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The purpose of the study reported in this thesis was to appraise the adequacy of the proposed capital investment in agriculture for the future growth and development of Kenya as advocated by the planning authorities in the Six-Year Development Plan 1964-1970.

The study includes: (1) an analytical survey of the economy as reflected by available statistical data; (2) a theoretical evaluation of investment criteria feasible to economic resources available to meet political, social and economical goals; (3) an analysis of the investments, both in nonscheduled (African farming methods on scattered land) and scheduled (European farming methods on unified land) agricultural areas; (4) an evaluation of irrigation schemes, those constructed, those under construction and those proposed.

The statistical data from 1954 through 1962 reveals interesting characteristics of economic growth. Two

phases of economic growth rate are distinct. From 1954 to 1958, the Gross Domestic Income grew at the rate of 3.6 percent, while the period 1958 to 1962 was characterized by only a 2.2 percent growth rate. For the same periods, the agricultural sector grew at the rates of 5.7 percent and 4.6 percent respectively. The agricultural sector contributed about 40 percent of the Gross Domestic Product during this period.

Kenya's nine million people became independent on December 12, 1963. After that date the people became responsible for determing their future economic destiny. The first step was to construct a realistic Six-Year Development Plan 1964-70. The Six-Year Plan is designed to bring about economic growth and development within defined political, social and economic goals. Political goals are to establish new political institutions, to modify the old ones, and to establish fair political representation for all citizens of Kenya. Social and economic goals are to establish fair income distribution, an expansion in capital and increases in agricultural output which will provide export earnings, foreign exchange and capital formation for future economic growth and development.

The planning authorities employed various techniques in allocating capital investments. The shortage of capital and other vital resources required for economic growth and development forced the planners to rely heavily on the agricultural sector to absorb the investments. They employed the social marginal productivity criterion in allocating investments to agriculture, by reducing unemployed labor and maximizing the use of available land.

The land redistribution in scheduled agricultural areas will take place. Credit facilities have been established for the farmers. In the nonscheduled agricultural areas, land planning and consolidation and the establishing of titles are taking place. Also, Kenya is developing irrigation projects to provide more land.

The government expects to spend £132 million, (£1 = $2.80). Out of this, £52 million will be used in developing the agricultural sector. To ensure efficient operation, an extension staff has been established. The government is also helping the farmers to organize cooperatives.

The agricultural investments are aimed at increasing agricultural products. If this is to be accomplished, the cooperation of the people and government and the administration of the Plan is vital. Kenya's economic growth and development will depend, as it has in the past, on the ability and willingness of all her people to grasp the vision and then to discipline themselves as necessary to achieve it.

AN APPRAISAL OF AGRICULTURAL INVESTMENT IN THE 1964-1970 KENYAN DEVELOPMENT PROGRAM

by

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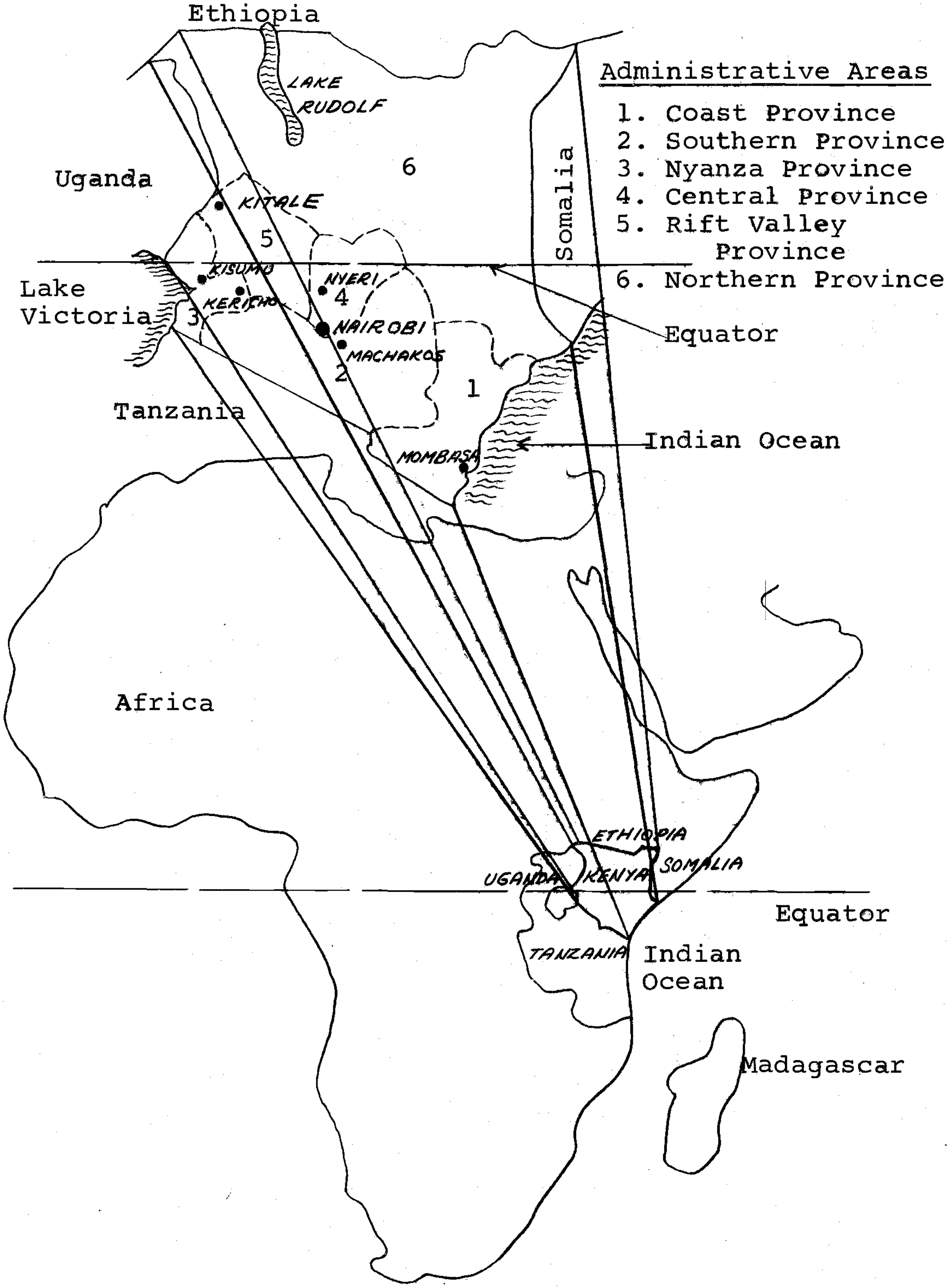
FOREWORD

We need to cultivate the restraint of Galileo who left the world of angels and spirits until the time should come when it could be explored, and contented himself with such principles as he could extract with confidence from experience, though the resolution committed him to such trivialities as the timing of balls rolling down grooves. It is that self-control -- the voluntary restriction to the task of extending knowledge outwards from the observed to the unobserved instead of imposing imagined universal principles inwards on the world of observation -- that is the essential hallmark of the man of science, distinguishing him most fundamentally from the non-scientific philosopher.

H. Dingle



Map 1. Geographical Position of Kenya.

Currency, Weights

Currency

The currency in circulation is the East African shilling, which is maintained at par with the United Kingdom shilling (= 14 U. S. cents).

The East African shilling is divided into 100 cents; shs. 2/40 means two shillings and 40 cents.

The pound (£), equal to 20 shillings, is used as the unit of account.

Thus: shs. 20/- = £1 = $2.80

£1 million = $2.8 million

$1 million = £357,000 (approximately)

Weights

Avoirdupois weights are generally used in this thesis:

One pound (lb.) = 0.454 kilograms.

One hundredweight (cwt.) = 112 lbs. two one-twentieth of a long ton.

The ton used is the long ton.

One ton = 20 cwt. = 2,240 lbs. = 1,016 kilograms.

AN APPRAISAL OF AGRICULTURAL INVESTMENT IN THE 1964-1970 KENYAN DEVELOPMENT PROGRAM

INTRODUCTION

> Our trouble is not ignorance, it is just that we know so many things that are not true.
>
> Josh Billings

It has become a routine of every independent country to construct a development program. When the Republic of Kenya received independence from the colonial power, the political leaders had to decide the way of life for the people of Kenya. The planners and economic minister came in with a six-year plan (1964-1970), which details socio-political and socio-economic goals.

There are many factors involved to bring about the desired development, such as social changes, institutional changes, political changes and income distribution to all people. In Kenya, during the colonial power development, programs were of two types: either those for Europeans, or those for Africans, or for other minority groups. For instance, in the Swynnerton Plan[1] in the mid-fifties, government planning aimed to transform the

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1. A plan to intensify the development of the African agriculture in Kenya, compiled by R. J. M. Swynnerton, Colony and Protectorate of Kenya, Nairobi, 1954. Land in Kenya was administered under the ordinances recognizing African and non-African settlement areas. After the independence December 12, 1963, all the racial restrictions were removed, and now we have "scheduled" and "nonscheduled" agricultural areas.

economy of the land in African areas. During the Swynnerton Plan, consolidation of landholding and establishing individual title to land took place. African farmers were trained and received some capital from the government, and they were granted permission to plant cash crops. The African farmers' income increased beyond the need of subsistence. The Swynnerton Plan was the pioneer to the present six-year economic development program.

The Development Plan, 1964-1970, contains national economic planning, encompassing the close relationship that exists between the national goals as viewed by politicians, and economic goals as expressed by economic planners.

The purpose of this thesis is to examine and appraise the efficiency of the agricultural investment in the Development Plan of the Republic of Kenya, 1964-1970. The writer will endeavor to establish criteria of evaluation of the agricultural investment both in scheduled and nonscheduled areas of the agricultural sector of the economy and of the projects which are parallel to those stipulated in the national plan.

THE CONTENT OF KENYAN PLANNING

> Economic planning is a policy which sets its objectives in the form of quantitative targets to be reached at a determined time. An economic plan is a set of targets to be reached in a given period of time. An economic plan is national when its targets cover all the national economy. It is a partial economic plan when its targets cover some parts of the economy only. Targets set in the plan must be of course feasible. To make sure that they are so, they must be derived by confronting policy objectives with the available resources of the economy and their possible uses.
>
> J. Drewnowski

Introduction

In examining the above, a reasonably standard definition of economic planning, by Jan Drewnowski,[2] it is apparent that economic planning is not a set of statements of goals or policies, but a thoughtful, well-detailed program of action for both projects and specific economic policies. Much time and many well-qualified, trained planners are needed to produce a plan acceptable to both political leaders and socio-economists. In most underdeveloped nations there is no data available to enable the planners to precisely assess the country's problems, and to state broad quantitative conclusions about the scale and direction of the development efforts.

2. J. Drewnowski. Planning Economic Growth. University Textbook for African Students (U.N.E.S.C.O., Paris, forthcoming) cited in Green (18, p. 250).

Professor Arthur Lewis[3] stated that assessing a development plan is not a mechanical nor a precise operation, but an exercise in identifying critical issues, highlighting major objectives and strategies, and making tentative evaluations of the consistency and feasibility of the plan as a whole and by major sectors.[3]

In this chapter, the writer will examine the economy of the country under the following headings: sources of data; agricultural profile; national product and its components; capital formation; interpretation of the accounting record by the planners; analysis of the development program with respect to the stated goals; and financing of the plan and sharing of the capital by the government.

The Economy Survey as Reflected by Available Data

Source of Data on the Kenyan Economy

The Republic of Kenya has plentiful statistical materials which give extensive information about the Kenyan economy. Before the year 1946 the collection of statistical data was not very efficient because of staff shortage and poor recording procedures which caused difficulties in interpretation of the economy. There are

3. W. A. Lewis. On Assessing a Development Plan. Economic Bulletin of Ghana, June-July 1959 cited in Green (18, p. 251).

many sources now from which data are drawn: the colonial office; academic studies undertaken at various times by private firms such as banks; and the major source of data, the East African Statistical Department. The East African Statistical Department which serves Kenya, Tanzania and Uganda, receives its powers and authority from the Statistics Act, which was passed by the Central Legislative Assembly of East Africa in 1949. The Act provides for the setting up of a statistical department and the legal authority in Uganda, Tanganyika (Tanzania) and Kenya for the collection of statistics.

During the period 1946 to 1955, the Statistical Department was organized on the basis of small offices in each state. A larger central office at Nairobi was made responsible for the final production of statistics relating to a wide variety of subjects. In 1955-6 there were some changes which put independent units in each territory under the control of the Deputy Government Statistician. Each unit worked independently on matters relating to the state concerned. There is another unit which deals with statistical series which are collected and published on an East African basis. Such statistics are those relating to external trade, the balance of payments, money and banking, railway transport, and the postal, telephone and telegraphic services. Most other statistics are the responsibility of the separate and semi-autonomous territorial units. To sum up, it can be said that the major role of the East African Statistical Department is to provide a centralized system of completely independent units, to ensure that the production of statistics will be closely related to needs of those responsible for policy-making.

Data regarding the agricultural sector is scattered all over Kenya. Agriculture in Kenya has been divided broadly into four divisions, namely (a) farms in the scheduled areas (b) agriculture carried on by the resident laborers in the forest and on the farms in the scheduled areas (c) peasant farms in the nonscheduled areas (d) the pastoral zone (nonscheduled areas). Data in the scheduled areas is kept better than in the nonscheduled areas. The census of the three thousand or so holdings in the scheduled areas has been taken annually for the last eight years. It covers land utilization, crop acreages, livestock numbers, livestock production, labor employed and annual capital expenditures.

The data for agriculture carried on by the resident laborers in the forest areas was taken in 1960 by using a sampling technique. These holdings in the forest areas numbered seven thousand, five hundred. The census for the peasant farms in the nonscheduled agricultural areas published before 1961 covers the major cash crops which were marketed through central marketing organizations.

In 1960-61 the World Census of Agriculture conducted a survey in a number of peasant agricultural areas in order to assess land utilization, crop acreage, food crop production and livestock numbers. This survey covered some 735,000 farms. Seventy percent of the sample farms was measured on a holding basis, and the remaining 30 percent was roughly estimated by use of line survey methods.

Thus, it appears the data is not adequate for planning purposes. The Economics and Statistics Division is aware of this inadequacy, and has taken some steps to improve the data.

A Profile of the Agricultural Sector

There is sufficient data to give a broad picture of the agricultural sector of Kenya's economy. In the monetary segment records have been maintained by individual farmers and the marketing board organizations. The data for the nonmonetary segment is roughly estimated, because the natives produce at subsistence levels and no records are kept. In this nonmonetary segment few records have been maintained by the marketing boards for cash crops that were marketed through them.

About 85 percent of the African population and about 35 percent of the Europeans are engaged on the land. This fact is a good indication of how the economy relies on the agricultural sector. From 1954 to 1961, the agricultural sector contributed between £85 - 90 million yearly to the economy, which is about 40 percent of the Gross Domestic Product. The same sector earned about 83 percent of the export earnings. The major exporting cash crops are coffee, tea, sisal and pyrethrum. Livestock also contributes heavily to exports.

It should be emphasized that mixed farming is extensively practiced in Kenya. Agricultural products for domestic consumption, such as maize, rice, wheat and barley are produced in abundance and marketed within East Africa.

The economy of Kenya relies heavily on external trade. This is a common characteristic of less developed countries. External trade in 1961 amounted to £132 million. Exports totaled £56 million, or the equivalent of about 25 percent of the Gross Domestic Product. The agricultural sector contributed about £36 million in 1961. In the same year imports were valued at £69 million, or about 31 percent of total expenditures.

The contribution of exports comes mainly from the scheduled agricultural areas, where European farmers have intensive methods of farming because of modern machines and technology. The nonscheduled agricultural areas have not contributed very much to exports. Reasons for this will be discussed in Chapter V, but it may be noted here that the major method of farming practiced is the extended family type with shift farming, which means moving from place to place. The production and investment in agriculture would become clear by examining the growth of the economy as a whole and the pattern of change with various components.

The National Product and its Components

The national product figures were first published by the East African Statistical Department in the December, 1950, issue of the Quarterly Economic and Statistical Bulletin, which presented estimates for the years 1947, 1948 and 1949. At that time, the Statistical Department also published a separate booklet explaining the background of the estimates and the methods of calculation. Before 1947 the national product, which was known as the Geographical Income and Net Product, was kept for East Africa as a whole, that is, Uganda, Tanganyika and Kenya. Thus, it was difficult to interpret the economic growth of each territory. A 1947-1954 series of national accounts indicates that in money terms production in

Kenya grew from £53 million to £127 million, or at a rate of over 13 percent a year (22, p. 20-23). Part of this annual increase -- perhaps more than four percent -- is attributable to inflation.[4] The figures gave little consideration to the subsistence sector, which, had it been included, might have changed the total product. The output of wheat on European farms and plantations increased from 73,000 tons in 1946 to 133,000 tons in 1954. Milk production went from 5.5 million gallons to 12.8 million.

The Quarterly Economic and Statistical Bulletin's first national product figures became useful preliminary information for statistical studies, concerning underdeveloped countries, which were later done by international and national bodies. This was one of the first opportunities of the colonial power to have estimates of the domestic income and product as an annual time service. In 1959, another publication of the Domestic Income and Product in Kenya was published. This publication provides full information regarding the sources of estimate and calculation methods adopted (24, p. 360).

The Gross Domestic Product increased from £158 million to £224 million between 1954 and 1960 in terms of

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4. Cf. Sessional Paper no. 51 of 1955, p. 40 cited in The International Bank for Reconstruction and Development (22, p. 20).

current price, or by six percent a year (see Tables I and II). The six percent annual growth rate excludes the subsistence sector. The aggregate of economic growth in both the monetary and non-monetary sectors from 1954 to 1960 is between four and five percent.

In the 1950's the terms of trade shifted against Kenya, particularly after 1954 when export prices, especially of coffee and sisal, fell, and real income grew somewhat slower than output. If the population increased in this period by two percent a year, (which now appears to be a conservative assumption) the per capita product rose by two percent a year.

The calculation of growth in total production in the money economy since 1954 has been derived from an expansion of all major sectors at a similar rate. Agricultural prices rose slower than those in the industrial and services sectors. Primary producers showed a real output increase, more than in secondary and tertiary industries. In general, agricultural products have shown a tremendous increase, because of development programs in the African sector, and in the non-African sector, and of settlers who came with new methods of farming and heavy capital investment.

Table I. Composition of Gross Domestic Product by Type of Factor Income.

(£ million at factor cost)

Factor Income	1954	1955	1956	1957	1958	1959	1960	1961*
Recorded Monetary Economy:								
Paid Employment	58.88	75.24	77.97	85.75	85.50	88.37	96.17	98.58
Operating Surplus	48.74	54.24	61.38	61.82	62.50	65.35	70.46	70.12
Rental Surplus	4.83	5.26	5.80	6.65	7.51	8.05	8.70	9.30
Subtotal	112.45	134.74	145.15	154.22	155.50	161.76	175.33	178.00
Imputed Product outside the Recorded Monetary Economy	45.57	46.32	48.23	51.69	52.24	52.27	49.10	46.80
Total (Gross Domestic Product)	158.02	181.06	193.38	205.91	207.75	214.03	224.42	224.80

*Provisional.

Sources: Kenya, Statistical Abstracts;
Economics and Statistics Division.

Table II. Rates of Change in Contributions to Monetary Gross Domestic Product by Industry.

	Contribution to Monetary Gross Domestic Product			Share of Monetary Gross Domestic Product	Annual Rates of Growth	
	£ million				Percent	
	1954	1958	1962	1962	54-58	54-62
Banking, Insurance and Real Estate	1.38	3.26	4.01	2.2	24.0	14.3
Electricity and Water	1.24	2.36	2.98	1.7	17.4	11.6
Government Services	13.94	20.46	28.02	15.6	10.1	9.1
Transport, Storage and Communications	11.84	17.69	22.21	12.3	10.6	8.2
Services	7.90	13.11	14.21	7.9	13.5	7.6
Forestry	0.55	0.68	0.95	0.5	5.4	7.1
Rents	4.83	7.51	8.39	4.7	11.7	7.1
Manufacturing	14.14	20.52	23.04	12.8	9.8	6.3
Monetary Economy	112.45	155.50	180.01	100.0	8.4	6.0
Livestock	6.37	8.27	9.30	5.2	6.8	4.8
Agriculture	19.82	24.75	28.49	15.8	5.7	4.6
Wholesale and Retail Trade	21.59	26.39	30.02	16.7	4.1	4.2
Construction	6.31	8.38	6.76	3.8	7.3	0.8
Mining and Quarrying	0.89	1.23	0.82	0.5	8.4	-1.0
Fishing and Hunting	1.65	0.90	0.81	0.5	-14.1	-8.5

Source: Kenya, Government Development Plan 1964-1970. Nairobi, Kenya, Government Printer, 1965. p. 13b.

Kenya has an average product per capita of only £28.3, which is expected to rise to £33.0 by 1970. Although there is such a low per capita income, investment has been very encouraging. In 1956-57 the total expenditure on fixed assets was estimated to be slightly over £45 million, of which approximately 25 percent was Gross Domestic Product. The 1960 expenditures were about £ four million which is equivalent to 18 percent of the Gross Domestic Product. These calculations of fixed assets exclude African agriculture. This exclusion of the subsistence sector is one of the major faults of the Gross Domestic Product. The planners of the development program of 1964-70 had to assume how much investment should be put into the subsistence sector to achieve substantial economic growth.

Capital Formation and Growth

The estimate of capital formation obtained from the national accounting data is part of the vital information needed for economic planning. The basic statistical data (see Tables I and II) of the Gross Domestic Product is inadequate for providing good estimates of capital formation. Some of the limitations are the treatment of the East African High Commission Services; private firms operating in more than one territory; the balance of payments; and the lack of basic statistical data. To elaborate these limitations, the East African High Commission services are shared by the three territories, and as such it has been very difficult to interpret the contribution of each territory to the Gross Domestic Product. The interterritorial organizations, notably East African Railways and Harbours, East African Airways, East African Posts and Telecommunications Administration and other research organizations, have real problems when estimating the national accounting. The problems could be simplified if there were a federation of East Africa. Since the independence of the three states, discussion has been underway to figure out a method of handling accounts affecting East Africa as a whole. A balance of payments statement has been compiled for the whole of East Africa, but statisticians have been faced with problems of getting estimates in each state. One of the problems is the monetary system, which is the same for the three states; thus, transactions between sterling areas are in block amounts for the three states. The private enterprises operating throughout East Africa have created problems in estimating the Gross Domestic Product. Professors T. A. Kennedy *et al*. put it this way:

> There can be no doubt that the existence of interterritorial firms and a common income-tax system make the production of domestic product and income estimates more difficult. And when the time comes to attempt national income estimates there will be still greater problems, as statistics will then be required of the territorial distribution of profits from the point of view of their final ownership rather than their original place of derivation (24, p. 383).

Capital formation and growth data are provided in Tables III and IV. Table III shows the real picture by the type of asset and contribution of each sector. The estimate of gross capital formation excludes African agriculture. The public sector investment has averaged about £15.5 million a year since 1954. The major investment is in construction. This sector's total investment has varied yearly from 33 percent to 50 percent. Private investment in agriculture, building and transport has accounted for about 40 percent of all capital formation. The manufacturing industry takes a very small part of the capital expenditure. This is a good indication that industrialization has not taken place. It may be pointed out, however, that manufacturing industries in Kenya process agricultural products. In the 1950's manufactured agricultural products accounted for about ten percent of the Gross Domestic Product.

When Kenya approached its independence there was a degree of uncertainty and the development slackened.

Table III. Gross Capital Formation at Market Prices by Type of Asset and Sector

Asset/Sector	Value £ million									Share of Aggregate Gross Capital Formation at Market Prices Percent	Annual Rates of Growth Percent	
	1954	1955	1956	1957	1958	1959	1960	1961	1962	1954/62	54/58	54/62
Construction, Works	9.75	9.92	7.74	11.47	10.15	10.22	9.90	9.21	11.30	25.1	1.0	1.9
Mchy.-Other Equip.	6.11	7.99	10.37	9.18	7.18	7.41	7.56	7.59	7.02	19.7	4.1	1.7
Total	35.27	43.81	45.68	45.62	40.01	40.33	41.41	31.89	33.28	100.0	3.2	-1.4
Transport Equip.	8.42	11.71	9.40	9.12	8.52	8.38	10.72	6.21	7.02	22.3	0.3	-2.3
Non-Res.Bldgs.	5.09	6.79	8.29	7.85	7.05	7.07	6.42	4.41	3.54	15.9	8.5	-4.4
Res. Bldgs.	5.90	7.40	9.88	8.01	7.11	7.23	6.81	4.47	3.89	17.0	4.8	-5.1
Government	8.57	9.80	10.27	10.94	9.61	10.47	12.33	12.39	11.20	26.8	3.0	3.4
Private, Other	14.14	20.43	25.91	23.67	20.97	20.97	21.57	12.87	16.62	49.6	10.4	2.1
Large Farm Sector	4.39	4.41	4.84	5.51	5.71	5.71	5.43	4.56	3.45	12.3	6.8	-4.0
EACSO (Trad.Serv.)	8.16	9.17	4.66	5.50	3.73	3.17	2.08	2.07	2.02	11.3	-17.8	-16.0

Source: Kenya, Government. Development Plan 1964-1970. Nairobi, Kenya, Government Printer, 1965. p. 20.

Table IV. Capital Formation 1954-1961.

	1. G. D. P. (monetary)	2. G. D. C. F. (monetary)	3. F. I. Current Balance of Payments	4. Total Saving Invest. (2)+3	5. $\frac{(2)}{(1)}$x100	6. $\frac{4}{1}$x100
1954	113.0	35.0	-37.0	-2	31%	-2%
1955	135.0	-	-44.0	-	-	-
1956	145.0	46.0	-32.0	12	32%	8%
1957	154.0	46.0	-34.0	12	29%	8%
1958	156.0	40.0	-22.0	18	26%	12%
1959	162.0	40.0	-16.0	14	25%	9%
1960	175.0	41.0	-23.0	18	23%	10%
1961	178.0	34.0	-18.0	17	19%	10%

Note:
1. GDP - Gross domestic product (monetary).
2. GDCF - Gross domestic capital formation (monetary).
3. FIC B/P - Foreign investment current balance of payments surplus.
4. Total Savings / Investment.

Method of Calculation:

1. Column 1: is derived from bottom line of Table II less Outside Recorded Monetary Economy.
2. Column 2: is derived from total of Table IV.
3. Column 3: is derived from Table XVII, Appendix.

In 1958 there was a shortage of capital and a decline in export prices. The 1958 investment expenditure was at a lower level than that of 1956. The capital formation declined in all the sectors. The imports, especially agricultural machinery and construction building materials, declined. The figures in Table III indicate no increase in capital formation. The public sector figures are still going up with the major projects being construction and buildings.

Table IV shows the overwhelming importance of comparing the level of gross domestic fixed capital formation in the monetary economy with the level of the gross domestic product arising in the monetary sector. The figures used in column five of Table IV show that Kenya is devoting a substantial amount of her resources to investment in the monetary sector. The amount is particularly substantial in view of the very low level of per capita income. The figures show a percentage decline which one might assume is a decrease in investment; however, in this circumstance one should not come to such a conclusion, because there has been difficulty in obtaining satisfactory estimates of inventory investment and disinvestment and of depreciation. Column three of Table IV presents figures for foreign investment, and column three and column two are added to obtain column four which is the total savings/investment, (except in 1954 when there is a dissaving figure). Considering these percentages from 1956 to 1961 in column four, we can accept Professor Arthur Lewis' generalization that "no nation is so poor that it could not save 12 percent of its national income if it wanted to" (29, p. 236). This is strongly supported by the post-war data on savings in poor countries assembled by Professor Simon Kuznets (26, p. 1-96). One can say Kenya has the ability to save, but for real economic growth the citizens of Kenya must have incentive to invest.

The Planners' Interpretation of the Accounting Record

The political independence which Kenya attained on December 12, 1963 had to be followed by economic reconstruction and development. The development plan in any underdeveloped nation is aimed to consist of a set of interconnected measures designed to increase production and real per capita incomes. To achieve this planning, the national accounting data has to be sufficient to provide satisfactory estimates of marginal and average capital/output ratios. The economic planners of the Kenyan Development Plan were aware of this fact, but difficulties were present. Some planners felt that the time series available were too short, that the sectors were not sufficiently distinct, and they questioned the accuracy of the estimates. There is very little data available for the nonscheduled agricultural areas. The sizes of the multiplier, of the accelerator, of the propensity to import, and of other propensities, are hardly enough to predict the effect on the economy of a given increase in government expenditure. Nevertheless, above all these difficulties the planners studied the national account data, determined the movement of the Gross Domestic Product, and reached a decision as to what investment should be made for the 1964-1970 Development Plan. The planners felt that they were not able to draw an adequate and comprehensive plan. In view of this, the planners promised to have a second look at the total economy and revise the plan.

From the historical data of national accounting, the authors of the plan estimated that the annual per capita income (including subsistence) in the year 1970 will be £33. Compared to the 1962 per capita income of £28.7, this is an increase of £4.3 and an increase of only about £0.1 to the 1957 figure of £32.9. The official estimate of the population in 1957 was 6.25 million,[5] and the

5. The population figure was underestimated, which is a good indication of the inadequacy of the data. If the actual population, which could have been above 7.5 million, had been taken, the per capita income would have been £28.4.

Gross Domestic Product was £205.9 million. The planners estimated the expected investments in the economy as a whole. The expected investment in the agricultural sector is explicitly that of increased investment in the nonscheduled agricultural areas. The interpretation of data was best performed in the agricultural sector. Detailed examination will be given in the discussion of the analytical framework of the development program.

The Analytical Framework of the Development Program -- 1964-70

The Six-Year Economic Development Program 1964-70 is not the first such program for Kenya. The first development program was after the end of World War II. This plan was prepared to run from 1946-1955. All the financial arrangements were made by the British and most of the money came from the Colonial Development and Welfare Act. The plan was revised from time to time and new goals were adapted. From 1954-1963, the Kenyan government under colonial power executed three-year development programs. The Swynnerton Plan was one of them. This plan was intended to intensify the development of African agriculture. This plan was the take-off of African agriculture. Land consolidation took place, output of agricultural products increased, and income of African farmers improved because they were allowed to plant cash crops at a higher rate than ever before. All of these development programs accomplished much. The present Economic Development Plan 1964-1970 is the national plan of the citizens of Kenya. The targets are to speed up real economic development, and give opportunity to all who are prepared to work hard to achieve the intended objectives.

Stated Goals of the Kenyan Development Program

In the economic strategy of the Kenyan Development Program 1964-1970, the key aims have been summarized by Associate Professor Reginald H. Green of the Economic Growth Center, Yale University, while he was a visiting lecturer at the University of Ghana:

> 1. Rapid increases in the African share of the national product, whatever its size or growth rate -- a goal necessitated by existing economic inequalities and political pressures;
>
> 2. the primary emphasis on the agricultural sector because it is the one in which African participation can be expanded most rapidly, both by additions to productive capacity and by transfers of existing units;
>
> 3. a distinctly secondary emphasis on manufacturing, which, indeed, is expected to decline as a percentage of total national product over the plan period;
>
> 4. an increased emphasis on primary-product exports, which are expected to rise as a share of total output;

5. a greater dependence on private initiative than in Tanzania or Ghana, combined with a narrower role for the state, which will intervene less to direct and control decisions and resources in the private sector;

6. the defense of Kenya's existing exports to the East African common market, but a distinct pessimism concerning the expansion of trade based on the joint location of industry (an approach which is not shared by some Kenyan economist-politicians, which conflicts with Kenya's economic interests, and which appears to have been substantially modified recently); and

7. no basic commitment to alter the structure of production in favor of manufacturing, processing, construction, and public utilities (18, p. 264-265).

The key aim of the Economic Development Plan 1964-1970 is to increase output and distribution of wealth, which in return will provide economic growth and a better standard of living for all the people. The above goals are aimed at bringing the African people into a money economy. This can be achieved only by encouraging the African farmer to work hard and use all the tools available to him. The Kenyan government has decided to concentrate on development of the agricultural sector, because there are assets available, and because development of agriculture requires a relatively small demand for basic services and skilled manpower, compared to industrial urban development. By developing agriculture first the country would have time to build up a reservoir of skilled manpower for non-agricultural development at a later time.

The stated goals of any development plan are usually a compromise between what is hoped for and what is expected under optimal conditions to be feasible. Assuming that everything works as planned, the Gross Domestic Product is expected to amount to £364.4 million by 1970, moving from the present figure of £224.8 million (1961). The country expects a capital expenditure of £318 million during the Six Years Plan from July 1964 to June 1970. The Public Sector's share will amount to £132 million or about 41 percent. From £132 million, £10.9 million is the transfer payments of assets from one section of the population to another, leaving real capital expenditure of £121.1 million, or approximately 39 percent. The average investment during 1954-1960 was £42 million. During the new plan 1964-70 capital expenditure is £51 million, giving a rise of 21 to 27 percent. This capital expenditure is estimated to generate a 5.2 percent increase in the Gross Domestic Product, and, assuming population growth at the rate of three percent per annum, per capita income will rise at a rate of 2.2 percent per year. Per capita income is expected to be raised from £28.3 in 1962 to £33 in 1970.

The plan has not yet classified the capital expenditure of the private sector, but on the other hand, detailed capital expenditure has been laid down for the agricultural sector. Developing the agricultural sector would increase the output of primary products, and simultaneously provide the foundation for expansion of the economy as a whole. It should be pointed out that for growth most underdeveloped countries depend on exports and world prices to remain favorable. The planners were aware of world prices and assumed export prices to remain constant. If the prices fall or rise, the growth of the economy would be expected to behave accordingly.

Consistency Checks for Plan Goals and Economic Projection under the Plan

The preparation of the Kenyan Development Plan (1964-1970) was done in a hurry. The planners and economic ministers and the Kenya African Nation Union had no time to work on a very detailed plan. As one can see in Table V, the plan is uneven, and least internally integrated. The plan has not classified or indicated the role of the private sector in the economic development. In some sectors, where national socio-political objectives were clear, for instance in the agricultural sector, the planners were able to formulate the objectives in economic policy terms. In this sector goals are well spelled out both technically and with relation to national aspirations. In most places the planners

Table V. Selected Plan Data: Kenya 1964-70.

1. Investment Source

	£ m
Public sector	129
Private sector	188
Total	317

2. Source of Public-sector Development Expenditure (1964-67 only)

	£ m
Recurrent surplus	1.0
Local borrowing	2.8
External loan/grants	34.4
External: incl. E.A.C.S.O* Internal: incl. local govt.	26.9
Gap.	4.5
Total	69.6

3. Investment Allocation (Public sector only)

	£ m	%
Agriculture, lands, natural resources	21.7	16.8
Commerce and industry	4.8	3.8
Tourism	1.0	0.8
Directly Productive	27.5	21.4
Power	20.5	15.5
Railways and harbors	14.2	11.0
Roads	6.8	5.8
Other physical infrastructure	2.6	2.0
Physical Infrastructure	44.1	34.3
Education	9.7	7.7
Health	3.8	2.8
Housing	2.4	1.8
Other social services	0.2	0.2
Social Services	16.1	12.5
Administration and security	11.9	9.3
Unallocable: mainly admn. and infrastructure	29.0	22.5
Total	128.7	100.0

Table V. (Continued)

4. Composition of Domestic Output sector	1962		1970		Growth Rate
	m	%	m	%	%
Agriculture	102.9	43.3	150.5	41.4	4.9
Mining and quarrying	0.8	0.3	1.0	0.3	3.0
Industry	55.0	22.6	88.0	24.1	6.0
Tertiary	84.7	34.8	124.9	34.3	5.0
G. D. P.	243.3	100.0	364.4	100.0	5.2

Note: * East African Common Services Organization

Source: Green, Reginald H. Four African Development Plans. The Journal of Modern African Studies Vol. 3, number 2 (1965), p. 258.

Kenya Development Plan: Wage-Earning Employment

	1962		Projections		Increase
	'000's	%	'000's	%	%
Agriculture, forestry, fisheries	245.5		316.6		3.2
Mining	3.5		4.2		2.4
	249.0	42.3	320.8	42.2	
Manufacturing	45.4		51.9		1.5
Transport/communication	16.0		23.8		5.1
Construction	12.6		15.9		3.0
Public utilities	2.1		2.6		3.0
	76.2	13.1		13.0	
Trade	36.7		43.2		2.1
Financial	5.9		8.8		5.0
Government	168.5		200.3		2.2
Services	45.0		58.3		3.3
	256.1	44.1	310.6	42.8	
Total	581.3	100.0	725.6	100.0	2.8

Source: Green, Reginald H. Four African Development Plans. Journal of Modern African Studies Vol. 3, number 2 (1965). p. 269.

depended heavily on the proposals of the World Bank. They linked loosely the government policy to the industrial sector. Nevertheless, the planners were aware of this as indicated in the last paragraph of the Plan when it discussed revision being underway: "...should result in the publication a year hence of a more comprehensive plan based on a reassessment and modification of the economic implications (of the present Plan)." The purpose of this thesis is not concerned with the inconsistency of the plan as regard the general economy as a whole, but only when it becomes relevant to the agricultural sector.

The Government Share of Capital Formation and Its Financing

Theoretically the financing of the development plan should come from savings of the country, supplemented by savings in the form of loans and grants from overseas. When Kenya got its independence there was hardly any savings in the country, because during the colonial regime money was leaving the country without any control. The World Bank did some assessment before the plan was published and found that to finance the plan Kenya would have to depend heavily on external resources. Table VI shows possible resources for the development program.

Table VI. Possible Resources for Development Program.*

	(£ million) 1963/64	1964/65	1965/66	1966/67	Total
Local loans, funds and repayments available for general development	0.5	0.6	0.6	0.8	2.5
External (already negotiated)	0.8	0.2	0.1	0.1	1.2
Land settlement	5.5	5.2	5.1	5.1	20.9
Finance for statutory bodies, etc. not provided by government	0.6	0.8	0.6	0.5	2.5
Balance to be financed**	6.6	7.3	7.5	7.6	28.9
Total	14.0	14.1	13.9	14.1	56.0

Note: * Figures rounded.

** 1.5 million per year of this represents expenditure which we consider should be borne by the current budget (in the absence of extended grant arrangement) as soon as possible.

Source: The International Bank for Reconstruction and Development. The Economic Development of Kenya. Baltimore. Johns Hopkins Press, 1963, p. 56.

In Kenya local resources would be used to finance part of the Plan, if a good atmosphere could be provided for immigrants, and they could be encouraged to spend their savings in the country. Since independence, immigrants have been assured security, and as such, they have decided to remain in the country and use their savings.

When the plan was published, according to the lecturer Dharam P. Ghai, who is a lecturer in economics at Makerere University College, Kampala, Uganda,

> The prospects for financing the Plan are excellent. By the time of the publication of the Plan, £38.1 million out of the 42.8 million of the Government Expenditure for the first three years 1964/67...(and) half of the estimated expenditure by the other Public Sector bodies during the same period was either available or in prospect.... It is to be hoped that the Government's spectacular success in attracting aid from the U.K., U.S.S.R. and People's Republic of China in recent months will enable it to set its sights higher (17, p. 36).

In support of Mr. D. P. Ghai's statement, Kenya has received tremendous support from abroad. The following statements were made by Kenyan ministers and foreign representatives about the contributions and grants of different countries to the development of Kenya. Quoting from the African Report, October 1965:

> <u>July 13</u>: Britain's Commonwealth Development Corporation agreed to lend $9,800,000 toward the $18,760,000 cost of the Tana River hydroelectric scheme.
>
> Minister for Lands and Settlement Jackson Angaine told the House that the total cost of approved land settlement scheme was $74,480,000 of which British contributed $60,480,000, the World Bank $4,480,000, West Germany $3,360,000, the Commonwealth Development Corporation $2,240,000, and Land Bank and Agricultural Corporation $3,920,000.
>
> <u>July 27</u>: Speaking for the Minister of Finance, who was out of the country on an official mission, Defense Minister Mungai informed the House of Representatives that in the 1964/65 financial year

> Kenya had received in grants and loans $3,000,000 from Eastern Countries, $53,000,000 from Western Countries, and $800,000,000 from the World Bank and the International Development Association (35, p. 47-48).[6]

> African Report January 1966: A joint communique issued in London announced that British would extend interest-free loan totaling $50,400,000 to Kenya for general development and land purchases. British also agreed to provide a limited sum (unspecified) over that amount for the Kenya Government to buy acreage on compassionate grounds, from European farmers whose land was outside the land transfer and the settlement program (36, p. 24).

The financing of the Development Plan has been very good, and more investments in the country are expected, provided the political situation remains the same or becomes better, thus attracting capital from outside.

As was indicated previously, the total capital expenditure of £318 million is to be spread over the Six Year period from July, 1964 to June, 1970. The Government is expected to share about 39 percent of the total expenditure which is approximately £121 million. For the early part of the development, which is intended to be in the agricultural sector, the capital formation is expected to be high.

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6. These figures aggregate to well over £318 million which is more than the estimated expenditure. The reason for this difference may be due to political influence in getting finance.

Constraints and Priorities as Indicated by the Plan Frame

The major constraints on the Plan are the paucity of capital and manpower which forced Kenya to start its development plan with the sector where it could proceed with the minimum requirement of the two. The agricultural sector does not require highly skilled manpower, and, at the same time, the British government was in a position to finance the resettlement plan. Secondly, priority accorded to agriculture reflects the political goal to Africanize the agricultural sector. The planners felt that by developing the agricultural sector they were able to increase the output and in return raise the income of Africans. Depending on agriculture for economic growth has the disastrous result of making the economy rely heavily on world markets for primary crops. For instance, the world prices fell in 1956, and export earnings from coffee were reduced from £13.7 million to £10.6 million in 1961.

During the Six-Year Plan, the agricultural sector is expected to absorb 40 percent of the entire Public Sector expenditure. The figure in Table VII shows the proposed capital expenditures on agriculture for 1963/64 - 1966/67. The planners did not differ very much with the proposals of the World Bank. According to the Six-

Table VII. Proposed Capital Expenditures on Agriculture 1963/64 - 1966/67.

	Estimates (£ thousand)					
	1962/63	1963/64	1964/65	1965/66	1966/67	Total
<u>Under Ministry of Agriculture</u>:						
Agricultural and Animal Husbandry Education	25	77	69	36	16	198
Agricultural Research	14	37	38	37	38	150
Animal Husbarndry Field Services	--	13	--	--	--	--
Livestock Research and Disease Control[a]	34	50	50	30	--	130
Livestock Improvement[b]	25	23	18	15	19	75
Livestock and Animal Products Marketing[c]	13	28	28	28	28	112
Rural Development: nonscheduled areas	116	116	116	116	116	464
Tea Development: field expenditures[d]	130	267	316	280	242	1,105
Cooperative Development	--	25	10	10	10	55
(Items not continued)	54	--	--	--	--	--
<u>Total</u>	411	635	645	552	469	2,302

Table VII. (Continued)

	Estimates (£ thousand)					
	1962/63	1963/64	1964/65	1965/66	1966/67	Total
Under Other Ministries:						
Irrigation	40	122	181	105	55	463
Water Development	215	286	295	295	295	1,171
Agricultural Credit	511	550	650	900	1,200	3,300
Forest Development	38	15	--	15	--	30
(Items not continued)	100	--	--	--	--	--
Total	904	973	1,126	1,315	1,550	4,964
Statutory Bodies:						
Kenya Cooperative Creameries	--	100	155	170	125	550
Kenya Meat Commission	--	77	180	200	100	557
Special Crops Development Authority-Tea Factories	--	250	250	171	283	954
Total		427	585	541	508	2,061
GRAND TOTAL		2,036	2,356	2,408	2,527	9,327

a includes proposals for tsetse control, and research into animal products.

b includes proposals for animal breeding, management of grazing and artificial insemination.

c includes proposals for abattoirs and collection centers.

d most of this amount likely to be financed outside the Development Budget.

Source: The International Bank for Reconstruction and Development. The Economic Development of Kenya. Baltimore. Johns Hopkins Press, 1963, p. 143.

Year Plan, the projected expenditure in the agricultural sector will amount to over £52 million. Lecturer D. Ghai said, "The section dealing with agriculture is also the most impressive part of the Plan. It represents an ambitious effort at agrarian revolution through a series of schemes for consolidation land resettlement, irrigation and land reclamation, supported by a massive injection of capital and extension services" (17, p. 23). The planners estimated £11 million to be used to purchase farms; £12 million or more to be utilized for establishing credit facilities for farmers, specifically for loans to buy land in scheduled agricultural areas. The loans would enable more than 18,000 families to own about 496,000 acres during the next six years. The government expects to spend £13 million on irrigation and water supplies development. This development would enable the dry areas to be put into production. A further £2.5 million will be spent on land consolidation during the Plan period. If all these schemes come through, Africans would be able to contribute to the economy and Kenyan agriculture would be modern and efficient enough to contribute more to the Gross Domestic Product. The relative significance of the agricultural sector to the Gross Domestic Product would increase over the period from 21 to 23 percent.

The second priority is given to the Basic Services Sector which is expected to absorb about 41 percent of Public Sector's expenditure. In this sector electric power will absorb 15.5 percent of the total expenditure; railways and harbors 10.7 percent; commerce and industry 3.9 percent; tourism 0.7 percent, and social services will absorb 12.5 percent. So far, it is not quite clear how much public investment is going to be in the Private Sector, but it is estimated that £4.5 million will be used through loans, which will be administered through the Development Finance Company. Kenya's plan seeks growth primarily through the agricultural sector, which in turn is expected to generate development in the whole economy at a later date.

INVESTMENT EVALUATION WITHIN THE DEVELOPMENT PLAN 1964-70

> When the labourer maintains himself by funds of his own, as when a peasant-farmer or proprietor lives on the produce of his own land, or an artisan works on his own account, they are still supported by capital, that is, funds provided in advance. The peasant does not subsist this year on the produce of this year's harvest, but on that of the last. The artisan is not living on the proceeds of the work he has in hand, but on those of work previously executed and disposed of. Each is supported by a small capital of his own, which he periodically replaces from the produce of his labour. The large capitalist is, in like manner, maintained from funds provided in advance (34, p. 58).
>
> John Stuart Mill

Introduction

The investment which is taking place in Kenya may be due to political, sociological and economic aspects. Investment policy determines the rise in the productivity of natural resources, as well as changes in demand, and thereby the economy's saving potential. Determining the types of investment and proper allocation of funds are fundamentally significant in framing economic growth in underdeveloped countries. According to Polak's (38, p. 208-240) analysis expanded by Buchanan (9, p. 95-116), the choice of new investment should be based on a two-fold criteria: (a) the effects of investment on balance of payment, (b) capital intensity.

The planners of the Six-Year Development Plan based their choice of investment projects on political and social criteria. The planners were interested in raising the standard of living of the Africans and in fair distribution of income. Investments in the settlement schemes are designed to lead to a greater total agricultural output as well as creating employment for more people on the new farms. The agrarian revolution on the land reflected in development projects, such as irrigation and land consolidation, it is hoped, will lead to a greater production of consumer goods at home and to a boom in the economy. Investment in the Private Sector will help in accelerating the economic growth and in creating employment. This eventually will lead toward industrialization of the economy.

Planning and Investment Criteria

The political slogan "Harambee," which means "Let's all pull together to common end in national building," guides the government in investment planning. The government has appealed to private investors with a spirit of good will to come forward and invest in Kenya. Private investors are expected to play a major role in promoting the country's economic growth. The government has established security and cooperation to stimulate private investment. The methods which the government has used to attract investors are (1) political stability, (2) the protection of private property through the Kenyan constitution, which provides

> ...by limiting the circumstances in which property may be compulsorily acquired and by providing access to the Supreme Court to determine the legality of the acquisition and to enforce the proper payment of compensation, on which repatriation is fully guaranteed. It is the Government's policy that repatriation of both the profits and capital will be guaranteed on investments by non-citizens of Kenya which have received the designation 'approved projects' indicating an investment contributing to economic development (25, p. 38-39).

With the third method, the government has established inducements both to new and old firms. Such inducements include low tax rates on company income, that is, 37.5 percent. An investment allowance of 20 percent of the cost of new industrial buildings, machinery and fixed equipment is available to investors. Also, custom-duty refunds are available to companies utilizing imported raw materials in manufacturing processes. Finally, there are other forms of protection, such as tariffs and licenses, to safeguard infant industries. In the author's opinion, this type of protection is undesirable. It tends to encourage monopoly and probably inefficient operation, and, therefore, high prices.

In order for people with capital to invest in Kenya, per se, there are no restrictions save that the party concerned has to certify to the government that the capital investment is not for exploitative purposes. But for people without sufficient funds, the government has established investment criteria. The major reason for this is that there is limited capital available to the government. The criteria are:

1. Significant export or import substitution potential -- to improve Kenya's foreign exchange earning and saving capacity through a reduction in the present adverse balance of trade;

2. contribution of the greatest possible value added within Kenya (i.e., the maximum possible processing of primary products or the earliest possible stage of manufacturing for import substitutes) -- to insure a substantial increase in gross domestic product;

3. high labor-capital ratio -- to relieve the serious labor surplus problem and recognize the scarcity of capital in Kenya;

4. production of investment goods -- to enable Kenya to approach self- sustaining growth; and

5. contribution to the diversification of the economy -- to reduce the risk to the economy of price fluctuations in one or two of its major exports and to broaden the base for growth (25, p. 40).

The above criteria can be summarized in the words of N. S. Buchanan and J. J. Polak, who said that investment should have the effect of improving balance-of-payment and in boosting capital intensity. Any industry which meets the criteria is regarded as being efficient, and therefore able to compete on the national and international commercial fronts without any government support.

Criteria for Allocation of Investment

The major problem of underdeveloped nations in investment allocation is centered on resources available. In most cases capital is very limited, and such a country has to choose projects which require the least capital and those that will utilize the scarce resources in the most productive way. Kenya has a beautiful, tropical climate and two rainy seasons, one short and one long; therefore, she is able to grow cash crops. Available natural resources are in abundance but few have been fully exploited. Methods of farming are such that commercial farming is practiced in the scheduled agricultural areas; whereas, in the nonscheduled agricultural areas, the system of farming is just beginning to change from a peasant form of agriculture to intensive, highly productive farm holdings.

The planning authorities designed that the government develop social services and the agricultural sector. The investment here will bring quick payoffs, and many people will participate. A few development projects in the social services are in health, housing and education, providing security and defense for the nation, roads, rail networks, communications, and agricultural extension and research services. All of these lay the foundation for economic growth, both in the private and public sectors. The investment allocation in the agricultural sector will be discussed in the following chapters.

According to the economic survey, the following industries, which encompass large areas of the economy, have excellent prospects for efficient production and promotion of economic growth: food processing; timber; minerals; textiles, including clothing manufacture; assembly of agricultural machinery, private vehicles and bicycles; chemical industries, including insecticides, plastics and pharmaceuticals; light metals; and building and construction. Assuming that efficient investors will engage in the above industries, raw materials produced in the agricultural sector will be used. Textiles and clothing manufacturing industries will utilize the cotton produced in irrigated areas, which the government is developing, and chemical industries will provide a market for pyrethrum. The processing industries will enlarge the market and provide better storage conditions. The government investors and private investors will work together to use the available resources in the best and most profitable way to bring economic growth to the country.

Social Marginal Productivity Criterion

Many observers have written and argued about the formulation of an optimum investment program in underdeveloped nations. The decisions of an investment program, some authorities feel, should be based on three categories: (1) factor-intensity criterion, (2) productivity criterion, (3) programming criterion based on accounting prices (11, p. 25-41). In the scope of this thesis the author will discuss only the productivity criterion which he feels was in the mind of the planning authorities.

A. R. Kahn (23, p. 38-61) suggested a method for testing the efficiency of investments by use of social marginal productivity. Chenery (10, p. 76-96) developed Kahn's method to a quantitative formula to determine the efficiency of investments. According to Chenery, the advantage of a particular investment is that its Social Marginal Productivity (SMP) may be expressed in terms of a welfare function:

$$U = U(Y,\ B,\ D\ \ldots\ldots\ldots) \qquad \ldots.(1)$$

taking the partial derivate of this function and dividing through by $\partial U/_{\partial Y}$

$$\Delta U = \frac{\partial U}{\partial Y}\,\Delta Y + \frac{\partial U}{\partial B}\,\Delta B + \frac{\partial U}{\partial D}\,\Delta D\ \ldots\ldots$$

$$SMP = \Delta U = \Delta Y + \frac{\partial Y}{\partial B}\Delta B + \frac{\partial Y}{\partial D}\,\Delta D\ \ldots. \qquad \ldots(2)$$

Where all variables represent impacts or effects of given investment, Y = effects on national income, B = total net effect on balance of payments, D = effects on distribution of income and U = index of social welfare. The increment in welfare (U) depends on percentage change in increase in income (ΔY), effect in balance payment (ΔB) and effect in distribution of income (ΔD). Let "r" represent the marginal rate of substitution between Y and B. Then equation (2) can be written as ("r" can be interpreted in various way):

$$SMP = \Delta Y + r\Delta B \qquad \ldots.(3)$$

Expanding the equation (3) we thus get the formula:

$$SMP = \frac{X + E - M - L - 0}{K} \qquad \ldots.(4)$$

where X is market value of the output, E is the external net economies, M is the cost of materials, L is cost of labor, and 0 is overhead cost, including depreciation, and K is increment to capital investment. Equation (4) can be simplified to read

$$SMP = \left[\frac{V}{K}\right]\left[\frac{V-C}{V}\right] + \left[\frac{Br}{K}\right] \qquad \ldots.(5)$$

where V = X + E value added domestically, and C = M + C + 0 total cost of the domestic factor, K = increment to capital investment. For instance V/K is the output to capital ratio, where output is defined to include external benefits.

Chenery's mathematical formula still faces some limitations, as Lombardini pointed out in his article

(31, p. 125-145). Some of the limitations are (a) formula fails to take account of structural interdependence, (b) Chenery's formula does not indicate how one can estimate impact of external economics,[7] (c) Chenery's model neglects the income distribution effects of investment. Nevertheless, although these limitations exist in Chenery's model, some correlation is shown between the elements entering into social marginal productivity. Furthermore, no rule of thumb can be set to say how efficient the project investment would be. As in Kenya, public investments were determined by the need of welfare governed by feasibility of the resources.

The Application of Investment Criterion

Assuming that an investment criterion is logically correct and fits coherently into the general work of economic planning, there are numerous problems which have to be accounted for. In Kenya, limiting the discussion to the framework of agricultural investment, the government had to satisfy both European farmers and African farmers. The European farmers who did not want

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7. When external economies are due to technical interdependence among investment programs. Assume one industry in an area is unproductive because there is not enough electricity. Thus, technical interdependence exists between industrial investment and investment in power.

to remain in Kenya had to be compensated for their land. The loans had to be secured from foreign countries in order to be able to finance the purchase of these farms. Most of the loans have come from the British Government. The government is still purchasing the farms. The second problem is that of settling the farmers in the scheduled agricultural areas. This is a twofold problem consisting of (a) selection of good farmers, and (b) maintaining high production on the settled farms.

It is the general feeling of Africans that they should own land in scheduled agricultural areas. To acquire land in these areas, each individual is required to file an application with the settlement officer. The settlement officer examines the applicant's form to decide whether the applicant can qualify for a loan to purchase the land. Most plots allocated are around 15 acres. The settler has to follow the instructions set down for him by the extension service. The extension staff tries to make sure that the same number of acres planted with a given crop by a former European farmer is maintained. This is to ensure that the volume of the crop exported and its monetary value will remain the same.

Maintaining high production is necessary in farming. Settlers are undergoing rigorous training so that they will be able to use the modern technology and other facilities available to them.

According to the planning authorities, the first priority will be given to unemployed and landless people who will be settled in any development projects, such as irrigation and land settlement projects. The marginal value of the unemployed labor in the subsistence sector is zero (28, p. 139-191). In the equation (5) the term $\left[\frac{V-C}{V}\right]$ is increased by use of the idle labor, that is, maximization of unemployed labor by paying it more than its former social cost.

One of the aims of the Six-Year Development Plan is to rapidly increase the Africans' share in the Gross National Product, whatever its size or growth rate. This goal is necessitated by existing economic inequalities and political pressures. Public investment has to certify this need, even though in some cases it is not economically feasible.

The Use of Accounting Prices

The use of accounting prices enables the planners and economists to determine and evaluate an investment project. Such economists as Tinbergen, Frisch and Chenery have used accounting prices or shadow prices in evaluating investment projects in underdeveloped nations.

Tinbergen defines accounting prices as those "that would prevail if (i) the investment pattern under discussion were actually carried out, and (ii) equilibrium existed on the markets just mentioned" (i.e., labor, capital, foreign exchange markets) (39, p. 39). Tinbergen argues that when calculating the cost of projects by the use of accounting prices, any project that gives a positive net return over cost, including capital cost, should be approved. Chenery's model of SMP gives the same result. Chenery conducted a study on Latin American (12, p. 51-77) economy and applied accounting prices, and established how the planning authorities could use this information in designing policies regarding optimal investment projects.

For the application of accounting prices to economic planning, one needs the use of linear programming models or input-output models. To develop these models one needs a lot of data which should be representative of the entire economy. In Kenya some linear programming models for peasant agriculture have been developed. Dr. Eric Clayton, Lecturer in Agricultural Economics at Wye College, University of London, has conducted studies on how to apply linear programming in peasant farming (13, p. 83-93). The most important limitation on resources in peasant farming is lack of land and labor.

When the planning authorities were designing the Six-Year Plan, they had to decide how land should be allocated and how many man hours are needed in a farming set-up. In this way resources will be used in the most profitable manner. Other minor resources lacking in peasant agriculture are working capital in the form of seeds, fertilizers, manure, pesticides, insecticides, casual labor; fixed capital such as tools, implements, oxen; fixed capital in land improvements, soil conservation works; and managerial or entrepreneurial ability.

Where these studies have been done, the government planners have utilized the information obtained to maximize the production and minimize the cost of inputs. In commercial farming, accounting prices are used to maximize the farmers' profits by making use of resources which could be improved. The government also eliminated the change in equilibrium price for foreign exchange. For instance, the price of coffee has been fluctuating very much, and there will come a time when the marginal cost of labor exceeds the price of coffee. So, the planners have advocated cutting down coffee acreage. Nevertheless, these different techniques of evaluating investment are not an end, but the means to an end. Hence, whatever criteria Kenya chooses for determining investment, the projects chosen should be the most efficient and profitable for the people.

ANALYSIS OF THE FORMER WHITE HIGHLAND SETTLEMENT PROGRAM

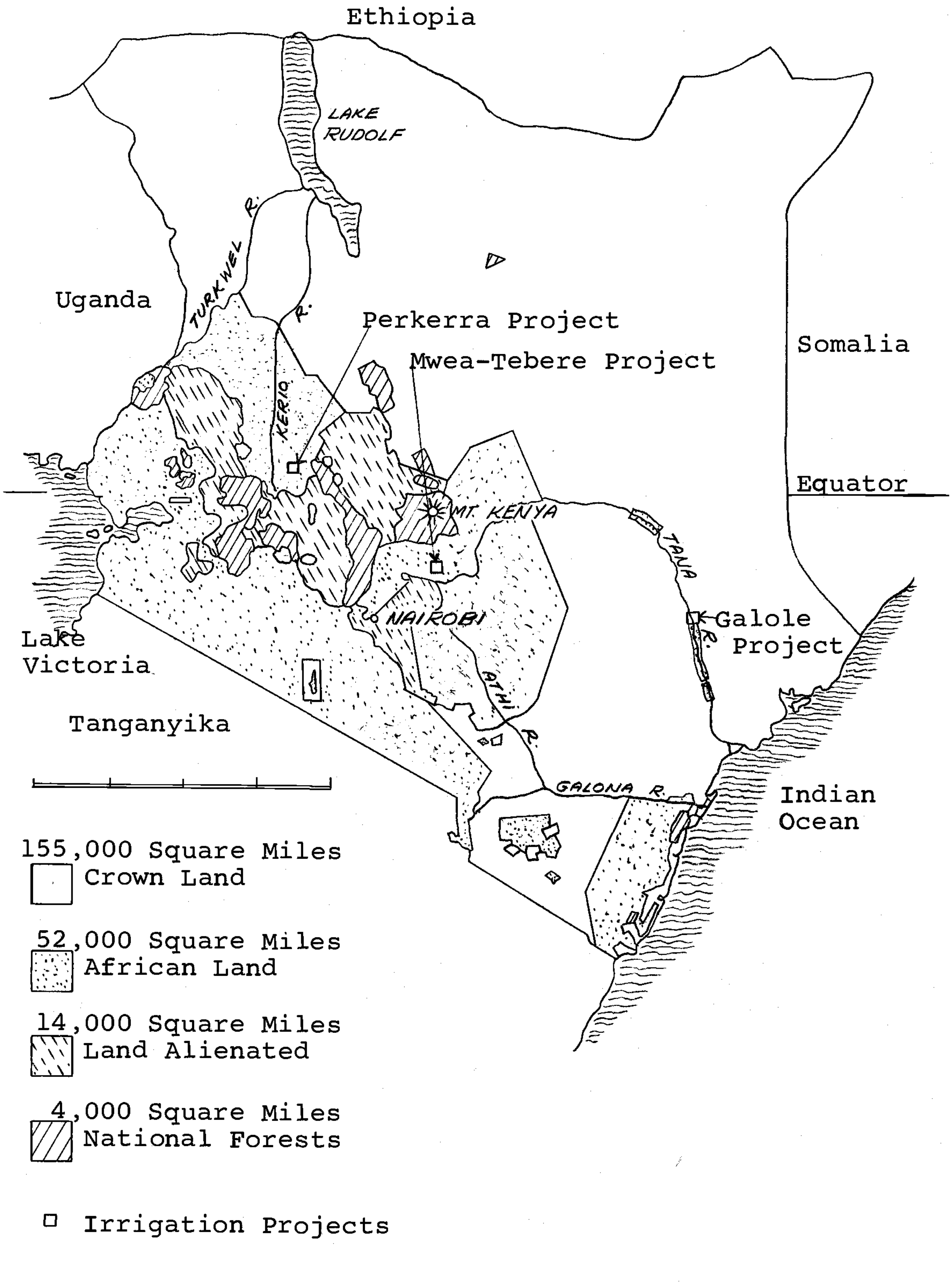
> We must not picture to ourselves an unreal world as it might or ought to be and make schemes for it. That way lies social madness, leading to a failure of hot aspiration and thence to cold reaction. Our first duty as economists is to make a reasoned catalogue of the world as it is...
>
> Alfred Marshall

Introduction

The land area of Kenya is 225,000 square miles. Of this total area, Africans occupy more than 160,000 square miles. A total of 52,000 square miles are African reserves, in most of which the occupants enjoy perpetual inalienable rights. Of the remainder, over 100,000 square miles are in the Northern Province, semi-desert country occupied by nomadic tribes which live by their cattle. Europeans occupied a total of 12,000 square miles and there are 4,000 square miles of forest reserve besides 1,000 in African areas. The balance of land is unclassified Government land, national parks and lakes (see Tables VIII and IX).

The White Highlands, now known as the scheduled agricultural area (see Map 2), is that part of Kenya "in which persons of European descent are to have a privileged position."[8] The early settlement achievement was

8. Terms of reference, Kenya Land Commission, Carter Report, p. 2, cited in Aaronovitch (1, p. 72).



Map 2. Land Classification and Irrigation Projects.

Table VIII. Analysis of Areas - Kenya Colony up to December 31, 1956.

Statement of Areas	Square Miles
Native Areas (including native settlement areas)	52,141
Crown Forests	5,065
Townships	489
Government Reserves	424
Alienated Land (White Highlands)	13,400*
Royal National Parks	8,517
Unsurveyed Crown Land (suitable for alienation)	25,436*
Northern Frontier and Turkana	114,317
Open Water	5,171
Total	224,960

* The White Highlands comprise 16,196 square miles, the 2,796 square miles is included in the Unsurveyed Crown Land.

Source: Forrester, Marion Wallace. Kenya Today Social Prerequisites for Economic Development. The Hague, Netherlands. Mouton & Co., 1962, p. 58.

Table IX. The Total Land Area of Kenya (as of 31 December 1963).

	Square Miles
Trust Land and Private (freehold) Land which was formerly Trust Land	53,021
Private Land (freehold) which was not formerly Trust Land	1,017
Alienated Land (leasehold)	11,719
Central Forests	5,080
Urban Areas	740
Government Reserves	453
National Parks	8,480
Open Water	5,172
Unalienated Land	18,534
Unalienated Land in the former Northern Frontier and Turkana	120,744
Total	224,960

Source: Hale, Robert, Year Book and Guide to East Africa 1965. 26 Bloomsbury Way, London, W. C. I. 1965 p. 25.

made during the administration of Sir Charles Eliot (6, p. 1-18). Eliot rightly regarded South Africa as a potential source of European settlers. After much struggle, the Kenya Land Commission defined the "White" Highlands and decided on a boundary enclosing about 16,700 square miles (of which forest reserves totaled 3,950 square miles). Strong land tenures were enacted barring Africans, Indians, or any colored persons to purchase or lease land in the "White" Highlands. A 1902 ordinance provided for alienation of land on 99-year leases, and in 1915 another ordinance provided 999-year leases. These ordinances also created some freeholds of land. According to a study by the World Bank, 560,000 acres are freehold; 591,000 are in 99-year lease; and 6,350,000 acres are on 999-year lease.

For many years the African politicians felt that there was injustice in land distribution in Kenya. They placed importance upon the White Highlands not because of their economic and political significance, but because of the quality of the land. Norman Leys[9] states that "about half the land in Kenya that is worth cultivating" lies within the "White" Highlands. The minority groups own the land, while the mass is congested on the

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9. Colour Bar in East Africa, p. 35, cited in Aaronovitch (1, p. 73).

small, poor land area. When Kenya received independence one of the priority goals was the settlement program.

Goals of the Settlement Program

One of the major targets in the planners' minds was to increase the Africans' income, and to play a major role in national building. Because of scarce resources and lack of sufficient education, this goal could be achieved only through Africanization of the "White" Highlands. Of the total expenditure of £52 million, the government expects to spend £11 million on the purchase of farms in the "White" Highlands. Also, the government has set aside about £12 million to facilitate credit for the farmers.

The settlement is categorized into two classes: namely, low-density schemes and high-density schemes. The low-density schemes are designed for areas which are less developed, and for experienced farmers who have capital. The government would provide loans according to the need of each farmer. The target is to develop a holding in such a way that the farmer would have a net profit of £100 per annum after meeting all operation costs, including basic food for his family. It is projected that by 1966 about 175,000 acres will be in full operation. The low-density schemes are financed by the

United Kingdom, the World Bank and the Commonwealth Development Corporation.

High-density schemes are planned to achieve high-density settlement. The aim is that landless and unemployed people with limited capital and agricultural knowledge would be able to earn net incomes of £25 to £70 per year. The entire scheme would encompass a total lf 1,075,000 acres. Of this total, 721,000 acres were under operation at the end of 1963/64. Of the remaining, 354,000 acres are expected to be purchased at the end of the Plan. The development loans are available to all the settlers ranging from "£100 to £160 per family with the total cost averaging £647 per family, of which £395 is recoverable, leaving a net outlay per family of £252" (25, p. 70). All these schemes are externally financed by the United Kingdom and Kreditanstalt fur Wiederaufbau of West Germany.

Under these two classes of settlement schemes, the outputs and inputs are expected to increase. It is hoped that by the time of maturity about 36,000 families will be settled by the schemes. Assuming efficient operation, each farmer will be able to employ one additional person. The schemes will create employment for approximately 70,000 families.

The Composition of Investment

Table X shows the estimated expenditure for land settlement. During the Six-Year Plan heavy investment will be made for purchasing the land. Out of 1,250,000 acres in both schemes, 825,000 acres were expected to be purchased by the end of 1963/64. The cost was to be Ł7.38 million, with the remainder of 425,000 acres to be bought later. At an early stage of the settlement, the government made available Ł2.18 million for loans to settlers, cooperatives and machinery contractors. The settlers were expected to buy machinery and other farm equipment. The government has employed administrators to carry out missions and to provide technical advice for the farmers. So far it has cost the government Ł2.35 million for employment for settlers, pre-settlement development and administrative and technical advice. During the entire Plan Ł3.19 million will be spent to maintain these services. Thus, the total cost on land settlement will amount to Ł25 million, of which Ł13 million is expected to be used during 1964/70 (25, p. 25). When the full settlement program is completed, it is expected that heavy capital investment will be involved in this program.

Table X. Estimated Expenditure - Land Settlement.

	1964/65	1965/66	1966/67	1967/68	1968/69	1969/70	Total
Low Density							
Land Purchase	600,000	273,000	--	--	--	--	873,000
Loans	538,000	638,000	452,000	214,000	--	--	1,842,000
Other Costs	264,000	264,000	151,000	32,000	--	--	711,000
Total	1,402,000	1,175,000	603,000	246,000			3,426,000
High Density							
Land Purchase	2,673,000	755,000	--	--	--	--	3,428,000
Loans	1,712,000	1,290,000	575,000	172,000	--	--	3,749,000
Other Costs	1,189,000	761,000	394,000	137,000	--	--	2,481,000
Total	5,574,000	2,806,000	969,000	309,000			9,658,000
Total -- All Schemes	6,976,000	3,981,000	1,572,000	555,000	--	--	13,084,000

Source: Kenya, Government. Development Plan 1964-1970, Nairobi, Kenya, Government Printer, 1965. p. 71.

The Analytical Problem of the Settlement Program

The success of the settlement program will depend highly on the settlers selected. The criteria of selecting the settlers, especially those who are settled in high-density schemes, is based on "landlessness" and "unemployment." These might be good criteria from political and social points of view, but successful settlement depends on many factors, such as (a) choosing the right place; (b) choosing the right settlers; (c) physical preparation of the site before settlers arrive; (d) settlers' capital' (e) the organization of group activities; (f) the acreage per settler; and (g) the conditions of tenure (30, p. 3-11).

The land which is used for settlement schemes is that land which the European farmers are willing to sell, or the land which is idle. No guarantee could be given that all land is good for farming. So, in some cases, settlers will be working with land on which it will be reasonably hard to make a living.

The high-density settlement scheme has many dubious aspects. The settlers selected are those that are landless and unemployed. This concept of all "back to land" movements is not feasible economically. As income per head grows and more capital is added to the resources, fewer people are needed in farming. Instead of giving landless and unemployed people land, the government should make more land available to those African farmers already in farming. Landless and unemployed people first must be put in training centers, or on experimental farms until they demonstrate that they have acquired good knowledge, and are attuned to the rural life. If this criterion is followed, the government will accomplish its goals.

The low-density settlement schemes no doubt will succeed because the settlers have good backgrounds and are devoted farmers. The government should give more attention to these schemes because production should match existing exports in case the white settlers decide to leave Kenya.

In both classes of settlement schemes the net incomes vary with farm sizes. The acreage per settler should be enough to make a living, and should not be more than one can cultivate. Arthur W. Lewis said, "The amount of land a family can cultivate depends on the equipment it has; perhaps three arable acres, if it has only a hoe; ten to 15 acres with a plough and draught animals; 50 acres and upwards with a tractor. It is no use giving the settler less land than he needs in order to make a living. One must first determine what this area is, and adjust the equipment accordingly" (30, p. 3-11).

According to Lewis, the average of 27 acres, which is given in the high-density schemes, is inadequate to make a living. "To make a living" means here that the settler is able to earn as much on the land as if he were employed somewhere else. Nevertheless, decisions should be made to increase the size of farms.

Results of the Initial Settlement

The initial settlement schemes have not been very encouraging owing to climatical factors, and as such, it is very hard to evaluate what the settlers have accomplished. Staff correspondent Rober M. Hallett of The Christian Science Monitor visited a:

> ...white highlands farm taken over some months before by three African businessmen in partnership. Corn rattled drily in the wind, wheat stood yellow in the upland fields because of drought.
>
> It is possible that the partners will be able to last out another season since they all have other businesses. But 1965 was a hard year to start a new venture.
>
> Farms have also been handed over to some large African operators. But a drought in 1965, first year of the experiment, cut back production drastically. Therefore there has so far not been a fair test of the new system (20, p. 11)

As the above quotation indicates, during normal weather conditions production would no doubt increase. In the areas which were not affected by drought, outputs have doubled compared to the outputs obtained by former owners of the land. In general, the settlers are earning more and eating better than before.

Appraisal of the Settlement Program

It is very difficult to appraise the settlement program reliably at this time due to the many unknown factors involved. By a *ceteris paribus* assumption some attempt could be made to appraise the political achievement. Prior to independence, there were some controversial issues regarding land in the "White" Highlands. some politicians felt that all European farmers would leave the farms owing to political instability. European farmers who decided to stay have found that the political atmosphere has been very favorable for them. European farmers who left their farms are fully compensated for their land. Some of these European farmers have taken up jobs as managers in the schemes.

Some landless and unemployed Africans have acquired land in the "White" Highlands. One of the aspects very difficult to appraise is the social effect of these acquisitions. The possession of the land by Africans is significant, and one could say that they have achieved much psychological satisfaction. It is commonly said that "When the white man came to Africa, he brought us the Bible and took away the land." So after independence we got back our land, but kept the teachings of the Bible.

The questions of optimum production are very dubious, especially in high-density settlement schemes. The International Bank for Reconstruction viewed the position this way:

> The deliberate replacement of large-scale with small-scale production may mean the destruction of capital assets and the adoption of less efficient forms of production...a smallholder could increase production on his holding over that previously yielded by large-scale farming, by reason of a great intensity of cropping and cultivation. Equally a fall in production can be visualized, due to the loss of the benefits of large-scale farming and, for instance, to growing crops less suited to small-scale farming or poor farming practices (22, p. 85).

Examining the questions of optimality, it is metaphysically possible to say that the outputs will increase tremendously because the settlers are prepared to work harder and conscientiously in order to be able to pay off their loans and have enough left over for their consumption. The self-interest which most of the settlers have is an immensely powerful force which will enable them to accomplish high production.

The low-density schemes are limited to experienced settlers with certain amounts of capital. There is no question of doubt about the success of these settlers, because they have decided that farming is a business and a way of life. "A way of life" is defined as an awareness of and an appreciation for the monetary rewards of farming. They are profit-motivated and expect to make some marginal returns on their capital investment. During the first year of the program, in the areas which were not affected by drought, output doubled over that produced by the former farmers. Although this is a parsimonious result, one would expect that each settler would strive to maximize his production. The settlers will be able to pay back their loans within the allocated time.

It is expected that high production will increase export returns. Also, the settlers are expected to organize themselves in cooperatives through which they will market their produce. By having cooperatives, the settlers will be able to receive high prices and have efficient operation.

ANALYSIS OF THE NONSCHEDULED AREAS

> Compare the cultivation of the land in the neighbourhood of any considerable town with that of those which lie at some distance from it, and you will easily satisfy yourself how much the country is benefited by the commerce of the town.
>
> Adam Smith

Introduction

Agriculture is dualistic in Kenya. One of the types is the capitalistic farming done by Europeans. The second one is the predominantly subsistence farming of the African peasants. The former is referred to now as scheduled agricultural areas, and the latter as nonscheduled agricultural areas. Some parts of the nonscheduled agricultural areas have been under development based on the Swynnerton Plan, which was introduced in 1954. The planners of the Six-Year Plan recommended the Swynnerton Plan to be extended to all nonscheduled agricultural areas.

Goals of the Program

The government's economic goal is to encourage Africans to participate strongly in every sphere of the nation's economy. The majority of the African population lives in nonscheduled agricultural areas. Africans operate businesses and own land which is rated best and of high potential (7, p. 69). An intensified development plan should develop these areas, which will provide economic opportunities for Africans. Also, agricultural education and training facilities are scheduled to be made available to Africans. This will have a tendency to uplift the general standard of farming and to bring about higher incomes to the farmers.

The plan which the government has designed and advocated to accomplish its goal is to increase the productivity of the African smallholders. The first principal step is land consolidation, followed by farm planning and introduction of suitable cash crops and high quality livestock. In some parts of the nonscheduled agricultural areas, land consolidation has taken place under the general framework of the Swynnerton Plan. Here the government is helping farmers to form cooperatives, which will be financed and supported by the government until such time that farmers will be able to manage them. Credit facilities have been established. The money loaned to farmers will be spent under the guidance and close supervision of the extension officers. This will help to ensure that the money will be used for its intended purposes. The farmer will be able to increase his real farm income, and thus enable him to develop and consolidate his own finances. This increase will make him credit-worthy and thus enable him to secure additional loans from banks or other lending organizations.

The Composition of Investment

The investment in the African agricultural area will be in the form of agricultural credit, personnel, and money to be used for land consolidation. During the Six-Year Plan, agricultural credit, which will be administered through the Agricultural Finance Corporation, is £6.2 million, including £500,000 for special ranching loans. Of this, £2.0 million is expected to be generated internally. One million pounds for loans has been obtained from the British Government to be used in 1964-65. For investment to take place, the farmers in nonscheduled areas should create some entrepreneurial spirit and venture in taking some risks. The extension services are working very hard in training the farmers in how to increase productivity. In the writer's opinion no loans should be given to the area where land consolidation has not taken place, except to the farmers who have sizeable acreages of cash crops.

Loan funds acquired by the farmers will be used in capital development, such as for fencing wire, improved livestock, cash-crops planting material, water tanks, sprays, the installation of running or piped water and farm buildings. The family labor in some cases will not be enough, so some farmers will need loans to hire additional labor, and to finance family living during the zero-income period before cash crops come into bearing (13, p. 131-138). If the farmers do all the vital jobs which need to be done on the farms, the demand for investment funds is likely to exceed the agricultural credit available. The government has persuaded the commercial banks and other private organizations to loan money to the farmers by its serving as a guarantor for the farmers.

In the writer's opinion, the use of investment capital for farm development in nonscheduled agricultural areas should not be allowed for buying tractors and other heavy farm machines for individual farmers. The reason for this is that most of the holdings are very small, from less than half an acre and up. If these machines are badly needed they should be purchased by cooperatives so they can be used in a democratic way by all the farmers. Another way is to organize a tractor service either by government, private enterprise or by the farmers' cooperatives.

In addition to loan funds for financing the development of individual holdings, land consolidation is expected to cost Ł2.03 million during the Six-Year Plan.

This amount is not enough to consolidate the over three million existing acres. It is hoped, however, that the money for capital development will be increased when funds become available. All these capital investments and expenditures are required to provide for agrarian development.

Swynnerton Plan 1955/60

This plan was compiled by R. J. M. Synnerton in 1954. The Swynnerton Plan aimed at intensifying and accelerating the development of African agriculture in Kenya; that is, increasing the net cash income of each of the 600,000 families from around £10 per annum to £100 or more.

The Swynnerton Plan embodies mass government farm planning. In the first place land consolidation was given the first priority. Each individual person's acreage measurements were taken and followed by establishment of individual titles to land. The government furnished capital and supervisory services. Also, the government removed some of the restrictions on production of cash crops by African farmers. For instance, Africans were permitted to plant not more than one hundred coffee plants (16, p. 80). Improved livestock was introduced to African farms. The government trained

African farmers to adjust to new methods of farming. The farmers were very cooperative. The target of increasing production above the subsistence level was reached.

In the long run, the Swynnerton Plan aimed at the complete revolution and commercialization of African agriculture through planned, mixed farming. It stressed that after consolidation, a farmer "must be provided with such security of tenure, through an indefeasible title, as will encourage him to invest his labor and profits in the development of his farm and as will enable him to offer it as security against such credits as he may wish to secure from such sources as may be open to him (13, p. 40).

The Swynnerton Plan set the production goal of each cash crop. For example, its target for coffee was 71,500 acres by 1968. This target was based on 1953 world prices, which were high for products produced in Kenya. Since prices have fallen considerably, some diversification should be done to handle problems of marketing domestically and internationally.

The figures showing the totals of the products marketed from the African areas during the implementation of the Swynnerton Plan indicate great improvement (13, p. 46):

	£
1955	4,986,332
1956	4,613,680
1957	5,216,215
1958	5,781,023
1959	7,531,392
1960	8,265,969
1961	9,362,611
1962	8,835,991

Thus, since the inception of the Swynnerton Plan, the African farmers' income has increased, there is greater participation in the monetary economy, and better methods of farming also have been learned.

The planners of the Six-Year Plan 1964-70 were impressed by the outcome of the Swynnerton Plan; so, in their present plan they advocate a continuation on a national basis of the Swynnerton Plan with some modifications.

An Appraisal of the Nonscheduled Agricultural Areas

The present development plan is extending the application of the Swynnerton Plan to all nonscheduled agricultural areas. Again, the first step is to consolidate over three million acres during the Plan period.

Land consolidation will be followed by farm planning and introduction of cash crops and livestock. According to the plan some products will be produced in nonscheduled agricultural areas. A detailed plan has been worked out as to how many acres of each cash crop are to be planted.

Table XI shows the classification of the land in nonscheduled agricultural areas. It is estimated that approximately four-fifths of the total acreage of high-potential land is in the nonscheduled areas. In the writer's opinion, this land should be used to its optimum capacity. The government hoped to increase the number of the extension staff to promote farming. Also, agricultural credit will provide capital for purchasing inputs needed for production.

Table XII shows the expenditure of the Swynnerton Plan 1955/60. The present government has limited capital, and thus it intends to make the development scheme as self-supporting as possible. The way in which it is hoped to accomplish this is through government agricultural credit and commercial institutions. The farmers have formed different cooperatives with help of the government. A farmer can get a loan through a cooperative which will later buy his products. The cooperative will be responsible for paying back the loan wherever the loan was acquired. The loans from the government are on a short term basis. The farmers who do not wish to join the cooperatives, and are potentially progressive,

Table XI. Classification of Land in Nonscheduled Areas.

Category	Description	Characteristics	Area Square Mile	Remarks
A	High potential arable	25-35" rainfall, soil good	18,197	Includes all the arable land in non-scheduled areas.
B	High potential grazing	25-35" rainfall, soil mainly shallow fertility and drainage problems	10,293	The Department would discourage arable farming in this area unless for exceptional reasons.
C	Low potential grazing	20-25" rainfall, bush and tsetse country	14,840	Regarded as doubtfully suited to organized ranching at present stock prices and with indigenous livestock.
D	Very low potential grazing	20-10" or less rainfall -- erratic	147,984	Best use is thought to be for nomadic wild animals or, less so, for strictly nomadic stock keeping.

Source: Land classification made by Ministry of Agriculture and Animal Husbandry.

Table XII. Expenditure on the Program for Intensive Development of African Agriculture (Swynnerton Plan) 1955/60.

	£	£
Colonial Development and Welfare Funds		
1955/56	3,483,917	
1956/60	2,016,083	
		5,500,000
Other Funds		2,447,349
Accelerated Swynnerton Plan		2,615,173
		£10,562,522

Source: Development Estimate for the Year 1959/60, Government Printer, Nairobi, Kenya.

can acquire agricultural loans directly from government agricultural credit agencies or commercial institutions. The success of making the scheme "self supporting" will depend upon high production of cash crops which are a prime source of capital, and of future agrarian development.

The nonscheduled agricultural areas have poor and/ or inadequate roads, communications and railway services. A constant, reliable supply of water and electricity is badly needed in these areas. The government is determined to improve the roads, and where possible, to construct new roads. Through a ramifying network of transport systems the peasant farmer will be able to compete with the farmers in scheduled agricultural areas. Railway facilities are expected to be improved where demand makes it feasible. The World Bank of Reconstruction and Development has made a loan of £ 2 million for this infrastructural development. Investment in a transport system is of an indirect kind, referred to sometimes as a "social overhead," which is defined by Belshaw as: "By social overhead we mean investment and services which will make a general contribution to the operation of other industries providing goods and services for market and to the social welfare of society. Transport, health, education and training are examples" (5, p. 14).

Improved road and railway services will ensure quick delivery of agricultural commodities to the markets and inputs to the farmers.

The lack of utility facilities has been a hindrance to the nonscheduled agricultural areas. The Kenyan government has lodged a pilot scheme of water supply in the Kiambu District. According to government appraisal of this scheme, it is hoped that it will "improve utilization of manpower in the district and reduction in the incidence of crop and livestock diseases, leading to improved production by the small farmer" (25, p. 72). Similar schemes are expected to start as soon as capital and manpower are available. The total expenditure over a six-year period will be £3.4 million. The veination of electricity and communication services will be carried out by private enterprises with financial assistance from the government. The feasible areas for industrialization in the nonscheduled areas will be new industrial centers. All these cannot be accomplished in the six-year period; however, it is expected that industrialization will increase its role of taking away manpower from the agricultural sector *per se*.

Marketing Procedures

The marketing of products from nonscheduled agricultural areas has been in the hands of European farmers' cooperatives or other marketing organizations. African farmers used to sell their commodities to European cooperatives at lower prices. The Six-Year Development Plan found this marketing procedure was not fair to African farmers. Therefore, the government has encouraged the formation of cooperative societies, which are expected to operate under democratic principles.

Cooperative marketing is defined as a voluntary business organization established by its members to market farm products collectively for their direct benefit. Members, as owners, operators, and contributors of commodities handled are direct beneficiaries of the savings that may accrue. The members will receive direct profit or loss. These cooperatives will have better bargaining power for prices and other matters affecting farmers. A cooperative may accomplish its goal by (1) obtaining better prices than could be obtained by private agencies, (2) securing the same price but having a lower marketing margin so that the net price received by the producer will still be higher than that paid by private middlemen, and (3) a combination of these two (4, p. 3-23). In addition, cooperatives will educate their members, so that they will be able to produce more quantity plus quality, or to control production where it is necessary. Some of the cooperatives in the future will be in a position to process their products into final goods.

In general, the government is seeking markets abroad. One way is to try to expand markets in the countries which have not been trading with her. At present there is a study under way trying to determine which policies should be adapted to keep up with the demand of present markets. Some of these policies will lead to adjustment and diversification. Domestic consumption is being encouraged. This will involve a change in eating habits of most of the people in the country. To keep the present markets and acquire new ones, high quality agricultural products must be maintained in the entire agricultural sector.

IRRIGATION PROJECTS

> More than other scientists, social scientists need to be self-conscious about their methodology.
>
> Milton Friedman

Introduction

Good farming land is scarce in Kenya and demand for land is very great. Agricultural land in Kenya is classified into four broad categories: high, medium and low potential, and nomadic pastoral lands. Land of high potential characteristically has either good soil conditions, or more than 35 inches of rain per annum, or both. Land of medium potential receives between 25 and 35 inches of rain per annum. Land of low potential has a rainfall of 20 to 25 inches per annum. Nomadic pastoral land has less than 20 inches of rain per annum. The scope of this chapter will discuss the projects which are prescribed for the land of low potential and nomadic pastoral land. Land of low potential is best suited to ranching, except in areas where irrigation development has either taken place or can be introduced. Nomadic pastoral land is used for stock grazing and for the upkeep of wildlife. During the Six-Year Plan the government is aiming to improve irrigation schemes as a means of increasing production in agriculture. Irrigation schemes are expected to be operated under minimum costs.

The major projects are Mwea Tebere, Tana River, Yala Swamp, Kano Plains, Taveta, Yatta and Perkerra.

Analysis of Projects (24, p. 60-62)

Mwea Tebere Project

This irrigation scheme embraces 5,400 acres of which 5,000 acres is irrigated rice, giving jobs to 1,250 families. During 1963/64, 2,000 acres will be added, and will be financed by Freedom From Hunger funds amounting to £163,000. In 1965/66 a further extension of 5,000 acres will begin and will cost approximately £30,000. The whole scheme will cover an area of 12,400 acres and is projected to produce 30,000 tons of rice per annum, that is two and one-half tons per acre per annum. In addition, within a period of three years, 900 acres will be developed for growing horticultural crops for domestic markets at a cost of £72,000.

Tana River Project

This project is rated best for a large irrigation scheme. The pilot irrigation scheme was started in 1957 at Galole. It encompasses 1,200 acres and has 300 tenants. Cotton is being farmed here and high yields of 1,500 to 2,000 pounds of seed cotton per acre are being realized. As a consequence of this promising output, the Kenyan government has decided to invest heavily in developing the area. The United Nations Special Fund is studying the area. The Kenyan government is waiting for the study to be completed, upon which the amount of appropriation and development will be based. The estimated cost of the project is about £7.5 million; however, the study by the United Nations, which will end in 1965/66, will cost £598,000. The project will begin in 1967/68, and £3.5 million will be spent during the planning period. All these costs are based on the assumption that 60,000 acres will be developed in this scheme.

Yala Swamp Project

In 1954-56 studies were carried out by some engineers who found that this area has very good potential for irrigation development. Further survey of the water resources of the Kenya Nile basin was performed by Sir Alexander Gibb and partners in 1964/65 and they recommended 30,000 acres to be developed at Kano Plain and a further 20,000 acres in the Yala Swamp, at an estimated cost of £100 per acre.

The Yala Swamp Project is to be given first priority. Five hundred acres will be developed first and will be known as Bunyala Pilot Irrigation Scheme. This Bunyala Scheme is estimated to amount to £324,000. The chief crops will be cotton and rice. The first phase of development was to start in 1964/65 and the second phase will begin in 1968/69. Total cost of the Yala Swamp Project will amount to £2 million, of which £1.5 million will be utilized during the planning period.

Kano Plains Project

A pilot irrigation scheme will commence in 1965/66 consisting of 500 acres with an estimated cost of £50,000. Phase two, covering 10,000 acres, will begin in 1969/70 at a total cost of £1 million. Of this total £500,000 will be spent during the planning period.

Taveta Project

This irrigation project is intended to embrace 1,100 acres of potentially good irrigation land on the right bank of the Lumi River at Taveta to appease the growing population in the Taita Hills. About 300 families will settle here to farm bananas, cotton, onions and other minor crops. The estimated cost of this project is £70,000 and further extension of the scheme is under consideration.

Yatta Project

Development of the Yatta Project of 1,000 acres is hoped to be completed in 1968/69, costing approximately £132,000.

Perkerra Project

This scheme has been helping to raise the income of the people around Lake Baringo. The demand for land is increasing. An extension of 1,700 acres was undertaken in 1963/64, bringing the maximum of possible irrigable land to 6,500 acres. During the 1964/70 Plan the government has devoted only Ŀ300,000 for use. The major reason for this is that Pekerra River is dry during the dry season. Further investigation is underway to see how much more water could be made available. Farmers raise rice and cotton in this irrigation project.

Kerio-Turkwell Project

This project is tentative at present, owing to lack of ability to finance. The survey of Kerio and Turkwell valleys is under way at an estimated cost of Ŀ15,000. Under the 1964/70 Plan, only a token provision of Ŀ300,000 is made available. In addition, a sum of Ŀ500,000 has been set aside for the development of a water-spreading scheme on 2,000 acres of land in West Turkana. If the experimental project proves to be encouraging, more will be sought for further development.

The Context of Evaluation of Projects

The irrigation development projects are not a new idea in Kenya. During the time of the Mau Mau Revolution, the colonial government initiated irrigation schemes to provide work for detainees. Although they were not expected to be of economical value, one significant result "has been demonstrated that African families with experience only of dryland farming can adapt themselves to efficient intensive production under irrigation" (22, p. 77). When the planners were working out the development planning and investment cost of irrigation schemes, they had a good idea of what returns they would get. At the end of 1963, the Mwea-Tebere Project had 5,000 acres under rice; Perkerra had 1,600 acres, and at Galole 1,200 acres had been developed. High yields of rice have been obtained with net returns of £130 from a holding of four acres (22, p. 77). During the Six-Year Plan these schemes will be highly developed to achieve greater outputs. Also, new projects will be developed.

The data in Table XIII coveys some idea of the objectives to which the government has assigned priority of heavy cost investment of each particular project. It is very early to determine empirically the real value of factor inputs. But within a set of assumptions of input-output analysis one could calculate the value of inputs. In the Mwea-Tebere Project, the government controls water, provides machinery for all heavy cultivation and transport of rice, and supplies the seeds and fertilizers. This is also true of the Perkerra and Galole projects. The tenants pay for the services provided by the government. Assuming this will be practiced in new irrigation projects, returns to capital investment and labor charges could be calculated. All these projects are expected to be operated under a laissez faire system, but at an early stage the government will have more control because of lack of education, experience, resources and incentives of settlers. Farmers will be assisted to form cooperatives, which will provide management and bargaining power for fair prices for the members.

The Six-Year Plan 1964-70 is projected to increase cash crops and livestock production from £46.5 million to £79.3 million by 1970, an increase of £32.5 million over 1962. This represents a growth rate of 6.8 percent per year, assuming the price remains constant. In examining the data in Table XIV for cotton and rice, one sees that the former crop will be worth £4.5 million, a nine-fold increase over present value. The latter crop will be worth £1.1 million, a three-fold increase over present value. This enormous yield increase will be

Table XIII. Estimated Expenditure - Irrigation.

Irrigation Projects	1964/65	1965/66	1966/67	1967/68	1968/69	1969/70	Total
	£	£	£	£	£	£	£
Mwea Tebere	118,000	118,000	136,000	100,000	100,000	--	572,000
Tana River	117,000	103,000	--	500,000	1,500,000	1,500,000	3,780,000[1]
Yala Swamp	150,000	103,000	71,000	--	500,000	1,000,000	1,824,000[2]
Kano Plains	--	25,000	25,000	--	--	500,000	550,000
Taveta	35,000	35,000	--	--	--	--	70,000
Yatta	--	--	--	132,000	--	--	132,000
Perkerra	24,000	--	--	100,000	100,000	100,000	324,000
Kerio-Turkwell Valleys	65,000	--	--	100,000	100,000	100,000	365,000
Total	569,000	384,000	232,000	932,000	2,300,000	3,200,000	7,617,000

Note: 1. Of this, £194,000, representing the U. N. Special Fund contribution to the Tana River Survey, will not be included in the Development Estimates.

2. Of this, £197,000, representing the U. N. Special Fund contribution to the Bunyala pilot project, will not be included in the Development Estimates.

Source: Kenya, Government. Development Plan 1964-1970. Nairobi, Kenya, Government Printer, 1965. p. 67.

Table XIV. Estimate of Marketed Agricultural and Livestock Produce. (Returns to Producers)

Item	1954	1962	1970
		£ 1,000	
Coffee	5,460	9,480	16,870
Tea	2,060	6,690	10,920
Sisal	2,240	4,520	8,500
Cattle and Calves for Slaughter	2,200	4,790	5,150
Dairy Products	3,910	5,300	6,920
Sugar	280	1,170	3,970
Cotton	790	460	4,460
Maize	5,970	3,330	3,900
Pyrethrum	620	2,210	3,000
Wheat	3,860	2,140	2,710
Wool	220	370	1,480
Rice	--	310	1,110
Other	5,700	5,980	10,260
Total	33,310	46,760	79,250

Source: Kenya, Government. Development Plan 1964-1970. Nairobi, Kenya, Government Printer, 1965. p. 49.

obtained from the irrigation projects. For instance, the cotton yield will be raised from 200 pounds to at least 600-700 pounds of seed cotton per acre. High yields will be obtained because of better methods of farming, better seeds, and the extension of present irrigation schemes as well as the addition of new schemes.

Induced Investments by the Projects

The cash outlay involved in the development of projects is handsome. Some of the benefits which will be received from the projects will be easy to measure in monetary terms and some will be hard to put in monetary terms. Apart from direct investments of irrigation projects, there will be induced investment. The government will build health centers to provide medical facilities for the settlers; schools will be constructed so that children will be able to get some education. Roads will be built to serve these areas. Business people will construct some shops so that farmers can buy necessary goods, such as sugar, salt, machine parts, clothes, and others. All these investments will result as a consequence of the irrigation projects. Here again, the input-output analysis can be used to determine the effect of final demand on the rest of the economy of the inputs and outputs involved.

Alternatives to the Projects

The Kenyan government had a very limited choice to make in order to achieve its goals of encouraging Africans to participate in building the national economy. The alternatives which the government had are those projects involving industrial experience and heavy capital investment. By means of using the opportunity cost approach (2, p. 49-57), in the writer's opinion, irrigation projects undertaken by the government are the best alternative. However, when the projects are completed, the government should establish better methods of selecting settlers instead of using the present criteria of unemployment and landlessness. By selecting progressive farmers, they will be in a good position to provide employment and increase food supply.

SUMMARY AND CONCLUSIONS

Kenya exhibits a dualistic economy in the Agricultural Sector. In scheduled agricultural areas, there is commercial farming and in the nonscheduled agricultural areas, a mixture of semi-commercial and peasant (subsistence) farming. The rural area is the center of life for more than 70 percent of the Kenyan population. If these people are to improve their lot, it will be through interacting schemes of agricultural and community development. The scope of this study is to appraise agricultural investments during the Six-Year Development Plan, and to estimate what role agricultural investment will play in bringing about the projected economic growth and development by 1970.

The analysis of the economy between 1954-1962 reveals many interesting facts. The rate of population growth has been three percent and is expected to remain the same in the future. Thus the population growth rate suggests that, to achieve any net economic growth, output must increase by more than three percent per annum if income per capita is to be raised. A problem that will face the government is that of unemployment. The gross domestic product at current prices increased at a rate of five and one-half percent. Prices, measured by changes in the Nairobi cost of living index, increased by two and one-half percent per annum. The growth rate of the Gross National Product, in real value, is only a three percent increase, which is just enough to support the population growth. The real per capita income probably has increased from zero to one and one-half percent during that eight-year period. In differentiating per capita income from per capita product, labor has grown by two and one-half percent over this period.

The rate of economic growth between 1954-62 has occurred in two phases. In the first phase between 1954 to 1958, where each sector of the economy showed substantial growth, real gross domestic income grew by at least three and six tenths percent. The annual growth in the agricultural sector was more than six percent. The second phase was between 1958-62 which was characterized by a declining growth rate.

The Agricultural Sector is the major source of income. Over 80 percent of the population earns its living from this sector. Primary exports have contributed between 85 and 90 percent of the total export earnings. It constituted about 40 percent of the Gross Domestic Product. New methods of farming have been adapted to nonscheduled agricultural areas under the Swynnerton Plan.

The resources of Kenya are too limited for her to engage in quick industrialization. The planning authorities have designed the Six-Year Development Plan 1964-70 with a view of utilizing the available resources in the most profitable and efficient way. To achieve its goals of raising per capita income and economic growth, the planners advocate heavy capital investment in the agricultural sector, where less skilled manpower is needed. A complete revolutionary change is expected to take place. The scheduled agricultural areas will be re-distributed; nonscheduled agricultural areas will be consolidated and titles to land established. New farming areas will be provided through the irrigation schemes and land reclamation.

Agricultural credits have been offered in order to facilitate loans to the farmers. Cooperative institutions have been organized so that farmers will be united, better farming methods adapted, better prices obtained and loan facilities readily available.

The Agricultural Sector is aimed at providing employment facilities in the near future and in financing the future development. This will come about through earnings from exports and taxes. It may be pointed out that the economic growth of the country might change from depending on the agricultural sector, if discovery of natural resources takes place. For instance, a new metal, Wollastonite, estimated to be worth at least

£25,000,000, has been discovered near Kajiado. This discovery will have substantial impact on economic growth.

It is too early to appraise accurately the impact of the agricultural investment, and its actual role in economic growth and development, because of many factors which are involved. Some of these factors are export prices which might decline or rise; private investors' attitude about investment; the adoption of new methods of farming by farmers; political stability; availability of funds from abroad; and climatical factors which can or can not be favorable. If all goes well, the intended investments in the course of the Six-Year Development Plan 1964-70 will boost the entire economy.

In this thesis, the author has attempted to appraise the impacts of investment in the agricultural sector which is aimed at creating employment, raising capital income per capita, increasing agricultural outputs, and providing export earnings, foreign exchange, and capital formation. Furthermore, the social and political implications of land "hunger" in Kenya will be somewhat minimized by the programs. Since economic growth and development is an evolutionary process, Kenyans and their government have to exercise patience coupled with dedication to make economic transition smooth, cumulative, and progressive.

BIBLIOGRAPHY

1. Aaronovitch, S and K. Crisis in Kenya. London and Southampton, Camelot Press, 1946. 211 p.

2. Adler, Han A. Evaluating transport projects. International Monetary Fund and International Bank for Reconstruction and Development, Banking Review 3(1):49-57. March, 1966.

3. Alpert, Paul. Economic development objectives and methods. London, Free Press of Glencoe Collier-Macmillan Ltd., 1963. 308 p.

4. Bakken, Henry H. and Marvin A. Schaars. The economics of cooperative marketing. New York, McGraw-Hill, 1937. 583 p.

5. Belshaw, H. Agricultural credit in economically underdeveloped countries. Rome, F.A.O., 1959. 255 p.

6. Bennett, George. Kenya, a political history. London, Oxford University Press, 1963. 190 p.

7. Brown, L. H. Development and farm planning in the African areas of Kenya. East African Agricultural Journal 23(2):67-73. Oct. 1957.

8. ______________. Land consolidation and better farming in Kenya. Empire Journal of Experimental Agriculture 30(120):277-285. 1962.

9. Buchanan, N. S. International investment and domestic welfare. New York, Henry Holt and Company, 1945. 249 p.

10. Chenery, H. B. The application of investment criteria. Quarterly Journal of Economics 65(1):76-96. February, 1953.

11. ______________. Comparative advantage and development policy. The American Economic Review 51(L):20-51. March, 1961.

12. ______________. Development policies and progressive programmes. Economic Bulletin for Latin America (3)51-77. March, 1958.

13. Clayton, Eric S. Agrarian development in peasant economies. New York, Macmillan, 1964. 154 p.

14. Eicher, Carl and Lawrence Witt. Agriculture in economic development. New York, McGraw-Hill, 1964. 415 p.

15. Enke, Stephen. Economics for development. Englewood Cliffs, N.J., Prentice-Hall, 1963. 616 p.

16. Forrester, Marion Wallace. Kenya today. The Hague, Netherlands, Mouton and Co., 1962. 179 p.

17. Ghai, Dharam P. How good is Kenya's plan? East Africa Journal 1(4):19-23. July, 1964.

18. Green, Reginald H. Four African development plans. Journal of Modern African Studies 3(2):249-279. August, 1965.

19. Hagen, E. Planning economic development. Homewood, Illinois, Richard S. Irwin, Inc., 1963. 380 p.

20. Hallet, Robert M. African farm pattern challenged. Christian Science Monitor, p. 11. Sec. II. March 16, 1966.

21. Hirschman, Albert O. The strategy of economic development. New Haven, Yale University Press, 1958. 217 p.

22. International Bank for Reconstruction and Development. The economic development of Kenya. Baltimore, Johns Hopkins Press, 1963. 380 p.

23. Kahn, A. R. Investment criteria in development programs. Quarterly Journal of Economics 65(1):38-61. February, 1951.

24. Kennedy, T. A., H. W. Ord and David Walker. On the calculation and interpretation of national accounting material in East Africa. In: African Studies in Income and Wealth, ed. by L. H. Samuels. Chicago, Quadrangle Books, 1963. p. 350-423.

25. Kenya. Government. Development plan 1964-1970. Nairobi, Kenya, Government Printer, 1965. 137 p.

26. Kuznets, Simon. Capital formation proportions: International comparison for recent years. Economic Development and Cultural Change 8(4, pt. 2):1-96. July, 1960.

27. ______________. Economic growth and the contribution of agriculture: Notes on measurement. International Journal of Agrarian Affairs 3(2):56-75. April, 1961.

28. Lewis, A. Economic development with unlimited supplies of labour. Manchester School of Economies and Social Studies 22(2):139-191. May, 1954.

29. ______________. Theory of economic growth. Homewood, Illinois, Richard D. Irwin, Inc., 1955. 453 p.

30. ______________. Thoughts on land settlement. Journal of Agricultural Economics 2:3-11. June, 1954.

31. Lombardini, Siro. Quantative analysis in determination of the efficiency of investment in underdeveloped areas. International Economic Papers 9: 125-145. 1959.

32. Mandelbaum, K. The industrialization of backward areas. New York, Kelly and Millman, Inc., 1955. 111 p.

33. Marcus, Mildred R. Investment and development possibilities in tropical Africa. New York, Bookman Associates, 1960. 286 p.

34. Mill, John Stuart. Principles of political economy (1848). Rev. ed. London, Longmans, Green and Co., 1920. 603 p.

35. News in brief: Kenya. African Report 10(9):47-48. October, 1965.

36. ______________. African Report 11(1):24 January, 1966.

37. Nurkse, Ragnar. Problem of capital formation in underdeveloped countries. New York, Oxford University Press, 1953. 163 p.

38. Polak, J. J. Balance of payments problems of countries' reconstruction with the help of foreign loans. Quarterly Journal of Economics 57:208-240. February, 1943.

39. Tinbergen, J. The design of development. Baltimore, Johns Hopkins Press, 1958. 99 p.

40. United Nations. F.A.O. African Survey. Report on the possibilities of African rural development in relation to economic and social growth. Rome, 1962. 168 p.

Table XV. Projection of Total and Per Capita Gross Domestic Product 1962 and 1970.

Sector	1962 Actual		1970 Estimated		Annual Rate of Growth, Percent 1962-70	
	Total £million	Per Capita £	Total £million	Per Capita £	Total	Per Capita
Monetary	180.0	20.9	280.7	25.4	5.7	2.6
Subsistence	63.3	7.4	83.7	7.6	3.5	0.4
Gross Domestic Product	243.3	28.3	264.4	33.0	5.2	2.1

Source: Kenya, Government. Development Plan 1964-1970. Nairobi, Kenya, Government Printer, 1965. p. 129.

APPENDIX

Table XVI. Monetary Gross Domestic Product by Major Sectors 1962 and 1970.

Sector	Contribution to Monetary Gross Domestic Product £ million		Annual Rate of Growth Percent
	1962 Actual	1970 Estimated	1962-70
Electricity and Water	2.98	5.80	8.7
Services	14.21	25.34	7.5
Banking, Insurance and Real Estate	4.01	6.88	7.0
Forestry	0.95	1.64	7.0
Agriculture and Livestock	37.79	63.95	6.8
Transport, Storage and Communications	22.21	37.32	6.7
Rents	8.39	13.69	6.3
Monetary Gross Domestic Product	180.01	280.74	5.7
Manufacturing	23.04	34.82	5.3
Construction	6.76	9.99	5.0
Fishing and Hunting	0.81	1.17	4.7
Government Services	28.02	39.85	4.5
Wholesale and Retail Trade	30.02	39.24	3.4
Mining and Quarrying	0.82	1.05	3.0

Source: Kenya, Government. Development Plan 1964-1970. Nairobi, Kenya, Government Printer, 1965. p.130.

Table XVII. External and Interterritorial Trade.

(£ million)

	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961
External Trade												
Imports[a]	34.1	53.9	59.3	51.7	60.3	71.5	69.8	72.0	60.9	61.5	70.1	68.9
Re-exports	3.5	3.3	3.9	3.4	2.5	2.4	4.1	4.9	3.9	5.1	5.0	6.4
Retained imports	30.5	50.6	55.4	48.3	57.8	69.2	65.8	67.1	56.9	56.4	65.1	62.5
Exports	17.2	24.1	25.8	19.5	20.3	25.7	29.0	26.4	29.3	33.3	35.2	35.3
Balance	-13.4	-26.5	-29.6	-28.8	-37.5	-43.5	-36.8	-40.7	-27.7	-23.1	-29.9	-27.2
Interterritorial Trade[b]												
Imports from:	3.4	3.6	4.3	4.8	5.3	6.0	4.0	4.5	4.9	5.5	7.0	7.0
Tanganyika	0.7	0.9	0.7	0.8	0.8	1.2	1.5	1.5	1.5	1.8	1.9	1.8
Uganda	2.7	2.7	3.6	4.0	4.5	4.8	2.5	3.0	3.4	3.6	5.1	5.2
Exports to:	3.6	3.7	4.4	5.3	5.8	6.0	9.0	11.4	10.7	12.3	13.8	15.9
Tanganyika	2.4	2.0	2.3	2.5	2.8	2.5	4.4	5.4	5.6	6.5	7.6	8.9
Uganda	1.2	1.7	2.0	2.8	3.0	3.5	4.6	6.0	5.1	5.8	6.2	7.0
Balance	+0.2	+0.1	+0.1	+0.5	+0.5	--	+4.9	+6.9	+5.9	+6.8	+6.8	+9.0
TOTAL TRADE BALANCE	-13.2	-26.4	-29.5	-28.3	-37.0	-43.5	-31.9	-33.8	-21.8	-16.3	-23.1	-18.2

a. Imports received direct from countries outside of East Africa, net of interterritorial transfers of imported goods.

b. Relates to exchange of locally produced and locally manufactured goods. Values shown for 1957 and previous years include excise duty on excisable commodities and customs duty charged on imported raw materials used in locally manufactured goods, and are therefore not comparable with subsequent years.

Sources: East African Statistical Department, Quarterly Economic and Statistical Bulletin; Kenya, Trade and Supplies Bulletin.

Table XVIII. Balance of Payments, 1962 and 1970.

	₤ millions			
	1962		1970	
Current Account				
Domestic Exports				
Agricultural Products	39.1		59.1	
Other Products	16.1		21.0	
Total Exports		55.2		80.1
Retained Imports				
Consumer Goods	33.2		38.5	
Producers Goods	24.1		36.4	
Capital Goods	13.2		27.8	
Total Retained Imports		70.5		102.7
Balance of Trade		-15.3		-22.6
Coverage Adjustment		-2.0		-2.0
Adjusted Balance of Trade		-17.3		-24.6
Foreign Travel	1.8		8.1	
Transportation	7.5		11.0	
Margin on Transferred Imports	7.3		10.7	
Investment Income	-7.6		-14.0	
Public Transactions	7.1		--	
Other	3.8		0.6	
Total Invisibles		12.3		15.2
Balance on Current Account		-5.0		-9.4
Capital Account				
Public Loans and Grants	12.6		--	
Private Loans and Grants	-3.6		--	
		9.0		9.4
Net Errors and Ommissions		-4.0		--

Source: Kenya, Government. Development Plan 1964-1970. Nairobi, Kenya, Government Printer, 1965. p. 133.