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The Sugar Industry and its Place in Kenyan Development.

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For many less developed countries (LDC's) sugar is the mainstay of the economy.[1] Yet, for most of these countries it is an introduced crop, contributing to export dependence rather than internal self-sufficiency. Sugar cane probably originated in Southeast Asia, where it is still an important crop particularly in Indonesia and the Philippines. However, its most horrific history goes back to the Caribbean slave-based economies. In the West Indies for many of the small Island States, the politics of development revolved around the politics of plantation grown sugar. In Fiji, Sugar has been immensely critical in providing up to half the total exports every year. In these countries sugar has also had a crucial effect on the social structure of these societies primarily because of the introduction of indentured labour to work on sugar plantations and sugar mills.

In Africa, sugar cane was first introduced into Mauritius and Reunion in the eighteenth century. By the nineteenth century it had rapidly became the basis of their export oriented colonial economies. It was not introduced on to the mainland of the continent however until the early twentieth century. Most tropical African Countries have joined the rank of sugar exporting countries including South Africa, Mozambique, Swaziland and Zimbabwe, most remain net importers.[2]

The origins of sugar cane in Kenya are rather obscure but it seems to have been first introduced as a cash crop in the 1920s on a small scale.[3] Sugar production has not been export oriented and it was not until the 1960s following independence that a need for self-sufficiency in the light of growing demand arose.[4] Since then, however, large-scale sugar schemes have become prominent, and are seen as the way to ensure Kenya's self sufficiency in sugar and to assist with rural development by improving the levels of income and employment in areas of extremely high population growth and low incomes.[5] Today, Kenya has seven major sugar schemes - Miwani, Muhoroni, Chemelel, Mumias, Nzoia and Sony, all of which are located in the Nyanza sugar belt or Western Province and Ramisi located at the coast (see Appendix)

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Approximately 85% of the Kenyan population lives in rural areas. The main occupation and source of income for most Kenyans is agriculture.

Agriculture forms the mainstay of the economy, contributing close to 30% of the Gross Domestic Product (GDP) (see Table 1).

Population density is especially critical because only 18% of the total area 582,600 square kilometers is of high or medium potential for agricultural activity, while the remainder is semi-arid or desert. However, the service and manufacturing sectors have attained substantially more importance in the post-independence period. The cumulative annual growth rate of the economy until the mid 1970s was close to 6% in real terms, while the industrial sector grew at 10% during this period. In 1975, the growth rate fell to 1.2% when the economy was adversely affected by the world wide recession and rising oil prices.[6]

Table 1: GDP Composition

Agriculture	Per cent
Agriculture	28.8
Manufacturing	15.9
Other Industry	5.7
Natural Resources	1.9
Services	17.5
Government Services	17.8

Source: Republic of Kenya, *Economic Survey*, 1977, (Nairobi: Government Printer, 1976)

Kenya has not yet fully recovered from the effects of the oil "crisis" of 1973, which witnessed the end of nearly a decade of impressive economic growth. Although the economy subsequently improved slightly following the tea and coffee boom of 1976-1977,[7] inflation has remained and at times doubled, while the terms of trade have declined, leading to a serious balance of payments problem. In addition, urban unemployment and rural underdevelopment pose serious problems for the county, particularly in the light of population growth rate of 3.6% per annum, among the highest in the world.[8]

Kenya's development has been based along the lines established successive five years development plans. In the first decade following Independence, government policy concentrated on the manufacturing and industrial sector. Although growth in this sector was highly impressive, two factors caused great concern. First, a failure to distribute resources equitably to the bulk of the population and second, the growing problem of unemployment compounded by the working poor and the landless.

The unemployment problem was further heightened by conflictual development policies which promoted import-substitution industries-which in fact created greater dependence upon imports while at the same time emphasizing policies of agricultural and rural development.

However, the depth and severity of Kenya's development problems was not exposed until an International Labour Organization (ILO) mission published a report on employment, incomes and equality in 1972. A new strategy for solving such problems was needed. The basic recommendations and proposals of the ILO mission have been aptly summarized by Professor Leys, and the main ingredients of the strategy were designed to promote:

1. a shift in government spending from urban to rural areas, where the bulk of low income target groups lived and worked.
2. a shift from capital-intensive to labour-intensive investment, to provide employment for those without jobs and hence without incomes;
3. a shift in industrial strategy to produce goods for low-income rather than high-income consumers, and for the exports markets rather than the internal markets alone;
4. a shift in spending, price policy extension etc., from large farm to small farm production, including redistribution of land from large farms to create new small farms;
5. a shift from support for the so called "formal" to the so called "informal" sector, i.e., from large-scale monopolistic capital intensive enterprise;
6. the development of technology to support small-scale labour-intensive production.[9]

The conclusion of ILO mission not only relayed a sence of urgency but stressed the need to deal with a series of problems which were interrelated;

> employment, in our analysis of the Kenyan situation is inseparable from an overall strategy of economic and social development. Thus any frontal attack on the problem of unemployment and employment in Kenya has to deal with the whole gamut of measures related to the economic and social inequalities, equity and low incomes.[10]

The third Five Year Development Plan for 1974-1978, emphasized goals of rural development, employment creation, income distribution, better education and increased participation. The basic strategy of the plan was aimed at increased rural emphasis and an equality of incomes targeted to reducing the urban-rural income gap. The plan represented a major transition from earlier plans which had emphasized growth. However, the objectives of the government were severely jeopardized in the face of the world wide economic crisis of 1973. The Kenyan government produced a sessional paper entitled "On Economic Prospects and Policies" in an attempt to outline how it proposed to combat the crisis. The new policies outlined in the paper were:

1. to keep domestic price increases to no more than half of the increase in import prices;
2. to hold wage increases, and increases in other non-import costs of production to less than domestic price increases;
3. to restrain imports;
4. to promote exports;
5. to stimulate domestic production both in substitution of imports and to support exports;
6. to choose policies for crisis year which in so far as possible reinforce longer term objectives of promoting growth, employment and an improved distribution of income.[11]

The fourth Five Year Development Plan for 1979-83, primarily emphasized equity considerations. The major themes and objectives of the plan were: alleviation of poverty, population stabilisation and the creation of employment opportunities. In very general terms these broadly represent a basic needs strategy along the lines endorsed by the world employment conference of 1978.[12]

As "early" investment and development options have diminished since the first decade after independence, there has been a growing need to channel funds to the agricultural sector. However, the agricultural sector which occupies a central place in Kenya's development strategy has in recent years faced two critical challenges. First, it has had to cope with a shortage of basic foods (Kenya was largely self sufficient in foodstuffs until the late 1970s). Second, it has had to increase production and employment opportunities to meet the needs and demands of a rapidly growing population.

Massive public investment in the sugar industry demonstrates the importance of the large-scale integrated sugar schemes in Kenya's agricultural and rural development strategies. These schemes share certain common features in that they have adapted large-scale capital intensive industrial production while requiring an integrated system agricultural development and an elaborate infrastructure. The Ramisi and Miwani Mills date back to the 1960s, Muhoroni and Chemelil the mid 1960s, Mumias became operational in 1973, while Nzoia and Sony have only been developed in the 1980s. The Mumias scheme is highly significant in that since its inception it has modified the plantation model of production, which is prevalent in most Third World countries, to a nucleus estate-outgrower model of production (as will be explained later in this paper).

In addition, a considerable amount of arable land traditionally utilized for subsistence is now under sugar cane particularly in the Nyanza and Western provinces (see Appendix 1). Yet, large sections of the population remain malnourished reflecting income inequalities, distributional problems, fluctuations in supply and a lack of nutritional education. As sugar accounts for approximately ten percent of the daily calorie intake of

the average Kenyan (while it had no significant role in traditional diets) a closer examination is warranted. In the 1980s sugar cane was also to become significant in the production of power alcohol which is blended with imported fuels.

Early History

The European settle influence on Kenya was throughout the colonial period a dominant force in politics, economics and on the social structure of the colony. The colonial administration was consistently forced to consider the settler interest in major policy decisions. The settlers had a pre-eminent economic position in cash crop agriculture with large traces of land as their exclusive preserve, heavily assisted by state subsidies, infrastructural investments and government policy towards the indigenous African population. In short, the Europeans controlled almost every sector of the economy. However, in some instances competition was permitted, but only when "it benefitted the Europeans as consumers and did not hurt them as producers. Everything else was organised and regulated with some degree of monopoly".[13]

Kenya also had a second non-African presence in the Asian community.[14] Originally recruited as labourers on the railway, the Asians established themselves as a dominant force in the commercial and trading sector. In addition, a few Asian ventured into farming. Colonial policy at the time favoured Asian Agricultural settlement in regions where there was little white settlement; at the coast, Ukamba and Nyanza province. Consequently in the early 1920s land was alienated from Africans in favour of a few Asians in order to establish sugar-cane plantations. The most significant of these settlements was at Kibos, an extremely unhealthy area of Nyanza province. By 1908, 1,000 acres were already under sugar cane in the area.[15]

In the 1920s with greater accumulation of capital, influential and established Asian families invested in two large scale enterprises, the Miwani Sugar Mill in Nyanza and the Ramisi Sugar Mill located at the coast. Company owned estates organized along a plantation system to ensure a steady supply of cane were associated with these mills. The Miwani estate comprised about 16,000 to 17,000 acres of land under sugar cane.[16] In addition, a small number of Asian families grew cane for the factories or their own Jaggery Mills.[17] Until in the 1950s sugar cane as a cash crop was therefore grown predominantly by Asians, though it was increasingly being adopted by Africans and was in some instances sold at local markets for chewing purposes.[18] However, inspite of its minor role in traditional diets, sugar rapidly became a highly desired commodity, as O'Connor points out that;

During the first half of this century, sugar became much more widely available, mainly through imports from overseas. These were in the form of refined white sugar, which could not be produced from local cane without elaborate equipment, and they quickly became important even where cane was being grown...[19]

As Table 2 demonstrates, sugar consumption increased by 54.6% during the year 1956 to 1962. This phenomenal growth rate corresponds quite closely with variations in income levels. As income levels were rapidly increasing so was consumption in both rural and urban areas. [20]

Table 2: Domestic Sugar Consumption in the Pre-Independence Period 1956-62

Year	Consumption (Metric tons)
1956	65,085
1957	68,924
1958	74,376
1959	78,557
1960	88,424
1961	93,686
1962	100,636

Source: Republic of Kenya, *Statistical Abstract*, (Nairobi: Government Printer, 1965),p.76.

In the early 1950s, as population pressures intensified, some African areas experienced chronic shortages of land, particularly in central province of Kenya. This resulted, among other things in the historic Mau Mau crisis.[21] The Mau Mau insurrection forced the colonial administration to re-evaluate its policies towards the development of African areas, which until then had been largely neglected. The most significant change in colonial policy was towards the development of African agriculture and was best articulated in the highly acclaimed Swynnerton plan.[22] The Swynnerton plan was comprehensive, recommended changes in land tenure, extension services, research, credit and the marketing of cash crops, all of which had been the exclusive preserve of the European farmers.

The major recommendation of the Swynnerton plan was that African farmers be permitted to grow cash crops on a competitive and intensified basis, which would benefit the great proportion of the African Community.

> ...the growers will be augmenting not only their own wealth but that of the district, the coffers of the African District Councils and the income of the colony from exports. In many cases they will be creating and meeting their own wants, e.g. cheaper sugar and tea, milk, meat, fruit and vegetables.[23]

In essence the Swynnerton plan filled a gap in the colonial governments on agricultural policy which had largely ignored African smallholders.[24]

Post-Independence Expansion

Growing consumption rates and changes in colonial agricultural policies created a great deal of interest among African farmers who began to view sugar as remunerative means of farming. Increased production could not however be encouraged without additional factory capacity, despite the growing demand for sugar which was exacerbated by an escalating population growth rate. Production had to go hand in hand with an increase of factories. Output from African areas in the period 1960 - 1963 increased by 495% as demonstrated by Table 3.

Table 3: Quantities and Value of Sugar Marketed from African Areas for the Years 1960-1963

Year	Quantity (metric tons)	Value £
1960	711	1,500
1961	1,172	3,000
1962	2,642	6,000
1963	4,237	9,800

Source: John C. De Wile, *Experience with Agricultural Development in Tropical, Vol. II* (Baltimore: The John Hopkins Press, 1967), p. 134.

In 1961, the Ministry of Agriculture set up a sugar working party which recommend the establishment of additional factories in the Muhoroni-Songhor area of Nyanza province.[25] This was hoped would allow the production of up to 70,000 tons of sugar. The bulk of the increased production was to be supplied by large farm cane growers in the area while the rest would come from smallholders.

As Kenya became independent, the new Kenyatta government had to address the critical issue of land-an increasingly scarce resource in the country. The end of colonial rule provided the impetus to establish a number of settlement schemes predominantly in the former white highlands. In the other areas the government embarked upon a process of rapid extension of private land tenure on the basis of the Swynnerton Plan. This meant that the large farms and plantations which had been backbone of colonial agricultural policies became less visible, but remained and continued to be highly profitable, while reducing the political risks associated with the highlands and reduced land hunger over the shortrun.[26]

The revised 1966-1970 Kenyan Development Plan projected that sugar consumption would reach the 170,000 tons level by 1970. In order to facilitate this phenomenal growth the government embarked upon a process to expand both the Ramisi and Miwani mills. In addition in 1965 the government established an Agricultural Development Corporation project (ADC) - the Chemelil sugar scheme. The government puchased the nucleus estate [27] and factory site. Machinery for the factory was acquired through a loan from West Germany. The German aid program provided the funds necessary for smallholder land development in the area. It was expected that by 1970 the plant would produce at a capacity of 60,000 per tons per annum, and "approximately 40% of Chemelil's cane supply was to come from Luo and Nandi smallholders..."[28]

A second sugar company with a maximum plant capacity of 45,000 tons was established at the same time in the Muhoroni area with substantial investment from the Asia Metha group (a sugar conglomerate in Uganda), which owned 8,000 acres of land in sugar estates in the Muhoroni area. The Muhoroni scheme was also partly funded by the ADC and received machinery credits from West Germany. The Muhoroni mill was also to be supplied by a combination of a nucleus estate, large scale farmers and smallholdings. All said the total Kenyan government commitment to both sugar schemes amounted to more than £K13 million. This was utilized for establishing both schemes, extension services and importantly for creating an infrastructure to serve both factories. In fact, sugar expansion in this period accounted for more than one-half of the total investment in the food processing industry.[29]

Despite heavy investment into the sugar industry the Kenyan government's goal of sugar self-sufficiency by 1970 was not attained. This was primarily because of financial problems encountered by Ramisi sugar mill which was ultimately declared bankrupt in 1964. The financial problems were largely brought about by inept management [30] within the sugar mill. The Asian Madhvani group purchased Ramisi in order to restore full capacity by 1970. However, in 1965 total output was a mere 4,242 tons. In addition, all four sugar factories received inadequate supplies of cane. This can be attributed to three factors. First, severe drought conditions in the country contributed to low yields and consequently to low out-put particularly for cane from small holdings. Second, the goals of the government were over-ambitious given the limitations of resources in developing the smallholdings. Finally, the unwillingness of many smallholders to engage in sugar production.

Table 4: Cash Revenue to Producers 1964 - 67
£K,000

Year	Small Farms	Large Farms	Total
1964	209	1,281	1,490
1965	244	1,300	1,544
1966	109	822	991
1967	566	1,032	1,598

Source: Republic of Kenya, *Statistical Abstract* (Nairobi: Government Printer, 1968)

Nevertheless, a substantial increase in cash revenues (see Table 4) was experienced by smallholdings. In 1967, £K566,000 as compared to £K1,032,000 for large farms. However, this is especially significant because smallholders only grew cane on 14% of total acreage of cane planted.

Although Kenya witnessed unprecedented growth in the first decade following independence, by the mid 1970s the economy was in serious decline. This decline was brought about primarily but not only because of massive increases in import prices. The ramifications of high import costs were especially critical for the sugar industry. Sugar consumption increased rapidly at a time when the price of sugar was at its highest on the international market (see Table 5). Thus, it became imperative for the Kenyan government to expand agricultural output to attain self-sufficiency and save scarce foreign exchange.

Table 5: Sugar Production, Consumption and Imports for 1963-1970
(Metric Tons)

Year	Production	Consumption	Net Imports
1963	37,475	98,388	61,503
1964	25,333	105,126	74,536
1965	29,085	112,261	96,101
1966	36,387	121,380	107,394
1967	60,418	121,377	46,280
1968	81,439	132,524	57,061
1969	115,291	141,956	28,356
1970	125,291	157,628	39,614

Source: Republic of Kenya, *Statistical Abstracts 1964-1971*, (Nairobi: Government Printer, 1972)

In order to become self-sufficient in sugar the four existing mills were expected to increase out put to 165,000 tons by 1970. This projected output was to be met by an anticipated 40% increase in sugar cane to be planted primarily by smallholders. The *1970-1974 Development Plan* indicated the government's commitment to smallholder agriculture. £K2.8 million was to be invested into a sugar roads improvement programme while a further £K500,000 was to be utilized for the improvement of transportation and crop husbandry at Muhoroni.[31] Thus, it had become apparent that greater attention had to be focussed upon the smallholder sector, a politically viable strategy for the Kenyatta regime given the growing scarcity of land. In short, by the end of the 1960s a major shift occurred from the predominance of plantations in the colonial economy to smallholdings in the post-colonial state.

Agri Business and the Sugar Industry

All Kenyan sugar schemes share certain common features. They were all designed to create greater income and employment opportunities in the rural areas by developing and expanding the smallholder sector - the linchpin of Kenya's rural development strategy. The sugar schemes were developed on the basis of import-substitution, to attain self-sufficiency by the early 1970s. However, the goal of self-sufficiency was not attained primarily because of under production brought about climatic conditions, insufficient cane supplies, poor yields and critical transportation problems. The situation was further exacerbated by Asian and large-scale farmers who were reluctant to invest at pre-independence levels, for fear of Africanization and Nationalization.[32] This meant that some of the best land in the sugar belt was unproductive and underutilized. Overall, the fundamental problem in these schemes was a lack of coordination.

Table 6: Sugar Production, Consumption and Imports for 1970-1982 (Metric tons)

Year	Production	Consumption	Net Imports
1971	123,889	188,172	72,081
1972	88,095	194,493	103,816
1973	139,707	215,417	77,485
1974	171,910	224,626	70,703
1975	165,460	195,294	12,709
1976	165,270	156,597	45,501
1977	188,810	205,156	36,308
1978	234,920	224,907	46,112
1979	314,760	256,413	12,504
1980	397,220	329,163	1,751
1981	382,200	N.A.	1,756
1982	404,210	N.A	N.A.

Source: Republic of Kenya, *Statistical Abstracts 1971-1983*, (Nairobi: Government Printer, 1972-1983)

It was against this background and ever increasing consumption rates (see Table 6) that Bookers Agricultural and Technical Services (BATS) recommended the establishment of a new sugar scheme at Mumias. The new scheme was to have a central mill, supplied by a nucleus estate and an outgrowers scheme based on a system of contract farming.

In 1967, Bookers' Agricultural and Technical Services (BATS) carried out a feasibility study on the possible development of the sugar industry at Mumias.[33] The presence of BATS, subsidiary of the transnational Booker McConnel represented the penetration of yet another international agri-business firm into Kenya.[34] This was highly significant because sugar as a cash crop was primarily grown for internal consumption (though the government aspired to export the commodity). However, for BATS the project represented a 'foot in the door', which would permit it to play a technology and "superior management" techniques by way of consultancies and management contracts.

Critically, it meant that Kenya had rejected a labour-intensive technology which is utilized in India and Taiwan and had committed itself to a capital-intensive industry. There are essentially two types of technologies utilized in sugar production - the small-scale labour intensive open-pan process.[35]

The socio-political ramifications of establishing plantations caused BATS to recommend that the sugar scheme be based on smallholder agriculture in the form of contract farming. A system where all technological inputs are delivered, supplied and supervised centrally, permitting even the smallest farmer to participate as production is controlled.[36]

Contract farming allows the transnational to be part of every aspect of agricultural production. Yet, it minimises the risks of growing cash crops in highly volatile international markets where prices are highly unstable and fluctuate wildly. In the case of sugar in 1974 the price of sugar hit an all time high of £665 a ton (creating a notion of white gold) only to fall to £93 a ton by 1979. In 1980, a new pattern of fluctuations emerged taking the price of sugar from £205 to £400 a ton only to fall as low as £100 in June 1982.[37]

Contract farming ensures that agri-business does not need to have capital tied up in direct ownership. The transnational is either brought in on a purely management contract, or as a minority shareholder, or just as an exporter of high technology. In all three cases the firm is ensured of a constant supply of the commodity geared to its own specifications. in addition, as the state is an active participant in the project, the project can attract a significant amount of capital from international donors and agencies, further minimising the risks of the transnational does not have to contend with state relations over wage relations - a factor which could limit profitability.[38] Contract farming is highly appealing to the state and its allied classes primarily because it corresponds to its rural development strategy of overcoming low productivity in smallholder agriculture, while at the same time creating an internal market. In the case of Booker McConnel it enabled the transnational to establish its interest in the rapidly growing local market without fear of nationalization.

The Administration and Structure of the Sugar Industry

The Mumias sugar scheme was situated to take advantage of existing road networks, though it was stressed by BATS that an efficient infrastructure was required to serve the scheme. From the outset, the project was supported by the British government which provided loans and aid totalling £7.5 million. The Kenya government acquired 69% of the shares, while the Commonwealth Development Corporation (CDC) attained 12%, Kenya Commercial Bank (KCB) 9% and both East African Development Bank (EADB) and BATS had 5% each. Booker McConnel was awarded the contract for supplying the mill with industrial inputs and the management contract.[39] The Mumias sugar scheme was to create 2,100 jobs and provide up to 6,000 farmers an income of £K130 per annum. In addition, a number of secondary jobs were expected to arise out of the spin-off effects of the scheme.

The organization of the Mumias sugar scheme is highly centralized. While one-half of the mill's cane requirements were initially met by the nucleus state surrounding the mill, the remainder was supplied by outgrowers who were under contract to the Mumias sugar company. The nucleus estate has been found to have higher yields than most smallholdings. However, at Mumias this is not significant because of a highly centralized integration of the outgrowers.

In order to qualify for the outgrowers scheme, the company surveys the land to ensure suitability. Once a contract is signed, the company ploughs, harrows and farrows the land and provides labour for weeding (a very labour intensive but extremely important process for high yields) if the farmer is unable to clear his fields. An extensive company field staff team cuts the cane upon maturation and an efficient transport system ensures rapid removal of the cane from the field to mill, all to a cost of 8% of the total harvest of the farmer.[40]

In its first year of production, the Mumias sugar scheme surpassed anticipated production quotas and rapidly became the cornerstone of the government's high profile sugar policy. The success of Mumias was especially significant because it occurred prior to both the sugar boom of the mid 1970s and the collapse of the Ugandan sugar industry (Kenya's major supplier) under the mismanagement of the Amin regime. The rapid increase in the price of sugar on the international market coupled with distributional problems meant an increased price of sugar to the consumer.

However, in 1975 and 1976, high prices ensured that consumption was checked. The decline in prices towards the end of 1976 witnessed the upsurge in consumption once again (see Table 6).

In the mid 1970s another transnational, Tate and Lyle, was commissioned to make a feasibility study of restructuring production at Ramisi, Miwani, Chemelil and Muhoroni. Tate and Lyle's major recommendation was that since all four sugar mills had nucleus estates (some required expansion) surrounded by some form of smallholders, they should emulate the Mumias model.[41] In essence Tate and Lyle argued that the peasants in the area were incapable of efficient production, thus a move towards centralization was essential to increase both yields and incomes. For example an outgrower at Mumias earned Shs. 3,700 per annum, per hectare as compared to a cooperative smallholder at Muhoroni, who only earned Shs. 1,500 per annum, per hectare.[42]

However, contract farming has entailed serious consequences for the peasants who predominantly engage in smallholder farming. Smallholder subsistence farming is the dominant mode of agricultural production in Kenya. Monetarisation of this sector menas that smallholders have to increasingly engage in greater cash crop production, thus devoting a greater promotion of land to such crops at the expense of subsistence crops.[43] The situation is further aggravated by the fluctuating price of sugar on the world market.

Contract farming has meant an unsurpassed means of exploitation by agri-business of smallholders who are forced to carry their own reproductive costs. As most smallholders utilize family labour (primarily because market labour is too expensive in relative terms) this results in horrendous working hours to meet challenging demands of the transnational and creates worsening living conditions. Thus, despite the attempts of governments to attain control over land and agricultural resources, the transnational shave discovered an effective means of circumventing government policy in times of land scarcity by way of consultancies, management and technical contracts.

Conclusion

A major effect of the successful and centralized system is that rural society has been radically altered and stratified on the basis of both sugar producers and non sugar producers as well as large farmers and small farmers.[44] Centralization of the sugar schemes has prevented reinvestment into sugar related production which leads to the development of richer farmers investing outside the cane economy. This is exacerbated by the fact that a number of the richer farmers are those who acquired land in the sugar belt during the land consolidation process and come from the rural and urban middle class who are already wage earners.

The high profile of sugar producing farmers at Mumias has meant that smallholders in the area have substantially reduced the area under which subsistence crops were grown in anticipation of access to the outgrowers scheme. This has resulted in an internal shortage of food and consequently nutritional problems in the region. It is highly questionable as to whether large areas of land should be under a single cash crop when a large proportion of rural society is dependent upon a subsistence of agriculture. The situation is further exacerbated by a growing population, the repatriation of profits by international agri-business and a high import propensity of technological inputs. Thus, a critical question to be addressed in whether the move towards contract farming has increased exploitation and resulted in generally deteriorating conditions of living for the smallholder at a time when government policy places strong emphasis on a basic needs strategy.

Appendix 1: Agricultural Schemes by Mill Zones - Hectares - (1975)

Mill Zone	Nucleus Estate	Asian Farms	Large Farms	Small Holder Resselte-ment Schemes	Cooper-ative	Out-Growers	Total
Miwani	3,642	6,070	-	-	608	-	10,320
Muhoroni	1,821	-	1,214	5,261	1,214	-	9,510
Chemelil	3,238	1012	4,654	-	3,642	-	12,546
Mumias	3,238	-	-	-	-	6,597	9,835
Sony	2,835	-	-	-	-	8,256	11,089
Nzoia	3,238	-	-	-	-	7,376	10,614

Source: J.A. Smith, "The development of Large Scale Integrated Sugar Schemes in Western Kenya, Institute of Development Studies, Nairobi, August, 1978, Working paper No. 343.

FOOTNOTES

1. Sugar is an important commodity in a number of Caribbean states. Guyana, Fiji, Mauritius, Trinidad, Indonesia, Cuba and the Philippines are examples of countries where sugar is the mainstay of the economy. For more explanation see George Beckford's "The economics of agricultural resource use and development in plantation economies", *Social and Economic Studies*, 18, pp. 321-47, also see his *Persistent Poverty: Underdevelopment in Plantation Economies of the Third World*, (New York: 1972). For Fiji see M. Moynagh's, *Brown or White? A History of the Fiji Sugar Industry*, 1873 (Canberra: ANU, 1981).
2. See A.M. O'Connor's "Sugar in Tropical Africa" *Geography* 60(1), 1975, pp. 24-30
3. It is rather difficult to provide an exact date as to when sugar was introduced in Kenya. As David Brokensha and Bernard W. Riley say; "the phrase 'the introduction of cash crops' merits some attention as it does imply a point in time - and this is misleading. It would be difficult to pinpoint exactly a year, or even a period when cash crops were introduced in Mbere, as indeed it would be for most African rural areas". See the 'Introduction of Cash Crops in a Marginal Area of Kenya', in M. Lofchie and R. Bates (eds), *Agricultural Development in Africa: issues of Public Policy*, (New York: Praeger Publishers, 1980).
4. Until then much of Kenya's sugar was supplied by Uganda.
5. For details of the government's objective to attain self sufficiency see Republic of Kenya, Development Plan 1970-1974 (Nairobi: Government Printer, 1970).
6. See Hazlewood, *op.cit.*, and *Economic Surveys* for the years 1972-83 (Nairobi: Government Printer, 1973-83
7. In 1977 and 1978 the price of Kenyan coffee was substantial increased because of the Brazillian crop failure.
8. Hazlewood, op.cit., also see Hazelwood's, *The Economy of Kenya: The Post Kenyatta era*, (Oxford: Oxford University Press, 1980) and Republic of Kenya, *Statistical Abstract 1982* (Nairobi: Government Printer, 1982).
9. Colin Leys, "Development strategies in Kenya since 1971" *Canadian Journal of African Studies*, Vol. 13 No. 1-2, 1979, p. 309.
10. ILO, Employment, Incomes and Equality: a strategy for *Increasing productivity employment in Kenya* (Geneva: ILO, 1972, p. 30. The official responce is contained in the Republic of Kenya, Sessional paper No. 10 of 1973, Nairobi: Government Printer, 1973. See also Tony Killick's *IDS*, Nairobi Discussion Paper # 239. Also see *Development Plan* 1974 - 1978. Nairobi: Government Printer, 1974).
11. Republic of Kenya, *Sessional Paper No. 5 of 1975*, (Nairobi: Government Printer, 1975) p.7.
12. See Republic of Kenya, Development Plan 1979-83 (Nairobi: Government Printer, 1979). Also see Dharam Ghai and Martin Godfrey and Franklyn Lisk's, *Planning for Basic Needs in Kenya: Performance, Policies and Prospects* (Geneva: ILO, 1979).
13. Colin Leys, *Underdevelopment In Kenya: The Political Economy of Neo-Colonialism 1964-1975*. (Berkeley: University of California Press 1974 p. 34. For detailed account of the subjugation of Kenyan territory see Carl A. Rosberg and John Nottingham, *The Myth of "Mau Mau": Nationalism in Kenya* (New York: Frederick A. Brager, 1966) and E.A. Brett, *Colonialism and underdevelopment in East Africa* (New York: N.O.K. Publishers, 1973).
14. Asian, in East Africa is referred to those who originally came from the Indian subcontinent.
15. For an account of Asian settlement in general see J.S. Mangat, *Asians in East Africa*, (Oxford: Clarendon Press, 1969).
16. John C. De Wilde, et.al., (eds), *Experiences with Agricultural Development in Tropical Africa Vol.2*, (Baltimore: John Hopkins Press, 1967), p. 144.

17. Sugar manufactured in Kenya is of mill white quality, Jaggery sugar is also produced on a very small scale, but is outside the scope of the present paper. Jaggery mills are small workshops with primitive technology which crush cane and boil the juice to produce unrefined brown sugar, most of which is used for brewing alcohol.
18. Colonial Office, *Annual report on the colony and Protectorate of Kenya for the year 1948*. (London: Her Majesty's stationery office, 1950).
19. This trend is evident throughout Africa. See A.M. O'Connor op.cit.
20. A.M. O'Connor shows this is true for almost all tropical African countries. Also see Ralph Clark's "Sugar consumption in Kenya", *East African Journal of Rural Development*, Vol.1, No. 1, January 1968.
21. For a detailed analysis of the Mau Mau crisis see Rosberg and Nottingham, *op.cit.*, also see J. Harbenson, *National Building in Kenya: The Role of Land Reform* (Evanston, 1963) and Bildad Kaggia, *Roots of Freedom 1921-63*, (Nairobi: East African Publishing House, 1975).
22. R.J.M. Swynnerton , *A plan to intensity the Development of African Agriculture in Kenya* (Nairobi: Government Printer 1954) and his 'Kenya's Agriculture Planning' in *African Affairs*, 56, 224, July 1957, pp. 209-15.
23. Swynnerton, ibid
24. For a detailed analysis of this point refer to Steven L. Johnson, 'Changing Patterns of Maize Utilization in Western Kenya', in Mario D. Zamova, Vinson M. Sutline and Nathan Altschuler (eds.), *Changing Agricultural Systems in Africa*, (Dept. of Anthropology, College of William and Mary, 1979).
25. L.H. Brown, *A National Cash Crops Policy for Kenya* (Department of Agriculture, Nairobi, 1963) p. 19.
26. For a critical analysis of colonial land policies and settlement schemes in the independent period see Col Leys, *op.cit.*, and J. Habeson, *op cit.* Also see M.P.K. Sorrenson, *Origins of European Settlement in Kenya* (Nairobi: East African Publishing House, 1968.
27. The nucleus state was purchased from a number of smallholders.
28. Republic of Kenya, *Development Plan 1966-70* (Nairobi:: Government Printer, 1966), p. 175.
29. *Ibid.*, p. 257.
30. This can also be attributed to the growing demand for sugar as demonstrated in Table IV below.
31. Republic of Kenya, *Development Plan 1970-74*, (Nairobi: Government Printer, 1970).
32. See J.A. Smith's 'The development of large-scale integrated sugar schemes in Western Kenya' working paper No. 343. *Institute of Development Studies*, Nairobi, 1978.
33. The reasons as to why BATS was chosen to carry out the feasibility study are not entirely clear at this stage of the research. However it should be not that the government was dissatisfied with the Germany and American companies which were managing the other sugar mills.
34. Other agri-business transnations in Kenya include:
    (a) Brooke Bond Liebeg (U.K.) - coffee, tea.
    (b) Lonrho Ltd. (U.K.) - tea, sugar, tobacco, etc.
    (c) Mitchell Cotts Ltd., (U.K.) - tea, pyrethrum, coffee.
    (d) Solfinaf Co. Ltd. (France) - coffee.
35. A more detailed discussion of appropriate technology is beyond the scope of the present paper but will be dealt with in the thesis particularly to throw light on the linkages between technology and employment.
    David Forsyth's Appropriate Technology in Sugar Manufacturing' *World Development*, 5, 1977, pp. 189-202, also see Hagelberg'Appropriate technology in sugar Manufacturing - a rebuttal', *World Development*, Vol.7, Nos. 8/9, August-September 1979, pp.893-899 and Robin Alpine and James Picket 'More on Appropriate Technology in Sugar Manufacturing'. *World Development*, Vol. 8, 1980, pp. 167-174.
36. Arthur Hazelwood and Gerald Holtham, *Aid and Inequality in Kenya*, (London: Croom Helm, 1976).
37. See FAO yearbooks for the years 1972-1982.
38. See Morgens Buch=Manser, and Henrik Seiben Marcussen, 'Contract Farming and the Peasentry: Cases from Western Kenya', *Review of African Political Economy*, No.23, January-April, 1982, pp. 9-36. For a study of Multinationals see Report of Working Party, *Who controls industry in Kenya* (Nairobi: East African Publishing House, 1968). Also see Raphael Kaplinsky (ed.,, *Readings on the Multinational corporations in Kenya*, (Nairobi: Oxford University Press, 1978) Steven Langdon, 'The state and Capitalism in Kenya', *Review of African Political Economy*, 8 (1977), and N. Swainson, *The Development Corporate Capitalism in Kenya 1918-1977* (Nairobi: Heinemann, 1980) and see Barbara Dinham and Colin Hines, *Agribusiness in Africa* (London: Earth Resources Research Ltd., 1983.)
39. See Hazelwod, *op.cit.* As a condition of the contract, BATS also had to take over the management of the Chemelil sugar scheme.
40. It should be noted that the Mumias project has not always worked efficiently. In 1982, the situation for the smallholders was critical when too much cane was produced and the mill refused to purchase it.
41. The two subsequent sugar schemes Sony and Nzoia were both planned on the basis of Mumias.
42. Mogens Buch-Hansen and Henrik Secher Marcussen, *op.cit.* p.27.
43. see a special issue of the *Review of African Political Economy*, No. 20, dealing with the Kenyan Agrarian question.
44. This tentative conclusion has been drawn on work done in the tea industry - see particularly J. S. Steeves's Study of Kenya Tea Development Authority. "Class Analysis and Rural Africa: The Kenyan Tea Development Authority", *The Journal of modern African Studies*, Vol. XVI, NO.1 (March 1978).