprehensive planning for testing the mutual consistency of the quantitative assumptions and proposals in the plan. And as C.S. Gray says: "........ statistical projection models, like other analytical tools, are useful to developing countries only in proportion to the soundness of the economic and political judgement which interprets them".1/ The validity of this statement will become clearer as we examine the agricultural sectoral plan further.

2. The Agricultural Sector Targets.

The Second Five-Year Development Plan being comprehensive contains estimates of the performance of each sector of the economy necessary for the achievement of the overall targets and objectives including structural change. The main objective for the perspective plan is to double the monetary income per capita from about £25 to £50 by 1981, and to bring about structural change by reducing the percentage contribution of the agricultural sector to the gross domestic product from 45.6 per cent. in 1966 to 39.7 per cent. in 1971 and 31.9 per cent in 1981.

1/ Gray, C.S. op. cit., p.12.

This structural change will be attained not through the reduction of the absolute contribution of the agricultural sector but as a result of the industrialisation policies and the planned increase in the investment ratio. Figure VII-1 shows the planned structural changes.1/

In order to achieve the set goals of the Plan, a target rate of growth for total output in the monetary sector was set at 7.2 per cent. per annum. This compared with a growth in the output of the monetary sector of 4.2 per cent. per year achieved during the 1954-64 period, the output targets therefore, represent a major acceleration in the rate of economic growth, if they could be achieved. As for the agricultural sector, it was recognised that:

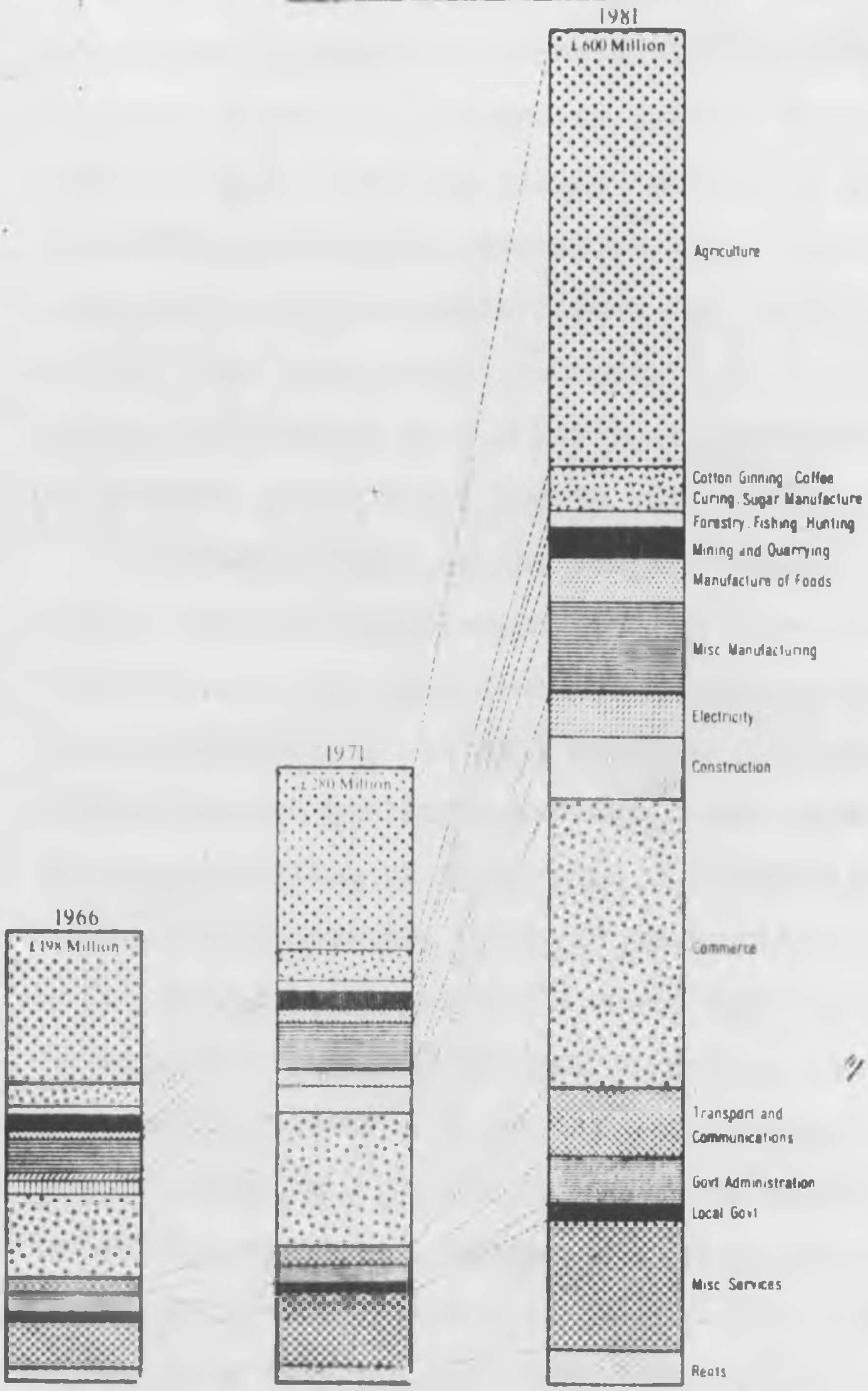
> "The biggest uncertainities regarding achievement of the target derive from the heavy dependence on the agricultural sector. Such dependence has two major results. The first is that, although agricultural output can rise sharply from bad to good years, on average the maximum rate of growth tend to be lower than in other sectors. Thus even if there are major successes in agriculture, that sector could not grow at 7.2 per cent. per annum over the Plan".2/

1/ For full details see Work for Progress, Uganda's Second Five-Year Plan, op. cit. Table 8, p.20.

2/ ibid., p.12.

FIGURE VII - 1

PLANNED CHANGES IN THE STRUCTURE OF THE UGANDA ECONOMY



Source: Uganda Government, Work for Progress: Uganda's Second Five-Year Plan, 1966-1971, op. cit. p. 1[illegible].

The target growth rate for agricultural output in the monetary sector was planned at 5.1 per cent. per annum which is lower than the planned growth in total output including subsistence production of 6.3 per cent. per annum over the five years 1966-1971. The target growth rate for agricultural output in the subsistence sector was planned at 3.2 per cent. per annum giving an overall agricultural growth rate of 4.3 per annum.

The achievement of the targets in the agricultural sector requires great expansion and diversification of production of the cash crops tea, sugar, tobacco and cotton production. It also requires increased coffee production and quality improvement and major expansion in the production of foodstuffs and animal products. Table VII-4 shows the planned growth output of the major agricultural products. From Table VII-4 it can be seen that the greatest increase in production is planned for tobacco, sugar, tea and Arabica coffee. The tobacco gross output represents a volume increase of 22.5 per cent. per annum and a value increase of 18.5 per cent. per annum; for sugar the volume would increase by 14.9 and the value by 14.6 per cent. per annum respectively.

TABLE VII - 4

GROSS OUTPUT OF MAJOR PRODUCTS FROM THE RURAL SECTOR INCLUDING SUBSISTENCE *

PRODUCT	UNIT OF OUTPUT	1966 QUANTITY	1966 VALUE (£m)	1971 QUANTITY	1971 VALUE (£m)	VOLUME % CHANGE	VALUE % CHANGE
Robusta Coffee	'000 tons	190	19.9	240	18.9	26.32	-5.03
Arabica Coffee	'000 tons	10	2.9	20	4.9	100.00	68.96
Cotton Lint	'000 tons	77	16.8	103	19.8	33.77	17.86
Seeds	'000 tons	170	2.5	230	3.4	35.29	36.00
Sugar	'000 tons	115	4.7	230	9.3	100.00	97.87
Groundnuts	'000 tons	154	6.4	224	9.6	45.45	50.00
Tea	'000 tons	10	3.4	19	6.3	90.00	85.29
Tobacco	'000 tons	4	0.6	11	1.4	175.00	133.33
Soft fibres	'000 tons	-	-	10	0.6	-	-
Cocoa	'000 tons)	neglig-	-	5	0.5	-	-
Sisal	'000 tons)	ible	-	2	0.2	-	-
Other crops	'000 tons	-	58.0	-	67.8	-	16.90
Wood	'000 cu.ft.	5.1	0.6	5.4	0.7	5.88	16.67
Sub-total Agriculture & Forestry		-	115.8	-	143.4	-	23.83
Meat	mil.lb.	255	12.0	315	14.6	23.53	21.67
Milk	mil.gal.	79	16.8	105	21.0	32.91	25.00
Hides & skins	'000 tons	3.9	1.0	4.3	1.3	10.25	30.00
Animal by-products	'000 tons	-	-	3.1	0.1	-	-
Eggs	mil.doz.	16.5	1.7	21	2.2	27.27	29.41
Fish	'000 tons	76	3.1	104	4.2	36.84	35.48
Honey	mil.lb.)	neglig-	-	11)	0.4	-	-
Wax	'000 tons)	ible	-	0.5)		-	-
Sub-total Animal Industry		-	34.6	-	43.8	-	26.58
Grand Total		-	150.4	-	187.2	-	24.47

*Source: 'Work for Progress, Uganda's Second Five-Year Plan, 1966-1971, Table 21, p.76.

The tea increases are 18.7 per cent. per annum for volume and 12.8 per cent. per annum for value. For Arabica Coffee production would increase at the rate of 14.9 per cent. per annum compared with value at 11.1 per cent. per annum. For Cotton Lint, the volume would increase by 4.9 per cent. per annum while value would increase at a lower rate of 2.8 per cent. per annum. The total value increase for the crop agriculture would be 4.4 per cent. per annum.

The targets for the animal industry sector are rather modest ranging from 7.4 per cent. by volume and 7.1 per cent. by value for fish to 4.7 per cent. by volume and 4.8 per cent. by value for meat. The corresponding annual increases for milk and eggs are 6.6 and 6.5 per cent. by volume and 5 and 5.9 per cent. by value respectively. The overall increase in the gross output for the animal industry sub-sector by value is 5.3 per cent. per annum.

The setting up of consistent sectoral targets has been one of the main reasons why the Second Five-Year Development Plan has been called comprehensive 1/ and

1/ 'Work for Progress' op. cit., p.40.

is an essential element in any comprehensive planning. In Uganda, where besides the activities of Agricultural Enterprises Ltd., a subsidiary of the Uganda Development Corporation, agricultural production is mainly in the hands of the private farmers, the attainment of the production targets as set in the Plan is subject to the same problems as any other targets set for the private sector. Unlike targets in the public sector the attainment of which is the direct responsibility of the government subject only to the normal annual budgeting and revisions of the development programme, the targets in the private sector are no more that what the government expects and would like to happen as a result of the influence of its economic policies and its total investment both in the agricultural sector and other sectors which possess important forward or backward linkages, with the agricultural sector.

In the absence of a sectoral input-output table for the Uganda economy, the agricultural targets were neither related to the domestic demand nor strictly to the production potential but rather to the investment targets which came out of the projection model, not as feasible necessarily but only as obtainable provided assumptions made about other sectors are in themselves attainable. As has been shown, the use of the projection model was not as a means of reaching decisions about feasibility, but rather as a framework within which the various investment and other targets could be tested for internal consistency. In fact, it is clearly stated in the Plan that agricultural targets are more subject to uncertainty than others and are merely trend targets which might be surpassed in good years and never attained in the bad years.1/ Whether or not the the specified targets can be achieved will depend upon the size of the government schemes and programmes for provision of material inputs, improvement of efficiency, provision of economic incentives and the institutional changes provided in the Plan and how efficiently these schemes are implemented. These will be examined in detail later.

The agricultural production targets were set up crop by crop for the country as a whole and yet, according to S.R. Sen:

1/ Ibid., p.21.

"The very first step in target setting in agriculture is to divide the country into a few relatively homogeneous agricultural regions ..... The next step is to prepare a balance sheet of land-utilisation .... The next important exercise would be to decide upon the crop pattern and to set targets for individual agricultural products."1/

This approach seems to be necessary given the variability in agricultural production due to differences in soil types, climatic conditions and the socio-economic factors. S.R. Sen has further proposed that another possible approach may be to set production targets from the village upwards arguing that even if "only a small proportion of villages prepare local plans, this should give a valuable indication of the expectations and felt needs of the farmers".2/

In Uganda a village would seem to be too small a unit, a county or a district, may be the better starting unit of regional planning.

1/ Sen, S.R. The Strategy for Agricultural Development. Asia Publishing House, London 1966, pp. 66-67.

2/ ibid., p.74.

This lack of relating the overall crop production targets to what can be achieved at the county or district level has led to the setting up of production targets which cannot be achieved. The production target of 575,000 bales of cotton by 1971 is neither based on acreage targets for the districts concerned nor on specified productivity increase. The only policy instrument for the attainment of the cotton production target besides the mechanization and group farms programme is the subsidy on cotton spraying insecticide which we shall discuss later. Other aspects or agricultural sector targets have been discussed under the formulation of agricultural development strategy in chapter three.

3. Resource Allocation.

Compared with the previous plans, the Government development expenditure allocation of £26.47 million or 24.9 per cent. to the agricultural sector (Table VII-2p) shows the considerable emphasis which was placed on the sector. In the first Five-Year Development Plan only £7.7 million or 18.8 per cent. of the Government development expenditure was allocated to the sector (see Table VI-1, p.330)

In the Five-Year Capital Development Plan, the allocation to the sector was £1.68 million or 4.7 per cent. (see Table V-3 p.150) and in the revised Worthington Plan some £5.70 million or 9.6 per cent. was allocated to the agricultural sector (see Table IV-3 p.219) The share of the allocation for crop agriculture has varied between 4.1 per cent. in the revised "Worthington Plan", 11 per cent. in the First Five-Year Development Plan and 18.2 per cent. in the Second Five-Year Development Plan, a tremendous increase reflecting the importance of the agricultural sector as a major spearhead.

Table VII-5 shows the allocation of the Government development expenditure among the agricultural schemes which according to the Plan fall under four major groups namely: capital formation and mechanisation; auxiliary services; education and, crop programme.

(a) Capital Formation and Mechanisation

The schemes under the capital formation and mechanisation group include group farms, tractor hire services and irrigation.

These schemes were allocated some £8.79 million or 29.5 per cent. of the total allocation to agriculture, this compared with about 12 per cent. allocation in the first Five-Year Development Plan 1961/62-1965/66 is substantial, although it is a much smaller percentage than the actual development expenditure on these schemes which accounted for over 47.5 per cent. during the first five-year plan.

This enormous planned expenditure on the capital formation and mechanisation schemes was justified on the grounds that:

> "The institution of tractor-hire service has enabled farmers with as little as two acres under cultivation to use modern equipment. The establishment of group farms has made possible the introduction of mechanised agriculture in the peasant sector", adding that "Group farms are, therefore, a most important means of carrying out the necessary structural changes in the agricultural sector and, as such, the creation of new group farms is one of the most important projects of this Plan".1/

1/ 'Work for Progress' op. cit., p.58.

Hence, it was planned to set up at least a hundred new group farms and to increase the number of tractors by 1250 of which 450 would be stationed at the tractor-hire service stations and the remaining 800 tractors on group farms. The tractors stationed on the group farms would also be available for hiring to the nearby farmers.

The planned expansion both for the tractor-hire services and group farms seem to ignore the causes of the failure of these schemes during the First Five-Year Development Plan period, the main reason being that the performance and final results of these schemes in the first Five-Year Development Plan were not available during the preparation of the Second Plan. But even the little information that was available was not fully taken into account when the final political decisions were being taken. The recommendations of the Working Parties based on the analysis of the information available at the time were against further expansion of these schemes and in favour of a period of consolidation, evaluation and proper planning.

From the analysis of the performance of these schemes which was presented in Chapter VI it seems clear that the planned expansion of these schemes as contained in the Second Five-Year Plan was not justified on economic grounds.

As regards mechanical cultivation, Table VI-7 p. 349 shows the expansion in terms of numbers of tractors and total acreage cultivated. The number of tractors jumped from 146 in 1963 to 394 in 1964 but the average hours worked per tractor decreased to about one half. Table VI-9 p. 352 shows the average costs of operation for 201 tractors used in the tractor hire service and for 78 tractors used on group farms for 1964. The figures show that the running costs far exceeded the revenue earned per hour and the total costs of operation are more than double the average revenue per hour worked. The average hours worked per tractor per year were 390 for tractor hire service and 395 for group farms and of the hours worked slightly more than one-half were revenue-earning. With such a low level of tractor utilization, it was vital to consolidate the mechanisation programme by improving both the administrative and operational methods in order to make the scheme breakeven.

The Working Party recommendations were on similar lines.

As for the group farms it was stated in the Plan that they "were initially faced with several difficulties" hopefully adding that "what stands out is not so much the difficulties but both the rapidity with which many of these have been overcome and the record yields achieved".1/ This is because the second Five-Year Development Plan was prepared during the period when the enthusiasm was very high and applications to establish group farms were pouring in from every corner of the country mainly as a result of local political desires. From Table VI-12 p. it can be seen that this was the period when group farms increased from 3 in 1963 to 19 in 1964 and 32 in 1965 and to a maximum of 43 in 1966. The expansion was so great that there was no time for proper analysis of the performance of the group farms before the final decision on expansion was taken.

Nonetheless, by the end of 1964 the social and administrative problems which had been anticipated had started to appear.

1/ ibid., p.58.

Some people were wary and sceptical about the Government's intention and others wondered whether the group farms were not a means of taking away their land. Some of the farmers who joined the group farms were unwilling to sign agreements and in general farmers failed to develop a stable relationship to the group farms and the management of their plots on them. In fact, as early as 1964, some farmers failed to pick their cotton on the group farms mainly because of their commitments at their original homesteads. The failure to establish permanent homes at the group farms made it difficult for many farmers to make money with the resultant high per centage of turn over.1/ This also led to a high proportion of farmers failing to repay the loans. The group farms scheme being highly capital intensive and using a large proportion of expatriate staff needed a more efficient operation and a relatively intensive system of farming to succeed. Such a system in turn required farmers of above average ability and efficiency who could neither be found nor easily moved from their original homesteads.

1/ For a full discussion see S.R. Charsley, "The Profitability of a Group Farm" M.I.S.R. Conference Papers, 1967.

Moreover the removal of such progressive farmers from the general farming community to group farms could lead to a general deterioration in farming standards and a reduction in agricultural output due to lack of demonstration effect. Besides, the original assumptions about the utilization of tractors at the rate of 100 acres of cultivation or 1000 hours work per tractor per year in order to breakeven had not been attained. The initial difficulties, therefore, had not been overcome and the Plan emphasis on the group farms was misplaced.

(b) Auxiliary Services.

Among the auxiliary services for which considerable expansion was planned in order to assist the farmers in improving their productivity and incomes were the provision of credit, extension services, and the supply of good quality seeds. It was hoped that:

> "If these three aids can be brought to bear on the problems of the small farmer in a co-ordinated fashion, they can produce quite cheaply a revolution in agricultural productivity that will have far-reaching effects throughout the economy".1/

1/ 'Work for Progress' op. cit., p.60.

For these 'crucial services' a sum of £1.38 million or 7. per cent. of the development expenditure on agriculture was allocated in addition to the recurrent expenditure which for agricultural sector was 6 per cent. of the total recurrent expenditure for the 1961/62-1965/66 period. (See Table VI-19 p.394). This allocation hardly reflects the importance of the services.

In the Plan it is stated that by 1971 over 150,000 farmers should be in receipt of short-term loans worth Shs.200/- to Shs.300/- each for purchasing simple equipment, fertilizers, insecticides and the hiring of tractors and labour. Some 5,000 farmers should receive medium-term loans worth Shs. 2,000/- each repayable over two years. The short and medium-term loans would be administered by the co-operative loan societies. There is also a provision for 4,500 larger-scale farmers to get longer-term loans worth Shs.5,000/- each repayable over a period of several years. For the longer-term loans, detailed farm plans would have to be drawn up before such a loan is obtained.1/

1/ ibid., p.61.

The shortcomings of the planned expansion of the credit schemes have been analysed by Diana 1/ in her thesis and these centre mainly on the failure of the planners to use the experience and lessons learnt through the failure of the earlier schemes such as the co-operative credit scheme and the Progressive Farmers Loans Scheme which was suspended in 1964 because of excessive number of defaulters. The shortcomings of these schemes have been discussed in chapter six under agricultural credit schemes. In spite of these shortcomings no measures were proposed for improving the utilisation of credit especially on such schemes as the group farms.

As regards the extension services, it was envisaged in the Plan that the ratio of one extension worker to every 2,000 farmers should be improved to one worker to every 1,000-1,500 farmers by the end of the Plan period. The emphasis was to be placed on the production of diplomates with three-years' specialized training after School Certificate. It is not clear whether diplomates are better extension workers than certificate holders given the factor that effective extension service depends as much on proper training as on

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1/ Hunt, D. <u>op. cit.</u>

establishing a good relationship with the farmers. This policy decision was neither related to the work load nor expected returns and was not based on a thorough economic evaluation. Unless the diplomates are more efficient, the switch might tend to increase the recurrent budget more than the effectiveness of the service and its impact on agricultural production.

The Plan has a provision of £10,000 to establish a 1,000 acre seed multiplication unit devoted to increasing the supply of high-yielding sorghum, groundnuts, bean and maize seeds. Seed multiplication is necessary in order to utilise the foundation stocks of improved seed varieties which have been developed by the plant breeders. Given the potential benefits in terms of increased high quality seed production, the seed multiplication scheme should have been allocated more resources than a mere £10,000 or about 0.19 per cent. of the planned development expenditure on agriculture. The scheme evaluation has indicated that at 12 per cent. discount rate, the benefit/cost ratio is 1.4:1.

(c) Education

The need for expanding agricultural education has long been recognised. In the Second Five-Year Development Plan four main fields of agricultural education namely the training of agricultural and veterinary diplomates and certificate students; the training of similar workers for the co-operative services; the provision of short courses for farmers and the provision of post-primary agricultural education in farm schools were to be expanded. For this agricultural education some £1.32 million or 6.71 per cent. of the planned development expenditure for agriculture was allocated to education. (see Table VII-3, p.410) Although the Plan allocation in absolute value is more that £727,000 allocated to education in the First Five-Year Development Plan, its proportionate share has decreased from 16.3 to 6.7 per cent. (see Table VI-3. p.337) This planned expansion was not based on explicit staff requirements for the various projects in the Plan and seems to have ignored the vacancy position as of July 1966 (Table VI-6. p.344) which shows that out of the total 595 vacant posts, 505 posts were for agricultural assistants, the certificate holders whereas only 68 posts were for assistant agricultural officers who are diplomates. Yet the certificate courses were discontinued as a result of a change in education policy. The financial implications of turning out increased numbers of diplomates and employing them on jobs which could be efficiently done by the certificate holders were not examined and no sufficient provisions were included in the Plan to cover consequential recurrent expenditure. The change in education policy required a concomitant change in job specification in order to utilize the higher skills of the diplomates.

(d) Crop Programme.

The achievement of the agricultural sector target is heavily dependent on the crop programme. In the Second Five-Year Development Plan the programme for the major crops namely cotton, coffee, tea,[7] sugar, groundnuts, tobacco, cocoa, sisal and citrus amounted to £10.62 million or 54.1 per cent. of the planned development expenditure on agriculture (see Table VII-3. p.410). The main emphasis was placed on sugar, coffee, cotton, tea, groundnuts and tobacco with allocations ranging from 20.4 per cent. of the development expenditure on agriculture for sugar to 2.5 per cent. for tobacco.

The coffee programme included improvement of the quality and reduction of the acreage of Robusta coffee and the expansion of acreage and control of disease, pests and fungi on Arabica coffee. No indication is given as to how the £2.2 million allocated to the coffee programme would be used to bring about acreage increases for Arabica coffee and the reduction of the Robusta coffee acreage. As the switch from Robusta to Arabica entails heavy expenditure and a period of waiting of at least three years, farmers would be reluctant unless offered sufficient inducement in addition to credit facilities. An explicit statement on such measures is missing in the coffee programme. The Working Party, however, made recommendations[1] for reducing the Robusta coffee acreage through a diversification programme supported by credit facilities and increased extension staff and quality improvement through expansion of wet processing, subsidized drying trays and a payment of quality premia and penalties on rough-hulled coffee.

1/ Uganda Government: Second Five-Year Plan 1966/67-1970/71, Supplement of Projects, Government Printer, October 1966, pp.35-49.

It also made recommendations on increasing Arabica coffee production in Bugisu and Sebei through the continuation of spraying against antestia, supply of rust resistant variety and the establishment of Arabica Coffee Research Station: Recommendations on acreage expansion and a package credit programme were also made for Arabica Coffee expansion in the Western Region.

These must have been the recommendations on which the coffee programme in the Plan was based. Yet, the "Supplement of Projects" shows that only two schemes for coffee development are included. These are coffee development in the Western Region and the Arabica Coffee Research Station. The total value of these schemes over the Plan period is expected to be £210,000 as compared to the planned expenditure of £8.2 million on coffee programme.1/

Similarly the programme for expanding cotton production is based on the control of pests, the use of fertilizers, the introduction of higher-yielding varieties and the adoption of more modern cultivation techniques.

1/ Uganda Government: Second Five-Year Plan 1966/67-1970/71, Supplement of Projects, Government Printer, Entebbe 1969. pp.48-49.

The Plan does not specify how the allocation of £1.7 million to the cotton programme is to be reallocated to fertilizers, insecticides and other inputs so as to equate the marginal value products of the different inputs.

In fact, the cotton insecticide subsidy scheme is estimated to take nearly £2.1 million during the plan period compared with the planned expenditure of £1.7 million for the whole cotton programme.1/

The planned programme for groundnuts involves increasing acreages, increasing yields and constructing grading units. The increases in yields would be achieved through the use of fertilisers, by controlling diseases and by improving crop husbandry techniques. Again, no detailed information is given as regards the utilisation of £700,000 allocated to the groundnuts programme. And the only item included in the "Supplement of Projects" is a provision for about £202,000 for loans to Co-operatives for the purchase of grading units. Although these units would improve the quality of groundnuts, they would not lead to increase in production which is the main objective of the Plan.

1/ ibid., p.47.

Suitable measures for bringing about increase in production are unfortunately, missing.1/ This lack of precise and detailed crop programmes is common to all the crops mentioned in the whole crop programme. The crop programme through its lack of detailed investment and production plan for each particular crop failed to indicate whether or not the production targets for each crop could be attained.

4. <u>Agricultural Policies and Institutions.</u>

The agricultural sector plan like the whole Second Five-Year Development Plan is lacking in one of the major elements of comprehensive planning namely implementation procedures and policy instruments. Authorities on agricultural development are in general agreement about the vital part played by policy measures in accelerating the rate of agricultural progress. According to W. A. Lewis, the absence of a vigorous agricultural policy has been singled out as the common cause of a low rate of economic growth.2/

1/ <u>ibid.</u>, p.52.

2/ Lewis, W.A. <u>Development Planning</u>, George Allen & Unwin Ltd., London 1966, p.270.

While S.R. Sen has asserted that:

> "In agricultural development policies (and indirect inputs) are as important as the quantum and pattern of investment (or direct inputs)."1/

Table VII-3 gives the size and pattern of government expenditure on agriculture but does not indicate what the private sector will invest. Yet, the achievement of agricultural production targets depends on the decisions taken by a large number of individual farmers. Hence a comprehensive agricultural policy must contain measures of inducement, incentive, organisation and advice designed to solicit the co-operation of the farmers so that they may do what needs doing to raise the rate of economic growth. According to the Plan, the rapid advance in the agricultural sector is to be achieved through considerable diversification and structural change besides overall expansion of agricultural output. The diversification programme would be concerned with increasing the output of other crops and animal products and that every farmer in the country would be encouraged to grow at least one cash crop.

1/ Sen, S.R. Op. cit., p.63.

For this, a Produce Marketing Board has been established to ensure market outlets for the farmers' produce. Although the Produce Marketing Board has been established, no detailed marketing channels have been established for all crops and even if such channels are established, it is not at all clear that farmers would diversify their production in the absence of other facilities such as production credit, price incentives and improved extension service.

Although the need for increased productivity through the use of fertilisers and weed killers and the adoption of new and improved techniques of crop and animal husbandry was stressed in the Plan, it was pointed out that the major problem was to persuade the farmers to adopt these new methods. To overcome this problem it was suggested that considerable emphasis was being placed on the expansion of extension services and agricultural and veterinary education.1/ Neither of these measures would result in increased productivity in the short-run. Other measures such as credit facilities, subsidy schemes

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1/ "Work for Progress" op. cit., p.56.

and price fixing policies should have been co-ordinated so as to encourage the use of fertilizers and weed killers on crops which benefit from such treatment. Here was a need for providing incentives rather than 'helping' farmers in some undefined way to make use of new methods.

It was recognised that:

> "ultimately the responsibility for developing agriculture, and thus the whole economy, will rest on the individual farmer".1/

Therefore; the agricultural policy measures should have been designed in such a way as to have the maximum impact on the proximate factors which depend upon the decisions made by individual farmers. These factors include technological innovations such as the adoption of new techniques and use of improved seeds; managerial innovations such as shifting from low to high value crops and increased inputs of all other factors of production. A combination of suitable pricing and taxation policies is needed to give the necessary fiscal incentives.

1/ ibid., p.56.

These and other policy measures have been discussed in chapter two.

One of the major agricultural objective besides accelerating the rate of increase of total production, is to diversify agricultural production so as to lessen the economy's dependence on Robusta coffee and cotton. The pattern of crop and livestock development, therefore, had to reflect these major objectives. Unfortunately, the planned pattern of Government development expenditure and the pattern of crop and livestock development do not reflect the required emphasis on diversification. The total allocation to animal industry of £5.1 million or 20.6 per cent. of the total Government development expenditure on agriculture and animal industry is insufficient for what was called "the most important part of the diversification programme for agriculture in the Plan".1/

The pattern of crop development assumes large increase in the acreages under crops such as tea, sugar, tobacco, Arabica coffee and a reduction in Robusta coffee acreage.

1/ ibid., p.56.

This proposed pattern was supposed to result in a relative change in the value at current prices of the crops concerned.1/

To achieve the desired pattern of crop development would require the provision of credit for capital development and for buying tobacco seedlings and sugarcane and tea stumps. It is not clear from the credit programme just how much was earmarked for the development of these crops and how many acres would be involved. As regards Robusta coffee, the emphasis was on improving the quality and yet in the Plan unlike the First Five-Year Development Plan, no detailed agricultural equipment subsidy schemes are given and without the better equipment, the quality of coffee cannot be improved. No details of the proposed credit fund for the production of alternative crops to be tied to the uprooting of an equivalent acreage of Robusta coffee has been given. Similarly, the proposal for the expansion of Arabica coffee acreage leaves one wondering as to where the 10,000 acres a year would be planted and where the seedlings would come from. The "Supplement of Projects" does not contain enough provisions for these schemes.

1/ The forecast and target value of cash crops producted in 1965 and 1971 are given in Table 19, '<u>Work for Progress</u>' <u>ibid.</u>, p.57.

The cotton and coffee expansion programmes left out fiscal and price policies which would have played important roles as incentives for cotton production and disincentive for Robusta coffee expansion. As things stood, the prices for the various grades of Arabica coffee were at the same level in August 1966 as they were at the end of 1959 and the Robusta 'Kiboko' prices remained at the same level as in May 1965.1/ No price incentive was offered to farmers to induce them to shift from robusta to arabica coffee production. The seed cotton price to growers at 60 cents per lb. during the 1965/66 season involved a subsidy of about 20 cents per lb. and a total subsidy of £3.97 million which practically exhausted the price assistance fund. If export duty amounting to £1.84 million is taken in consideration, the net subsidy to farmers amounted to £2.13 million. The consequence of such a high price was the disruption of the marketing arrangements through the inability of the cooperatives unions and societies to pay cash to growers when cotton was delivered.

1/ Uganda Government Report of the Committee of Inquiry into the Coffee Industry 1967 Government Printer, Entebbe, 1967, p.51.

These difficulties had a discouraging effect on cotton production. The situation was aggravated in the following season when the price, to growers for first quality seed cotton was reduced from 60 cents to 40 cents per pound. Yet in order to achieve the substantial increase in cotton production "on which the whole success of the Plan depends" it is necessary to ensure that the tractor hire service, the group farming schemes, the cotton spraying, the fertilizer application and the adoption of modern cultivation techniques programmes are carried out well. The execution of these schemes requires money on the part of the farmers, the amount of which partly depends on the price of seed cotton. In this respect, it has been argued that the strategy of the Second Plan might have been better forwarded and Government revenue maintained by reducing the export duty on cotton in order to maintain a higher price, and raising the export duty on coffee to maintain the Government revenue.1/ Even if it was thought unadvisable to reduce the export duty on cotton,

1/ For further details see Belshaw, D.G.R., "The Level of Incentives: A Factor Limiting Agricultural Production in Uganda." A paper read at the Annual Conference of the Uganda Agricultural Association, 1963, and "Price and Marketing Policy for Uganda's Export Crops" in East African Journal of Rural Development, Vol.1, No.2, 1968.

the adverse effects of the pricing policies would have been minimised had the abrupt changes in cotton prices both upwards and downwards been avoided.

Unlike the previous plans, the Second Plan makes no provision for agricultural research and yet for rapid agricultural development, it is imperative that extension, education and research activities should be coordinated. The value of agricultural research and its contribution to the economy are enhanced by good planning and realistic development policies. Continuity of policy is also important for research cannot function properly in a situation where policies and priorities are frequently changed. Thus the lack of agricultural research policies to indicate development priorities is a major weakness of the Plan.

Another weakness of the Plan is its lack of land reform policies. Although the present system of land tenure have not been severe limitations to agricultural progress nevertheless, since considerable diversification and structural change were considered necessary for rapid agricultural progress, suitable land reform policies would have given the incentive and security so vital for agricultural development and especially livestock development.

According to Professor P.G. Clark "a comprehensive plan would place greater emphasis on implementation procedures, and particularly on policy instruments designed to induce private actions in accordance with the plan"1/ and added that "the new plans in East Africa are perhaps less advanced in their use of economic policy instruments to guide plan implementation".2/ I have already discussed the inadequacy and lack of agricultural policies which make the attainment of the plan objectives unlikely. Also due to the influence of ecology, customs, social factors, different crops and the various systems of agriculture, regional planning is essential for agricultural development. This in terms of implementation means that the agricultural plan should be broken down into regional or district plans to show what each district is supposed and should do. The planning on the district level can serve as a functional unit which coordinates the developments on the farm level with the national policies. There is no indication in the Second Five-Year Development Plan as to how the plan will be

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1/ Clark, P.G. op. cit., p.2.

2/ ibid., p.10. The new plans include the Second Five-Year Development Plan in Uganda.

implemented on the farm level so as to achieve the stated crop targets. Second Five-Year Development Plan in contrast with the First Five-Year Development Plan where both capital and recurrent expenditure necessary to implement each project was broken down over the plan period, no such break down is given. Even in the "Supplement to Projects" recurrent expenditure estimates are given for only a few projects. In any case, the number of identified projects falls far below the investment target which means that during the period of implementation the process of re-evaluation of existing projects and identification and evaluation of new projects must go on vigorously if the planned targets for investment have to be achieved. This is all the more necessary since the agricultural sector plan was written before all projects has been evaluated and properly written up. The problems of project evaluation which stem from the use of unreliable data and the difficulty of obtaining cost/benefit ratios, rates of return on capital/output ratios or estimates of financial profitability ratios which can be reliably used to compare various agricultural projects, have been discussed elsewhere.1/ Inspite of these weaknesses, project evaluation would have led to a close scrutiny of the projects which in turn might lead to changing various aspects such as the size of the project, the ratio of one input to another, the phasing of the project and the implementation procedures.

In conclusion, it can be said with justification that although the Second Five-Year Development Plan was supposed to be more comprehensive than the previous plans, the agricultural sector plan showed major weaknesses in the following elements of comprehensive planning namely in the lack of co-ordination with activities in all other sectors, in the selection and evaluation of individual development projects, in the lack of precise implementation measures and in the general lack of vigorous agricultural policy instruments to guide, stimulate and direct private activities towards the achievement of rapid agricultural development. But compared with the previous plans, the Second Five-Year Development Plan represents tremendous improvement in the planning processes.

1/ For further discussion see Nyakaana, L.M.A. and Stanton, D. "Agricultural Planning in Uganda" Helleiner, G.K. (Ed.) Agricultural Planning in East Africa. East African Publishing House, Nairobi, 1968, p.50.

CHAPTER VIII

REVIEW AND CONCLUSIONS

Evolution of Agricultural Planning

In the preceding seven chapters of this thesis an attempt has been made to cover the main elements of agricultural development planning and policy in Uganda and to highlight the major factors that have affected the rate of agricultural development. In the first chapter the history of Uganda's development, the main characteristics of the economy and the role of agriculture in the economic development of the country have been discussed. In the second chapter, the factors that have affected the rate of agricultural development have been reviewed and in the third elements of agricultural planning and investment criteria have been discussed.

Each chapter from the fourth to the seventh is a case study of a specific planning period and contains a detailed study of the objectives, strategy, resource allocation and agricultural development projects and policies. A brief review of these chapters indicates the evolution and progress of agricultural planning and policies in Uganda to make it possible to draw conclusions and to suggest some improvements.

Using the main elements of comprehensive agricultural planning as the basis for the review, it becomes clear that the only plan which includes most of the elements, albeit incomplete, is the Second Five-Year Development Plan (1966-1971). These elements have been discussed in chapter three and they include the formulation of general sectoral objectives; analysis and determination of resource endowment; formulation of agricultural development strategy; selection and evaluation of investment programmes and projects; compilation of the agricultural sector plan and formulation of the implementation measures.

The Worthington-Development Plan for Uganda (1947-1956) and the 1948 Revision of the Plan as has been indicated in chapter four was not a comprehensive plan but merely a collection of projects for public expenditure. Some of the projects were either suggested by the various government departments or were included in the joint report of the Standing Finance Committee and the Development and Welfare Committee which Dr. Worthington revised. So, in terms of methodology of planning, the Worthington Plan is very crude though it represents a step in the right direction.

The projects were either formulated by technical staff in the technical departments such as agriculture or administrators in the non-technical departments. Dr. Worthington himself was not an economist but a distinguished natural scientist. Hence, the Plan was neither based on sound economic analysis nor on an accepted model for economic development. In any case, suitable development models had not been devised at the time and no organization for development planning existed locally.

The main objective of the Plan was an increase in total production at a higher rate than the increase in population and the general strategy for achieving this objective was through concentration on productive investments and provision of infrastructure to stimulate private enterprise. And for agriculture the achievement of this objective would mean provision of adequate and nutritious food and encouraging maximum production of crops and raw materials for local industry.

Yet the Plan lacked both projects and policies necessary for bringing about the required maximum production of export and food crops. In fact, the Plan contained no agricultural sector plan and Worthington states that:

"Before detailed plans for agricultural development can be prepared, an extensive agricultural survey is needed.------"1/

The absence of agricultural surveys might explain the lack of analysis and determination of resource endowment but does not explain the absence of almost all elements of comprehensive agricultural planning such as explicit sectoral objectives, strategy, evaluated projects and appropriate agricultural policies.

If the constraints to increased agricultural production had been properly identified to be the system of agriculture inherited from the past and the low capacity of the African population for hard work and their lack of desire for economic and social advancement. Then, the strategy, projects and policies for agricultural development should have aimed at changing or improving the system of agriculture and lifting the population to high social and economic levels. But the constraints were not properly identified and the agricultural policy instruments such as price fixing and taxation measures that were proposed were used wrongly and their effect on production must have been negative.

1/ Uganda Government: A Development Plan for Uganda and the 1948 Revision of the Plan. Op. cit., p.20.

In chapter two the staggering amounts taken from the farmers through export duties and price assistance funds have been given. For example, during the plan period (1947-1955) some £39.8 million were taken in export taxes mainly on cotton and coffee. And during the period 1945/46 to 1954/55 the cotton growers were paid some £81.2 million or 42.3 per cent of the export value of their cotton lint, seed and oil. In fact, during the 1950/51 crop year, the cotton growers were paid only 35 per cent. of the export value. 1/ This denied the farmers the very necessary cash incomes for purchasing agricultural implements, fertilizers, improved seeds and hiring labour and thus the means for uplifting their economic and social levels. Yet in return, the farmers were offered neither credit nor subsidies for capital development. Given the objective of encouraging maximum production of both export and food crops, the strategy and policy instruments should have been designed in such a way as to offer sufficient incentives to induce the farmers to make the necessary decisions and to work hard.

1/ Uganda Government: Economic Policy in Uganda, op. cit., p.51.

The Worthington Plan lacked also implementation measures and organizational set up necessary for proper co-ordination. There were no regional or district plans and no well established central organization for supervising the plan implementation. A Development Commissioner was appointed in 1947 and a development section established in the Secretariat. The main functions of the Development Commissioner were to review, stimulate and coordinate development projects and measures. Unfortunately, between 1947 when the first development Commissioner was appointed and early in 1953 when the post was allowed to lapse, there had been three personnel changes which meant lack of continuity.

The Five-Year Capital Development Plan (1955-1960) was not comprehensive and unlike the Worthington Plan, it concentrated on public capital expenditure. But in terms of agricultural planning, the Plan, through its supplement the Report of the Agricultural Productivity Committee, represents a major improvement in the methodology. The report contained agricultural development strategy and objectives; analysis and determination of resource endowment and past production trends and land use as well as projects and policies.

The only elements of comprehensive agricultural planning missing are the selection and evaluation of the investment programmes and projects and the compilation of such projects into a consistent agricultural sector plan and implementation measures. There were also no specific production targets.

The constraints were properly identified as lack of finance and staff at the government level and lack of incentives, traditional influences, land tenure, paucity of rural savings and disease and malnutrition at the farm level. The suggested projects, crops and policies as has been indicated in chapter five were designed to overcome these limiting factors and bring about increased agricultural productivity through the introduction of better farming methods, increased agricultural skills and efficient allocation of capital resources.

The machinery for planning had not changed much except the Development Council had replaced the Standing Finance Committee and the Development and Welfare Committee. The post of Development Commissioner had disappeared in 1953 and that of an Economic Adviser attached to the Ministry of Finance was not created until July 1956.

As can be inferred from the composition of the Agricultural Productivity Committee the agricultural plan was largely based on technical and administrative considerations. Some economic analysis was introduced through the assistance given to the Committee by two economists, namely, Mr. (now Professor) J.L. Joy then at Makerere College and Mr. E.H. Jones then in the Department of Agriculture. The work of the Economic Development Committee which was first appointed in 1958 supplemented these efforts though the lack of general economic planning remained.

The proposed schemes in the Plan for education, extension and research though desirable in the long run as conditioning factors left the constraints at the farm level such as incentives, credit, lack of cash incomes and disease and malnutrition unattended. In fact under the proposals deferred were[1] those for loans and subsidies, fortunately these were for mechanical cultivation, which as has been demonstrated in chapter five, was already heavily subsidized. There was, however, need for credit for other enterprises and to enable the farmers to adopt new techniques of farming.

Although a decision had been taken in 1953 to fix the prices paid to the coffee and cotton growers to the world market equivalent, there was no justification for letting the robusta coffee prices drop from Shs.1/25 lb. of 'Kiboko' in January 1955 to -/50 cents in December 1960 and the seed cotton prices from the average of Shs.58.81 per 100 lbs. in 1954/55 season to Shs.44.81 per 100 lb. in the 1959/60 season. The Cotton Price Assistance Fund stood at about £21 million in June 1959 and £5 million had been transferred to the Capital Develpment Budget from the fund in 1957. In addition to the accumulation of funds in the price assistance funds, there were large sums taken away from the farmers in the form of export taxes. For the period 1955/56 to 1959/60, these taxes amounted to £27.7 million. Yet the farmers incomes from coffee, cotton and tobacco decreased from £27.8 million in 1955 to £24.2 million in 1960, a decrease of £3.6 million or 12.9 per cent. This decrease in farmers' income could have been cushioned by the price assistance funds which were established for the purpose.

The First Five-Year Development Plan (1961/62-1965/66) was the first major effort at comprehensive planning embracing public, parastatal and private sectors of the economy.

Like the Worthington Plan, its main emphasis was on productive activities in order to maximize increase in gross domestic product. The strategy for agricultural development was designed to bring about increased agricultural productivity through prudent combination of scarce resources of skilled manpower and capital with the relatively abundant resources of land and labour. The agricultural policy, therefore, was aimed at improving management by the provision of new skills and institutions in addition to capital.

The Plan's objectives and strategy were explicitly stated and the constraints were properly identified. This was because unlike the earlier plans, the First Five-Year Development Plan (1961/62-1965/66) was based on a comprehensive study of the economy by a group of experts consisting of three economists, one agricultural economist, five advisers on health, 4/ industry, transport, agriculture and education respectively. This group constituted the World Bank Survey Mission on whose report the Plan was based. The World Bank Mission was fairly comprehensive in its formulation of sectoral objectives and strategy, analysis and determination of resource endowment, compilation of the sector plan and the formulation of implementation and policy measures.

The only element which is conspicuously missing is the evaluation of the suggested investment programmes and projects. The production targets were not related to the investment targets and no estimate of private investment was given. There was also lack of proper manpower planning. Unlike earlier development plans whose main weakness, according to the World Bank Mission was the lack of machinery at the centre to assess the relative priorities of proposals for public development expenditures, to tap external sources of funds and to consider possible changes in public policy needed to stimulate the private sector of the economy; the required planning machinery was established. This was the Economic Planning and Statistics Division which became the Central Planning Bureau and eventually the Ministry of Planning and Economic Development. The division was short-staffed with only one economic adviser and two economists. It also suffered from lack of continuity at the Ministerial level by its frequent transfer from one ministry to another. Before the change of Government in May, 1962, the division was under the Ministry of Economic Development, this was soon renamed the Ministry of Economic Affairs.

With the re-organization of Ministries, the division was transferred to the Prime Minister's Office in 1963, the to the Ministry of Planning and Community Development in 1964; finally this was redesignated as the Ministry of Planning and Economic Development. The Planning Commission was also established with the responsibility for deciding on the final recommendations to the Cabinet on development policies and plans and for laying down policy directives for the preparation of development plans. All these, however, were not fully operational during the preparation of the First Five-Year Development Plan. The planning effort, however, benefited from the work of the Economic Adviser in the Ministry of Finance and economists in the Department of Agriculture.

The methodology of planning moved to a more sophisticated level in the preparation of the Second Five-Year Development Plan with the introduction of a projection model, quantitative targets and a more elaborate machinery for planning. However, as has been indicated in chapter seven, the agricultural sector plan showed major weakness through lack of co-ordination with other sectors, insufficient selection and evaluation of projects and the absence of precise implementation and policy measures designed to encourage the masses of small farmers.

Impact of Planning on Agricultural Development

It is not easy to give a quantitative assessment of the contribution of planning efforts to agricultural development of Uganda. But to the extent that planning involved considerable forethought with regard to the allocation of the scarce resources and coordination of objective economic analysis with subjective policy measures in order to maximise the attainment of the objectives; planning must have played a useful part. In the previous chapters, an attempt has been made to examine important schemes and policies with a view to assessing the contribution which these made towards the achievement of the objectives of the plans. Such an assessment has not been easy since the effect on production of some policy measures cannot be ascertained before the farmers' response to such policies has been established. This is a formidable task which requires a team of research workers to cover the various crops and policies, preferably at the same time as the new policies are being introduced.

On the other hand, some objectives such as maximum production of crops, diversification and the raising of agrarian productivity cannot be achieved within any one plan period. These involve social and technological changes, besides the long periods of gestation for some tree crops before they bear fruits. The attainment of such objectives can meaningfully be assessed for a perspective plan period or over two or three plan periods. A review of the various agricultural programmes and projects included in the four plans studied will indicate their contribution towards the achievement of the plan objectives.

The main objective of the Worthington Plan that is to cause production to increase at a higher rate that population, meant an accelerated increase in production of both export and food crops. In order to bring about this increase in production, the plan contained provisions for increasing technical staff, tsetse fly control, food storage, testing mechanical implements, market gardening, establishment of a faculty of Agriculture at Makerere and pilot schemes. As has been shown in chapter four, none of these schemes led to the required increase in production in the plan period since most of them except the pilot schemes were of a long-term nature.

Even, the pilot schemes were modified and in fact only covered two small areas in Busoga and Bunyoro districts. The South Busoga scheme was wound up in 1954 with only 750 acres cropped at an accumulated loss of over £.85,000 and the Bunyoro Agricultural Company scheme was abandoned in 1955 when only 66 tenants had been settled and 584 acres were under cultivation. It was reported that three groups of tenants with 171 acres under cultivation were indebted to the company in one year to the tune of Shs.9,959/-. The contribution of these schemes to gross domestic product is very small given the reported low yields and low prices for food crops. The contribution of the mechanical cultivation scheme under which 4,339 acres were ploughed in 1954 is similarly small. The impact on agricultural production of the increase of extension service staff is hard to estimate but given the small number, their coverage must have been small and also their effect on production. Further, the contribution to gross domestic product of other schemes and institutional changes such as the opening of the Empire Cotton Growing Corporation's research station at Namulonge in 1950, the establishment of Co-operative societies and land tenure proposals of 1955 had little or no effect on agricultural production during the plan period. And yet, tremendous agricultural progress took place during the period. An examination of the characteristics of the Uganda economy in chapter one reveals that the monetary gross domestic product, of which export earnings accounted for 51 to 68 per cent, rose from £.21.4 million in 1946 to £.92.8 million in 1954; an increase of £.71.4 million representing a growth rate of 20.1 per cent. per annum. (See Table I-4. p.12) Although there is no breakdown of gross domestic product by industry for the period, the fact that agricultural exports accounted for over 84 to 97 per cent of the total export value indicates that about 50 per cent. of the monetary gross domestic product was derived from the agricultural sector. 4/

The 20.1 per cent. per annum rate of growth for the gross domestic product is in line with and was determined by the rate of growth of export earnings. The agricultural export earnings rose from £.22.8 million in 1949 to £.42.3 million in 1954, an increase of £.19.5 million and a growth rate of 18.6 per cent. per year. (Table I-9. p.34). The main agricultural exports were cotton and coffee.

Cotton production increased from 170,066 bales in 1954/55, an increase of nearly 129,765 bales or 76.3 per cent. Coffee production rose from 26,200 tons in 1947 to a peak of 45,200 tons in 1951 and was 36,400 tons in 1954. The cash incomes to African growers from coffee, cotton and tobacco rose from £.5.1 million in 1946 to £.21.3 million in 1954, an increase of £.16.2 million and growth rate of 19.6 per cent. per annum.

Since, the Worthington Plan had no schemes or policy measures for increasing cotton and coffee production with exception of the cotton seed bulking stations, the production increases must have been due to spontaneous growth attributable to farmers' response to market opportunities and good prices. This shows that the supposed constraint to increased production due to the farmers' lack of desire for economic and social advancement was a misconception.

Similarly, the contention that the prices offered to cotton and coffee growers had to be kept down in order to discourage farmers from diverting their efforts to increasing these crops at the expense of food crops and thereby bring about famine was not valid. It was neither consistent with the general objective of maximising production nor with the need to remove the constraint posed by the assumed inability of the African population for hard work. With a good export market for these crops, it was logical that their production should have been encouraged. The farmer can be assumed to be capable of dividing his time rationally between export and food crops and at peak periods he could either reduce his leisure or work very hard.

In fact, the proportion of acreage under food crops to total acreage was higher in 1954 than in 1945, being 76 and 67 per cent. respectively. In 1945 the acreage under food crops was 4.7 million out the total acreage of nearly 7 million acres and in 1954, the acreage under food crops had increased to 6.6 million and the total area under cultivation was 8.6 million acres (Table II-1. p. 85). Since there was no outbreak of famine, it can be assumed that agriculture fulfilled its role as a supplier of food.

It has been shown that there was a switch of emphasis from productive investments in the Worthington Plan to general social development in the Five-Year Capital Development Plan whose main objective was the improvement of all services. The agricultural objective was the raising of agrarian productivity through the introduction of technically better farming methods and effecient use of the country's resources. The main strategy for agricultural development was based on the improvement approach which the Government could assist by imparting new skills, creating the necessary institutions and widening the economic horizon of the people through education, initiation of new schemes, research and provision of infrastructure.

The agricultural plan laid emphasis on education, research, extension service, mechanical cultivation and financial assistance. Apart from, mechanical cultivation and financial assistance, none of these projects could be expected to increase agricultural production in the short run. The discussion of agricultural extension, education and research in chapter five has indicated that these play a very important role in agricultural development and eventually result in increased agricultural production and productivity and may lead to a rapid acceleration of the rate of growth, nevertheless, their impact on agricultural production in the short-run is limited. They are essentially conditioning factors which must interact with the proximate factors at the farm level to bring about increased agricultural production through technological and managerial innovation and the use of more capital, labour and land. There was a deficiency in the agricultural programme in respect of provision of production incentives through taxation and pricing policies and credit and subsidy schemes. In fact, there was no crop programme and no credit or subsidy schemes for pest control and agricultural implements. The balance, therefore, between long-term and short-term projects in the plan was not suitable for increasing agricultural production in the short-run. Also, the impact on production during the plan period of other agricultural schemes such as mechanical cultivation, Bunyoro Ranching Company, resettlements and the activities of Agricultural Enterprises Ltd. of the Uganda Development Corporation, was small. The effect of mechanical cultivation as has been shown in chapter five was slight, with only about 6,000 acres mechanically cultivated, at a high subsidy, out of the total area under cultivation of over 8 million acres annually.

Yet, inspite of the general decline of prices for the major export crops namely cotton and coffee during the period under review, the agricultural sector remained the main source of food and raw materials and a source of capital and government revenue.

The agricultural contribution to the monetary gross domestic product decreased from £.53.6 million in 1955 to £.49.5 million, a decrease of 7.6 per cent. Its proporationate contribution decreased from 52.4 per cent. in 1955 to 44.7 per cent. in 1960. The monetary gross domestic product itself, increased from £.102.3 million in 1955 to £.110.8 million in 1960, an increase of only £.8.5 million representing a very low rate of growth of 1.6 per cent. per annum. (see Table I-1. p.5)

Agricultural export earnings decreased from £.43.4 million in 1955 to £.39.5 million in 1960, a 9 per cent decrease while the share of total export earnings to gross domestic product decreased from 48.8 per cent in 1955 to 45.6 per cent in 1960. (see Table I-5. p.13).
But the production of export crops increased during the period, for example coffee production increased from 79,800 tons in 1955 to 117,100 tons in 1960, an increase 37,300 tons or 46.7 per cent and cotton production increased by 7,573 bales between 1955/56 and 1960/61 seasons, a small increase of 2.1 per cent.

The farmers incomes from cotton, coffee and tobacco decreased from £.27.8 million in 1955 to £.24.2 million in 1960, a decrease of nearly 13 per cent whereas the government revenue in form of export taxes was hardly affected. The export taxes amounted to £.27.7 million for 1955/56 to 1959/60 compared with £.39.8 million collected between 1947 and June 1955.1/ Because of the reduced farm incomes, the farmers lacked both the incentive and the working capital to increase agricultural production. As a result, there was a very small increase in the estimated area under cultivation from 8.8 million acres in 1955 to 8.5 million acres in 1960.

In the First Five-Year Development Plan (1961/61-1965/66) the general objective was maximum increase in gross domestic product and the development effort was concetrated on the productive activities. The agricultural strategy was designed to render more productive the factors of production by imparting new skills, improving institutions and providing credit and subsidies to the farmers. The major agricultural schemes included in the plan were financial assistance, education, mechanical cultivation, crop development and research. The contribution of these schemes towards the achievement of the main objective of maximum increase in gross domestic product has been appraised in chapter six.

1/ The net income effects of Government taxes and subsidies programmes on cotton and coffee growers for the period 1954-1960 was negative. See I.B.R.D. The Economic Development of Uganda, op. cit., p.159.

It has been shown that the physical contribution of the various programmes and projects has been small due to the limited coverage both in terms of acreage and effect on the farming community.

As has been indicated, it is not possible to quantify the contribution to gross domestic product of public expenditure on education, research and extension. The effectiveness of the extension staff during the plan period was hampered both by the reduction in the numbers of people employed in the Department of Agriculture and the loss of experienced staff. But due to the expanded agricultural education programme, the number of assistant agricultural officer cadre increased from 118 in 1961 to 195 in 1966 while the number for agricultural assistants remained constant. The benefits of this improved technical proficiency was lost through lack of experienced agricultural officers to supervise the new diplomates.

The total area cultivated mechanically increased from 8,000 acres in 1961 to over 104,000 acres in 1966 but compared with the increase in total area under cultivation of over 2.1 million acres, mechanical cultivation accounts for only 4.6 per cent of the increased and 0.9 per cent of the cultivated acreage in 1966. The effect of mechanical cultivation on the overall agricultural production through acreage increase must have been very slight. Again, during the period, the subsidy on mechanical cultivation increased as has been shown in Table VI-8. p.351). The difference between costs of operation and revenue earned per hour increased from Shs.14.76 in 1961 to Shs.17.71 in 1966. This high rate of subsidy was neither justified by increased yields nor by increased acreage.

Similarly, the effect of cotton spraying although profitable both to the farmer and the economy as a whole, if properly done, has been small given the number of tins distributed. In 1966, only 98,000 tins were distributed which would ideally cover the same number of acres out of a total cotton acreage of over 2 million acres. And compared with the World Bank Mission target of at least 200,000 acres to be sprayed in 1965/66 season, the scheme was far off the target. Similarly, other agricultural schemes such as the agricultural equipment subsidy and the agricultural credit had little influence on agricultural production because of their limited coverage.

The agricultural sector, however, remained the mainstay of the economy. The agricultural contribution to monetary gross domestic product increased from £.48.7 million in 1961 to £.67.0 million in 1966, an increase of £.18.5 million and a growth rate of 6.6 per cent per annum. The total monetary gross domestic product, increased from £.111.2 million in 1961 to £.168. million in 1966, a growth rate of 7.2 per cent per annum. The proportionate contribution of agriculture decreased from 43.8 per cent to 39.9 per cent during the period. (Table I-1. p.5)

The farmers' cash incomes from cotton, coffee and tobacco increased from £.22.5 million in 1961 to £.36.8 million in 1966, an increase of £.14.3 million and a growth rate of 10.3 per cent. per annum. In case of cotton, the farmers' were supported by a withdrawal of £.13.4 million from the Price Assistance Fund. There was also production increase, cotton by 19.1 per cent between 1962/63 and 1966/67 and coffee by nearly 38 per cent between 1962 and 1966.

The contribution of the agricultural sector towards government revenue in form of export taxes amounted to £.27.6 million slightly less that during the 1955/56 to 1959/60 period. And without increases in the price assistance funds, the total deductions from the cotton and coffee growers was much less than the previous period although it represented a net capital outflow. Again, in the absence of serious famine, it can be assumed that the agricultural sector met the domestic requirements for food. The area under food crops increased from 7.2 million acres in 1961, to nearly 9 million and the proportion of food crop acreage to total area under cultivation increased from 73.1 per cent in 1961 to 74.8 per cent in 1966.

One is bound to conclude that the main contribution of governmental planning effort to agricultural development is not through the direct contribution of the various development projects per se but rather through the indirect benefits associated with the undertaking of those projects. Although Government projects offer employment opportunities, lead to increased export earnings, encourage social and technological changes, increase the rate of transformation to the market economy and through the multiplier effect increase the gross domestic product by more than the amount of the investment in the projects themselves this contribution is relatively small. In general, the main government contribution to agricultural development lies in the provision of extension, education, research and infrastructure such as feeder roads and marketing facilities, imparting new skills, widening the economic horizon and offering incentives designed to stimulate private enterprise in order to take full advantage of the market opportunities.

Conclusions and Implications for Policy.

The case studies of the planning periods in chapters four to seven have revealed that agricultural sector planning is still deficient in some elements of comprehensive planning. The main elements were discussed in chapter three and in this section, only the important short-comings and necessary improvements will be discussed. It has already been observed that sectoral objectives have been stated in general terms. The sectoral objectives should be explicitly stated and consistent with the overal plan objectives. They should be feasible and mutually consistent, for example the objective of raising agricultural production must be compatible with the diversification and structural change objectives. This might entail the introduction of new crops to be phased in such a way that the production of existing crops is not hampered. There is also a need for establishing some order of priority for the various objectives. A suitable balance should be established between the short term objectives to be achieved during the plan period and the perspective

objectives to be achieved in two to three plan periods.
The objectives should be translated in quantitative investment and output targets, scheme by scheme and commodity by commodity.

Another important aspect of agricultural planning is the analysis and determination of the resource endowment. This analysis should start with the review of macroeconomic trends and agricultural production trends in order to assess the development potential. There is need for proper market research on the commodities to be included in the crop programme and proper analysis of the factor markets. A thorough economic analysis would lead to the proper indentification of the constraints both at the country and farm level. This analysis must also include manpower planning.

One of the important shortcomings of the planning process has been the lack of serious ex post analysis and appraisal of the success and failure of the previous plans and the application of such knowledge in ex-ante analysis as "yardsticks" for assessing the probable effects of new plan programmes and projects. Such analysis need not be confined to the experience in Uganda, for useful lessons could be learnt from experience of other developing countries in similar situations. If such ex-post analysis had been carried out on the initial performance of the mechanisation and group farms schemes in the First Five-Year Development Plan (1961/62-1965/66) and the right lessons learnt from the Symposium on Mechanical Cultivation in Uganda, the planned expansion of these schemes in the Second Five-Year Development Plan might have been scaled down to a more realistic level assuming the analysis was presented in such a way as to convice the political decision makers.

The analysis and proper determination of resource endowment as has been shown in chapter three requires a lot of statistical and survey data. Unfortunately, Uganda still lacks accurate data though the agricultural census and the recent population census will meet some of these requirements. There is need for research and farm management studies to establish the input - out-put coefficients; determine elasticities of demand and supply for some important agricultural products; assess farmers' response to the various government measures and policies such as price incentives, subsidies, taxes, extension advice and the adoption of new techniques. There should be a coordinated plan for data collection. There is also need to determine suitable and profitable crop rotations as well as social problems involved in the introduction of new schemes such as group farms.

Having thoroughly analysed the resource endowment, accurately estimated the potential resources for investment and properly identified the constraints, it is necessary to formulate suitable agricultural development strategy. The strategy must be consistent with the resource endowment and capable of bringing about the attainment of the sectoral objectives. The appropriate strategy for agricultural development in Uganda which is in its early stages of development is the improvement approach. This approach aims at widespread adoption of output increasing innovations by providing complementary inputs such as improved seed varieties, fertilisers, pesticides, credit and managerial skills to combine with the relatively abundant resources of land and unskilled labour already committed to the agricultural sector. If a consistent improvement approach strategy had been followed in all the plans, the agricultural growth rate might have been higher.

Another important weakness has been the lack of proper selection and evaluation of investment programmes and projects. The projects selected should be in accordance with the chosen strategy for development and must be those which would most likely enable the plan objectives and targets to be attained.

Subjecting such projects to investment criteria would show their justification and order of priorities. Agricultural policy measures should also be subjected to evaluation criteria and where lack of data makes it impossible for investment criteria coefficients to be calculated, appropriate qualitative economic analysis would help to illuminate the possible benefits and costs. The selection and evaluation of projects would be enhanced if more suitable projects could be identified and proposed. The task of initial identification requires experienced extension staff who should be in contact and know the felt needs of the farmers. A suitable planning organisation should allow this feedback. In fact, it has been one of the main criticisms of the Second Five-Year Development Plan that the sum of identified projects falls far below the macro-model investment target. And in the choice of some projects, political considerations were unduly allowed to outweigh economic realities. This seems to have been the case in the distribution of tractors and selection of group farm sites. There is need for a more realistic combination of these political necessities and economic desirabilities.

Other weaknesses in the planning process relate to the compilation of the agricultural sector plan. The evaluated schemes and projects should be combined together to form a sector plan which is internally consistent and also consistent with other sector plans. The complementary projects in the sector plan should be combined as package projects to ensure effective implementation. A suitable balance should also be established between the long-term projects designed to achieve the perspective objectives and the short-term projects expected to yield output during the plan period.

Most of the plans studied lacked a comprehensive agricultural policy containing enough price and production incentives to encourage agricultural production. The credit policy should have been co-ordinated with the subsidy policy to ensure that the subsidised equipment are fully utilised. The export duty on cotton and the increase in the Cotton Price Assistance Fund should have been reduced at the time when mechanisation through the Tractor Hire Service was being encouraged to enable many farmers to participate in the scheme.

Another weakness was the inadquate resource allocation to the agricultural sector. With the exception of the Second Five-Year Development Plan, the planned allocation to the sector was less that 20 per cent. of the total public expenditure. In the Worthington Plan, the planned allocation was less than 10 per cent. and in the Five-Year Capital Development Plan it was less than 5 per cent. Although there are no agreed indices as to what proportion of the public development expenditure should be invested in the agricultural sector; there are *a priori* considerations which indicate that the proportion of public investment in any sector should reflect the expected contribution based on benefit cost analysis or the projection model to the gross domestic product. Another way of determining the sectoral financial allocation is by costing the various inputs and measures contained in the sector plan.

Although comparisons of the proportionate expenditure on various services in different countries may not be appropriate as the economic structures[1] of countries differ, it might be useful to know what other countries have done. For example, out of the total outlay in India's first five-year plan, agriculture was alloted about one-third and in Pakistan's first six-year plan, agriculture claimed 32 per cent. of the total programme. In Ceylon, agriculture was allocated 37 per cent. of the total proposed development

1/ Meier, G.M., and Baldwin, R.E., *Economic Development* John Wiley & Sons Inc, New York, [illegible], p.[illegible].

programme for 1954/55 to 1959/60 and the World Bank Mission to Malaya recommended a public investment of 25 per cent. to be alloted to agriculture.1/ The pattern and size of the public investment in agriculture is dependent partly on the nature of agricultural overheads and agro-industries which can be developed together with organisational changes to be introduced and partly influenced by the activities taking place in other sectors of the economy. On these considerations, and given the need to transform Uganda from semi-subsistence to market agriculture by increasing the productivity of the factors of production in the sector, there was a case for more public investment in the sector, provided more profitable projects could be identified and more staff either recruited or trained. In this respect, the Second Five-Year Development Plan which allocated about 25 per cent. of the total development programme to the agricultural sector is an improvement on the previous plans.

Besides the inter-sectoral allocation, the intra-sectoral resource allocations was in some respects inappropriate. Table V-5. p.) shows some items of Government expenditure on agriculture.

1/ Meier, G.M. and Baldwin, R.E., Economic Development John Wiley & Sons Inc. New York, 1963, p.383.

These indicate that a large proportion of the expenditure on agriculture has been on extension service, research and contributions to organisations outside Uganda. Very little, until late fifties, was spent on agricultural education which is the key to agricultural development and should be a top priority in the early stages of development. Indeed in 1946, a mere £.222 was spent on agricultural education in Uganda and £.800 was spent as a contribution to the Imperial College of Tropical Agriculture, Trinidad to cover the training of some agricultural officers who would be posted to Uganda. The training of the low cadre extension staff was ignored to the detriment of rapid agricultural progress. Similarly, very little financial assistance was offered to help farmers to buy equipment and adopt new techniques of production designed to increase their productivity. The need for careful intra-sectoral resource allocation cannot be overemphasised.

The study of the various development plans in Uganda has also revealed a general lack of effective implementation measures. There has been no clear cut division of responsibility between the planning and executive ministries nor between the executive ministry's headquarters and the regional and district offices.

There is need for a more effective co-ordination between the planning, finance and executive ministries to ensure that priority projects get started on schedule. Once the project has started, there is need for flexibility to allow the man-on-the-spot to take managerial decisions, such as varying the crop rotation or increasing and reducing the labour force. The absence of decentralised decision making may lead to unnecessary delays and result in the planned expenditure not being achieved. The cotton spraying subsidy and the agricultural equipment and subsidy schemes are good examples of schemes on which the actual expenditure was 71.8 and 44.3 per cent. respectively of the approved estimates during the First Five-Year Development Plan (1961/62-1965/66). These schemes have already been discussed in Chapter six.

Implementation measures should provide for effective co-ordination between the ministries concerned to ensure that large shifts in expenditure are avoided. If, as was the case in the Worthington Plan more money becomes available, then the plan should be revised and new projects consistent with the plan strategy introduced.

Similarly, the intra-sectoral resource allocation should not be drastically changed without a proper re-appraisal as was the case with the mechanisation and group farms schemes whose planned allocation was about 12 per cent. whereas actual expenditure was nearly 48 per cent. of the development expenditure for agriculture and co-operatives during the First Five-Year Development Plan period. Such unplanned expenditure is likely to deprive other projects funds and to dislocate the development strategy by creating resource constraints.

The necessary planning machinery would consist of effective planning units in the executive ministries. These units should be well staffed and capable of analysing progress reports of the various projects and appraising the new projects. These units should evaluate new proposals before such proposals are submitted to the Ministry of Planning for final evaluation. As suggested in chapter three, there is need for establishing an agricultural sector committee or even commission embracing all the ministries concerned with agricultural development. It would be the function of this committee to consider any new proposal or revision and to decide whether the proposed new projects are consistent with other projects in the plan and within the agreed strategy for agricultural development. The decision of the committee would go to the Planning Commission and Cabinet for final approval.

Since the agricultural sector plan can only be implemented through the efforts of hundreds of thousands of small farmers, the implementation measures must contain means and ways of stimulating the enthusiasm of these farmers. One way is through the extension staff who are in contact with these farmers and should therefore be conversant with the provisions of the plan to be able to explain it to the farmers. In order to make the extension staff more effective as has already been discussed too frequent transfers should be avoided and more time should be spent on proper extension service as opposed to accompanying important visitors around.

Ideally, the comprehensive agricultural sector plan should contain objectives, analysis and determination of resource endowment, formulation of appropriate strategy, selection and evaluation of projects, policies and implementation measures. These conditions were approximated by the Second Five-Year Development Plan, though it also left a lot to be desired. In future, given the severe financial strigency and the pressing need for a more rapid rate of development, the planning process will have to be more rigorous and effective. The required improvements have already been discussed.

Various agricultural programmes such as Young Farmers and National Service Camps will have to be co-ordinated with the activities of extension service and District Farm Institutes. Farm management skills will have to be disseminated more widely and suitable crop rotations devised for these schemes. All these will make the task of the agricultural planning economist more challenging. But if the right lessons can be learnt from past experience, the future planning will be based on a more sound foundation though the complexitites of the situation will still require more technical skill and compentence. The formulation of the right policies will call for enlightened political machinery whereas the implementation of the plans will require total commitment of the masses.

ABBREVIATIONS

E.A.I.S.R.	-	East African Institute of Social Research (now Makerere Institute of Social Research, M.I.S.R.).
E.D.R.P.	-	Economic Develpment Research Project.
F.A.O.	-	Food and Agriculture Organisation of the United Nations.
G.A.T.T.	-	General Agreement on Tariffs and Trade.
G.D.P.	-	Gross Domestic Product.
H.M.S.O.	-	Her Majesty's Stationary Office.
I.B.R.D.	-	International Bank for Reconstruction and Development.
"Kiboko"	-	Unhulled dry coffee beans.
£	-	20 shillings.
R.D.R.	-	Rural Develpment Research.
U.D.C.	-	Uganda Development Corporation.
UN/ECA	-	United Nations/Economic Commission for Africa.
UN/ECAFE	-	United Nations/Economic Commission for Asia and Far East.
UN/ECLA	-	United Nations/Economic Commission for Latin America.

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