THE ROLE OF AGRO-BASED INDUSTRIES IN RURAL DEVELOPMENT: A CASE STUDY OF SMALLHOLDER TEA IN KISII DISTRICT, KENYA.

BY

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DECLARATION

This Thesis is my original work and has not been presented for a degree in any other University.

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This Thesis has been submitted for examination with my approval as University Supervisor

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DEDICATION

This Thesis is dedicated to

MY PARENTS

MRS. MONICA GESARE MICHOMA

for introducing me to school and the

Inevitable Pen and Paper which are

the Spear and Shield of Our Time.

AND

STEPHEN GETUNO MICHOMA

for teaching me the value

of Hard Work and Constant

Persuit of Knowledge.

ABSTRACT

This study examines the role of agro-based industries in rural development with particular reference to smallholder tea. The study examines spin-off effects of the industry in the region with respect to the various linkages of the industry to the rural economy. Various problems at the various linkage levels are identified which, if removed, would allow the tea industry to participate effectively in the process of rural development.

It is shown that the problems of rural development in the district revolve round the predominance of agriculture in a situation of land scarcity because of increasing population. It is argued that before industrialization can advance sufficiently to absorb surplus rural populations the aim of rural development should be to efficiently organise the production and marketing of cash crops so that they can increasingly contribute to the raising of employment and incomes in rural areas.

Two tea factories in Kisii district (Nyankoba and Nyansiongo) are chosen for detailed study to determine whether the existing linkages with the rural economy have a significant impact in the district.

The study has shown that the tea industry has weak forward linkages because of the nature of the product that does not allow any other form of advanced manufacturing activities. It is however revealed that the backward linkages of the industry are strong and do contribute significantly to the rural economy.

The study recommends that the removal of problems at the various linkage levels and the more efficient organization of production and marketing should be considered as strategy for making the tea industry contribute more significantly to the rural economy.

TABLE OF CONTENTS

CHAPTER FOUR

THE TEA INDUSTRY IN KISII DISTRICT: A CASE STUDY

LIST OF TABLES

LIST OF TABLES contd.. Page

LIST OF FIGURES

LIST OF MAPS

LIST OF PLATES

CHAPTER ONE
INTRODUCTION

1.0 The government of Kenya has recognized the importance of rural development and as such has defined a development strategy focusing on the rural areas. The implementation of this policy has mainly been through the improvement of infrastructure and the promotion of agricultural production.[1] The recognition of the importance of the rural areas arises partly because about 90 per cent of Kenya's population of 15 million lives in the rural areas, and because the great majority of these people depend on agriculture for their livelihood and will continue to do so in the foreseeable future.

The overall objective of rural development in Kenya is the increased productivity of land as the major precursor to all other rural development activities. This is expected to increase income generation from agriculture, and maximize employment opportunities which in turn, will increase the purchasing power of the rural population so that

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1. Kenya Government: 1970-74 National Development Plan (Government Printers, Nairobi 1969). Chapters, 1.6 and 6.

increased rural industrialization becomes economically viable.[2]

Many current ideas on rural development in Kenya originated at the 1966 Kericho Conference on Education, Employment and Rural Development. Among its recommendations on agriculture, it pointed out the need to concentrate on labour intensive technology and to rely on the profit motive of farmers[3]. Tea is labour-intensive in an almost unique manner among agricultural crops: it is harvested throughout the year, providing regular, rather than seasonal employment to the farmers, their hired labour, the wage labour of the factories, and the associated transport network -- all of which are, necessarily, located in the rural areas. Thus this crop is likely to be one that can contribute

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2. Physical Planning Department: Human Settlements in Kenya: A Strategy for Urban and Rural Development. (Govt. Printers, Nairobi 1978). pg. 73.

3. Sheffield, J.R.: Education, Employment and Rural Development. (Nairobi, East African Publishing House, 1967.

significantly to the process of rural development since it not only provides incomes but also regular employment in the rural areas.

The strategy of the 1970-74 Kenya National Development Plan to achieve national development was through rural development. The plan states that:

> "Rural Development is the basic strategy of this plan, for it is our aim that the fruits of development will be shared among the mass of the people as a whole, not just a favoured few."[4]

The theme of rural development has been stressed in all development plans thereafter. The 1979-83 National Development Plan has as its key strategy the alleviation of poverty and the provision of incentives and income earning opportunities in the rural areas.[5]

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4. Kenya Government: 1970-74 National Development Plan. op. cit. pg. iv.

5. Kenya Government: 1979-83 National Development Plan. (Nairobi, Government Printers, 1978).

For our purposes, rural development will be defined as improving of the living standards of the mass of the low income population residing in the rural areas and making the process of their development self-sustaining. This will include, increased production, incomes and employment; provision of social, economic and physical infrastructure; and the promotion of such other activities that are complementary and which make the process of growth both self-sustaining and self-generating and contributes to the national economy. It is important that agriculture and industry be complementary and provide necessary inputs that will aid each others' growth.

It is in this light that this study is undertaken in order to assess the contribution of an agro-industry such as tea to the process of rural development. The full contribution of the tea industry to the growth of the regional economy and the promotion of rural development can only be evaluated through an investigation of the various linkages between the industry and the rural economy. This kind of analysis is important in regional planning since the nature and strength of the identified linkages are necessary in the formulation

of policies that are likely to enhance growth in the regional economy. Knowledge of existing and potential linkages between an industry and other sectors of the regional economy are important in fostering interdependence between sectors and promotion of self-sustained growth in the economy.

The organization and spatial arrangement of production will also to a large extent determine the number and level of linkages of a production system and its total contribution to a regional economy. The Kenya Tea Development Authority (KTDA) has been seen as one of the most successful organizations in the implementation of rural development programmes in Africa.[6]

The K.T.D.A was set up in 1964 in order to promote and encourage the growth of tea among small-scale farmers in Kenya so as to increase productivity and thus incomes and employment among small holders, and to earn the country foreign exchange through increased exports of tea.

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6. Lele, Uma: The Design of Rural Development: Perspectives from Africa (New York, John Hopkins Press, 1975).

This study aims at studying the spatial pattern of production that has emerged as a result of the introduction of smallholder tea growing and to assess the role of the smallholder tea scheme in promoting rural development through the various linkages with the rural economy.

1.1 STATEMENT OF THE PROBLEM

The problems created by increased and rising rural populations with lack of alternative employment opportunities outside agriculture become particularly acute in situations where land is scarce and expectations are rising rapidly. Kisii district (the study area) is among the most densely populated districts in the country with a density of 380 persons per square kilometre in 1979.[7] The average farm holdings are about 2 hectares per family.[8] With an assumed population growth rate of 3.5 per cent per annum, the projected agricultural population for the district in 2000 A.D. will be 1.9 million with a density of 881 persons per square

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7. Central Bureau of Statistics: Kenya Population Census, 1979.

8. Physical Planning Department: op cit. pg. 42.

kilometre.[9] Though a rich agricultural district, this population would put a considerable strain on the district's resources and possibly jeopardize any future development efforts. This is particularly true if families have to earn an appreciable income above subsistence or raise their general standard of living.

Table 1 gives an analysis of population overspill and absorption capacity for the district in the year 2000. Similar figures are given for Kakamega (a densely populated district) and Narok (a sparcely populated district) for comparative purposes.

It is clear that the district's population in 1979 of 867,000[10] is already above the potential farm population capacity at K.£.25 per capita farm income per year, Thus the district can be classified as overpopulated since any further increase in population will decrease the per capita incomes and a resultant lowering of standards of living of the people. Outmigration from the district

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9. Own Computations from projected population by the Physical Planning Department in Human Settlements in Kenya, pg. 59.

10. Central Bureau of Statistics, op. cit.

TABLE 1

ANALYSIS OF FARM POPULATION OVERSPILL OR ABSORPTION CAPACITY AT K.£.25 PER CAPITA FARM INCOME PER ANNUM, BY DISTRICT: YEAR 2000

DISTRICT	TOTAL POP. 1969	AGRIC. POP. 1969	ASSUMED NATURAL INCREASE 1969 2000	PROJECTED AGRICULT. POP. 2000	POTENTIAL FARM POP. CAPACITY AT £25/ CAPITA	OVERSPILL POP.	SURPIUS POP. CAPACITY
Kisii	675,000	669,000	3.5	1,940,000	842,000	1,098,000	-
Kakamega	783,000	777,000	4.0	2,618,000	1,081,000	1,537,000	-
Narok	125,000	122,000	2.0	226,000	2,059,000	-	1,833,000

Source: Human Settlements in Kenya, pg. 59

is not a viable solution because its effects are only temporary and also, all areas (districts) which have agricultural potential will be needed by their own increased number of peoples. Similarly it is not easy for people from the district to outmigrate because they are "homelovers"[11] and because the neighbouring districts except Narok are relatively densely populated themselves.

Other solutions to overpopulation in the district involve increase in productivity and family planning. Increase in productivity is a viable solution though it is constrained by available technology. Family planning as solution has also been relatively ineffective because of the norms and child bearing practices of the community which are very slow to change.

The problems of regional development in the district revolve round the issues of population pressure on the land and the non-availability of off-farm employment for its population. These

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11. Uchendu V.C. and Anthony K.R.M: Agricultural Change in Kisii District, Kenya (EALB, Nairobi, 1975).

problems are accentuated by the weak linkage structure of the agricultural sector which is the predominant economic sector in the district.

The study of tea, which is the most important agro-based industry in the district, is supposed to show the linkage structure of the industry to other sectors of the rural economy. This will enable us to assess whether the industry has any significant impact on the rural economy both in terms of employment and income creation. The nature of identified linkages will determine whether these linkages could be strengthened in order to form the basis of a viable rural development strategy that achieves a full integration of the various sectors of the regional economy.

1.2 OBJECTIVES

The main objectives of the study are to:

1. Study the growth of smallholder tea production and its extent and present stage of growth in the country.
2. Establish the extent to which the tea industry has influenced the economy of the study area in terms of income and employment creation and the general raising of standards of living of the people.

3. Examine the nature of current tea production, processing and marketing, and identify problems and note their effects on the rural economy.

4. Suggest a spatio-organizational model for tea production that will both make the organization of production more efficient, and increase income and employment creation potential of the industry.

1.3 ASSUMPTIONS

1. That small scale tea production has weak but significant linkages with the rural economy, which, if strengthened, could contribute significantly to other sectors in the rural economy in the promotion of regional, development.

2. The development of the district's economy significantly depends upon the full development of the agricultural sector and the strengthening of linkages between agriculture and other sectors so as to promote integrated rural development.

1.4 SCOPE AND LIMITATIONS

On a broad perspective, linkage studies should be undertaken to show the full impact of an economic activity on the regional economy in the

form of multipliers. This would enable one to determine whether a particular economic activity has benefitial effects on the regional economy. However, given constraints of time and other resources, this study will not look at all the various aspects of the industry. Rather, five levels of analysis corresponding with critical linkages for the rural economy are chosen for detailed study:

The first level is that of the farm where income derived from the crop, employment created, and the relationship between tea and other competing high value cash crops is analysed. At this level also, regulations on standards of production, availability of extension services and credit facilities to the farmers will be noted.

The second level is that of the buying centre where employment levels and numbers of operatives, buying methods, payments machinery and transportation facilities will be studied.

The factory is the third level of analysis where employment capacity, and capacity of operations are examined. Number of operatives and their income levels will also be examined in order to determine the factories' linkage with the rural economy in

terms of creation of employment and income-earning opportunities.

Marketing of the final product both for local and export markets and the packaging for these purposes forms the fourth level of analysis noting the linkages with other industries and sectors in the economy.

The fifth level of analysis is an overview of the totality of benefits that accrue to the rural economy in terms of stimulation of other activities as a result of the increased incomes, employment and infrastructure that result from the setting up of the tea industry.

Within the district two tea factories are chosen for detailed analysis as a case study and a survey was carried out in their 'catchment areas'. As a 'control' area a non-tea growing area in the district was chosen for comparative purposes. This comparison is hoped to bring into better focus the contribution of the tea industry to rural development in the tea-growing zone of the district.

1.5 LITERATURE REVIEW

Students of rural development agree that improvement in the living standards of the rural population is central to any strategy that aims at

significantly altering the pace of development in poor countries. Uma Lele (1975) argues that the raising of the living standards of the subsistence rural sector is important, "not only as a holding operation until industrialisation can advance sufficiently to absorb the rural exodus but frequently as the only logical way of stimulating overall development,"[12] This approach is also essential for purposes of improving the general welfare of an extremely large section of the low income population who reside in rural areas.

Lele's definition of rural development has three important features:

(i) Mobilization and allocation of resources so as to reach a desirable balance over time between welfare and productive services available to the subsistence sector.

(ii) Mass participation such that resources be allocated to low income regions and classes and that the productive and social services actually reach them.

(iii) Development of appropriate skills and implementing capacity and presence of institutions at the local, regional

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12. Lele, U. op cit. pg. 5.

and national levels to ensure the effective use of existing resources for continued development.[13]

Oiro Obwa (1977) argues that rural development, being a highly transformative exercise, must involve the altering of the structure of society by "social, economic and political changes that have to take place in the rural areas that greatly affect the lives of the people living in these areas."[14] To Obwa, the objectives of rural development should be:

(i) To eliminate poverty by increasing agricultural production, incomes and employment opportunities.

(ii) Widespread provision of rural welfare amenities such as education facilities, health services, water supply and so on such that poverty, disease and ignorance are eliminated in the rural areas.[15]

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13. Ibid pg. 20.

14. Obwa, Oiro: The Effectiveness of Growth and Service Centres' Policy as an instrument for Rural Development in Kenya, Nairobi IDS Working Paper No. 317 1977. pg. 17.

15. Ibid.

Thus rural development programmes must, of necessity, include the increase of agricultural production and an increase in the well being of the people living in rural areas. Ruttan (1974) agrees with this view and says that programmes designed to serve one of these aspects must of necessity almost always contain elements relevant to the other.[16]

However, for development to be self-sustaining and self-generating, agricultural development must be complemented and supplemented by industrial development so as to achieve a balanced and nationally integrated economy. Industries are thus important for the economics of the underdeveloped countries because they can generate employment and incomes that can stimulate greater productivity and bigger domestic markets as a result of raising domestic consumption and raising standards of living of the population. To this end the Kenya National Development Plan 1979-83 states that in the future, rapid expansion in the manufacturing sector "will be

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16. Ruttan, V.W.: "Rural Development Programmes: A Sceptical Perspective" in New Concepts and Technologies in Third World Urbanisation UCLA, 1974.

looked upon as a major source of employment opportunities and income for urban and rural dwellers."[17]

Since Kenya is a predominantly agricultural country, the initial types of manufacturing will involve the processing of agricultural products both for export and local consumption. The definition of primary manufacturing (agro-based industries) used in this study is based on Dales (1962 & 3) who defines it as:

> "The processing of domestic natural products up to the point where the output of the industry is economically transportable over long distances."[18]

Renner (1947) when discussing industrial location states that an industry tends to locate at

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17. Kenya Government: 1979-83 National Development Plan, op cit. pg. 329.

18. Dales, J.H. cited in Gilmour J.M. "The Dynamics of Spatial Change in the Export Region" in Collins & Walker (eds) Locational Dynamics of Manufacturing Activity. (London John Wiley and Sons, 1975) pg. 64.

a point which provides optimum access to its ingredients or component elements.[19] Processing industries generally involve bulky inputs, weight loss, and in the case of food industries, perishable raw materials. Norcliffe (1975) has argued further that in so far as they are material oriented, the location of processing activities will correspond with the fortuitous location of the materials that are processed.[20] Accordingly, processing activities will be found both in the heartland and the hinterland. These contentions hold true in respect of the location of tea factories since they have to be located as closely as possible to their sources of raw material (green leaf) because of the perishability of these inputs. Thus, by necessity, tea industries will not locate in urban areas but within the rural areas where the inputs are produced. Though most food processing industries have tended to become

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19. Renner, G.T. "Geography of Industrial Location" (1947) cited in Smith D: Industrial Location: An Economic Geographical Analysis (New York, Wiley, 1971).

20. Norcliffe, G.B: "A Theory of Manufacturing Places" in Walker and Collins (eds) Locational Dynamics of manufacturing activity, 1975. op cit.

increasingly foot-loose, industries related to mineral extraction and agricultural processing still tend to locate in the regions of raw material extraction.

The mineral and agriculture based industries in the regions of the underdeveloped countries are mainly producing for export and their contribution to the regional economy, according to Gilmour (1975) can be explained by export-base theory.[21] According to this view, development will depend on the production function of the export industry and the distribution of income from the export sector, as these will determine the opportunities for investment in non-export activities and in infrastructure. Gilmour (1975) sees mechanisms which connect the export sector to investment in infrastructure and directly productive activities as backward and forward linkages.

Hirschman, A.O.(1958)[22] described backward linkages as input provision derived demand, namely,

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21. Gilmour, J.M. "The Dynamics of Spatial Change in the Export Region" in Collins and Walker, op cit.

22. Hirschman, A.O. The Strategy of Economic Development (Yale University Press, 1958) pg. 100.

that every non primary economic activity will induce attempts to supply through domestic production the inputs needed in that activity. He described forward linkages as output utilization activities, namely that every activity that does not exclusively cater for final demands will induce attempts to utilize its outputs as inputs in some new activities.

He argued that development policy must attempt to enlist these well known backward and forward effects; but it can only do so if there is some knowledge as to how different economic activities "score" with respect to these effects. In our study the linkages of the tea industry are to be analysed on how they 'score' in their relationship to the rural economy.

However the method used by Hirschman to determine the existence of linkages, namely, through the importance of the linkage effect (net output of the new industries that might be called forth); or through the strength of that effect (the probability, that those industries will actually come into being), involves the collection of detailed data and meticulous tabulation techniques that was not possible in this study.

The approach to linkages used in this study is generally in line with the suggestion by Gilmour (1975) that "if manufacturing can be disaggregated in such a way that parts describe different linkage effects, it becomes possible to relate structure and growth meaningfully to spatial pattern."[23] Thus this study will disaggregate the various activities of tea production, study linkage effects with the rest of the regional economy and discuss the emergent spatial structure of production and how it could be improved to increase efficiency and connectivity of linkage effects with the rural economy.

Darkoh (1975) argues that each project using local raw materials contributes significantly to the rest of the growing industrial and rural hinterland. It therefore requires careful planning of proposed linkages based on detailed analysis of resources available, labour, skills, markets and investments.[24] Thus identified industrial location

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23. Gilmour, J.M. op cit. pg.60.

24. Darkoh, M.B.K. "Toward a Planned Industrial Reallocation Pattern in Ghana" in Urbanization, National Development and Regional Planning in Africa, by El-Shaks and Obudho (eds).

strategies should ensure that intersectoral and inter-regional linkages are intensified in the national economy.

In terms of location of industries in the rural areas as applied to Kenya, two interpretations have generally been given:

(i) Rural industrialization as a process of decentralization of urban industry.

(ii) Rural industrialization as part of a wider strategy for balanced growth (and the differentiation of the total rural economy).[25]

Hand in hand with the strategies for rural industrialization and rural development have been strategies of growth centres. Within the Kenya context growth centres are aimed at reducing regional imbalances and stimulating rural development by absorbing migrant populations and to counter the dualistic nature of the economy by tapping hitherto neglected resources.

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25. Mikkelsen, B. "Interpretations of Rural Industrialization in Kenya" in Dualism and Rural Development in East Africa by R. Leys (ed) (Institute for Development Research Denmark 1973), pg. 181.

Growth centres have evolved as a parallel strategy to the earlier approaches to development in the underdeveloped countries which concentrated on economic growth rather than inequality. Such approaches stressed policy oriented models of inducing and accelerating such growth processes by unbalanced growth.[26] Such approaches do not, however, lead to self sustained growth and a predominantly modernized economy as the periphery areas continue to be progressively underdeveloped by the national and metropolitan centres.

On the other hand the "growth pole" concept and related approaches have received considerable attention both because of their explanatory content and as a foundation for designing strategies directed towards regional economic development. Although induced from observations of economic processes in industrialized countries, the policy implications have been transferred on a large scale to third

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26. See Roisenstein-Rodan P.N. "The Theory of the 'Big Push'" in Meijer (ed). Leading Issues in Economic Development: Studies in International Poverty: (Oxford University Press, 1970).

world countries and in varying shapes been included in regional strategies (see for example Hoyle 1974[27] and Misra 1972[28]).

A major obstacle to the use of this strategy to regional development stems from the lack of agreement on the meanings of growth pole and growth centre notions. It is notable that Perroux's (1955)[29] original approach - based on the recognition of the impact of inherent structural characteristics of firms as a major factor behind observed growth and regression processes in economic space - has gradually been transformed into a question of urban growth as a means to regional development.

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27. Hoyle, B.S. Spatial Aspects of Development (London, John Wiley and Sons, 1974).

28. Misra, R.P. "Growth Poles and Growth Centres in the Context of India's Urban & Regional Development Problems" in Kuklinsky, A. (ed). Growth Poles and Growth Centres in Regional Development (Mouton, the Hague 1972).

29. Perroux, F.: "Note on the Concept of Growth Poles" in Livingstone, I.: Economic Policy for Development: Selected Readings, (Harmondsworth, 1971).

Although Boudeville (1966)[30] stressed in his approach that polarization has to take place both in geographical and functional space, Darwent (1969)[31] argues that much of the confusion especially in policy matters, stems from the neglect of these essential conditions. Nothing in the original notions thus suggest that a major enterprise, located at a given point in geographical space, should attract growth in that specific location. It is only claimed that it induces polarized growth in a theoretically open economy.

As with those strategies stressing unbalanced growth, growth centre approaches are regularly connected to big industry, products with a high elasticity of demand and sophisticated technologies. This has favoured an urban industrial bias with the formulation and implementation of

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30. Boudeville, J.R. Problems of Regional Economic Planning (Edinburgh, University Press, 1966).

31. Darwent, D.F. "Growth Poles and Growth Centres in Regional Planning - A review," Environment and Planning (1969, vol.1), pg. 5-32.

regional plans. (Brookfield 1975,[32] Johnson 1970[33]). The focalization on growth centres and industry seems, accordingly, to have diverted attention from the broader task of how countries, essentially rural in character, could attain a space economy able to satisfy basic human needs.

As an alternative to the growth pole and growth centre approaches, Friedman (1966 and 1973)[34] has put the centre periphery approach into the context of regional change within nations. Unlike the growth pole and growth centre proponents, he puts the distribution of investment in a model for national spatial organization. He gives four phases

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32. Brookfield, H.: Interdependent Development, (Methuen & Co, London, 1975).

33. Johnson, E.A.J.: The organization of space in Developing Countries (Harvard University Press, Massachusetts, 1970).

34. Friedman, J. Regional Development Policy: A Case Study of Venezuela (M.I.T. Press, Cambridge Massachusetts, 1966) and "The Spatial organization of Power in the Development of Urban Systems." Economic Development and Cultural Change (1973 vol.IV. No. 3).

of development based on which the geographical imbalances facing individual countries vary: (i) pre-industrial, (ii) transitional, (iii) industrial and (iv) post industrial. The second stage (pre-industrial) is seen as applying to third world countries; thus they are facing an economy that spatially is characterised by one or more dominating national centres related to the perihpery:

> "experiencing net outflows of people, capital and recourses, most of which rebound to the advantage of the centre where economic growth will tend to be rapid, sustained and cumulative"[35] At the same time however, the periphery "may account for a major proportion of the national population."[36]

The main processes behind these mechanisms are seen as differences in productivity, perpetuating factor movements and trade relations favourable to the centre. The existence of real or potential comparative advantages in the periphery are also seen as factors that must be exploited in order to redirect these processes. But these

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35. Friedman, 1966 op cit. pg. 3.

36. Ibid.

activities, in transitional economies, it is argued, can only be induced from outside the region. In this view, export activities are thus assigned the role of being the prime motor behind regional economic growth. In this respect the approach coincides with the export base theory, as it makes regional economic growth contingent upon initial resource endowment, comparative advantages, and linkage multiplier effects.

Studies carried out on smallholder tea in Kenya fall into two broad categories: economic studies related to the productivity and economic benefits of the smallholder sector; and geographic/spatial studies concerned with the patterns that emerge out of smallholder production. Etherington's (1973)[37] study falls into the first category and is aimed at an estimation of the multi-period production function for smallholder tea production in Kenya for the derivation of tea yield coefficients for bushes of different ages. These predictions were then used for ex-post

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37. Etherington, D.M. Smallholder tea production in Kenya: an econometric study. (Nairobi, East African Literature Bureau, 1973).

predictions of output for a separate sample of farms, The reliability of these predictions can change and have changed over time because of the use of new vegetatively propagated clones and fertilizers and therefore their usefulness is limited because of changes in farm technology.

The findings of Etherington (1973) could however be useful for the spatial organization of production as he argued that with intensification, the smallholder sector could face labour problems thus the need for changes in leaf collection schedules (say twice a day or more days per week).

Another economic study was by Stern (1972)[38] and was concerned with the use of cost-benefit analysis (by the Little/Mirrlees method) for an evaluation of costs of the KTDA project. He aimed at finding what alternative uses could have been made of the land, labour and farmers' income presently invested in tea. He found out that the project was a valuable one with an estimated return of 38.8 per cent and a social present value of

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38. Stern, N.H: An Appraisal of Tea Production on Smallholdings in Kenya. (Development Centre of the OECD 1972).

K.£.12.59 million,[39] He argues that many of the benefits however go to the factories and the K.T.D.A. but that as output of tea builds up, it may result in decrease in cesses and higher second payments to farmers. This would raise the incentives of the growers to produce more. A similar argument will be made in this thesis that increase and intensification of tea production can decrease cesses and total overhead costs to the benefit of the farmers.

Among the second category of studies is that of Arvo (1968)[40] which is an analysis of the historical geography of tea in Kenya and the resultant changes arising out of the rapid expansion and economic importance of tea. The study focuses on the growth of the smallholder sector and the resultant alteration of the industry's spatial relationships.

According to Gyllstrom (1977)[41] the emergent

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39. Ibid. pg. 101.

40. Arvo, Jr. W.E.: A geography of the Tea industry in Kenya. (Syracuse University Press, 1968).

41. Gyllstrom, B.: The organization of Production as a Space-Modelling Mechanism in Underdeveloped countries: A case study of Tea Production in Kenya. (Lund: Sweden Liber Laromedd 1977).

spatial structure is also dependent on the organization of production and on how the supporting bodies a are built up and how efficiently they perform their functions. He argues that by linking the smallholder to the type of organization which is able to undertake the necessary large scale operations at the stages of processing, transporting, marketing and research, "a more balanced spatial spread of employment, skills and incomes seems attainable" (pg.36). A basic reason for this should be that the smallholder operations rely predominantly on local resources for the supply of material and labour inputs.

Thus smallholder production is seen as superior to estates in contributing to the regional economy since agro-based establishments subordinated to large corporations are apt to foster skewed resource use and intra-regional inbalances. To Gyllstrom, the smallholders demanded qualities and quantities of inputs "are generally adapted to the individual work places' scale of operation and consequently can materialize as effective local demand" (p.144). This ability of filtering down stimuli into the local economy should obviously be of profound importance to the local economy.

Gyllstrom (1977) did a detailed comparative analysis of clusters based on large scale and small scale field establishments and showed that the latter category attained a closer integration with the local/regional economic environment. This is particularly true in the case of material linkages and seems to be due to the fact that small scale establishments are given a larger freedom to adapt to local conditions than are workers on large establishments. This and the fact that the farmer gets extension service covering most aspects of tea cultivation probably induce higher overall management skills among small holders which in turn are bound to have important effects outside the specific setting of tea production. He concludes that in the long run, these factors are among the major dynamic forces induced by the tea industry in rural areas.

The study by Gyllstrom is based on the assumption that agro-based export oriented production, can, if properly organised, induce important spin-off effects in rural areas of underdeveloped countries.

Bearing in mind that the organization of production in most underdeveloped countries

results in inter-regional and urban-rural inequalities, development efforts should ensure that interaction flows generated by the modern sector do not stratify the space economy but allow upgrading of production and income levels in rural areas such that the benefits of development reach the majority of the population.

With this approach in mind, an attempt is made in this study to assess the impact of an agro-based enterprise such as smallholder tea has in the regional economy through employment, income, material and investment linkages.

1.6 METHODOLOGY

Three major methods of data collection namely questionnaires, personal interviews and secondary sources were employed in this study.

Questionnaires were administered in gathering information at the farm level on the production, hectarages, incomes, employment and related problems of tea production.

Interviews were conducted among farmers who grow tea in the 'catchment' areas of Nyankoba and Nyansiongo tea factories in Nyamira, Manga and Irianyi Divisions of the district (see map 4).

A total coverage of the whole district was not possible within the time and resources available. Even within these divisions interviews were conducted in selected locations on the assumption that tea production problems and methods represented what the situation was in other locations. Thus within Manga division a survey was carried out in Kitutu East location; within Nyamira division a survey was carried out in Borabu location, and within Irianyi division a survey was carried out in Nyaribari Masaba and Nyaribari Chache locations. Within these locations selection of farmers involved systematic random sampling among tea growers where every tenth tea-growing farm was visited. A total of fifty farmers were interviewed in Borabu location, thirty each for Kitutu East, Nyaribari Masaba and Nyaribari Chache.

Personal interviews used in the study were of two types; informal interviews and scheduled interviews. Informal interviews were held with officials of various government and parastatal bodies involved in administration and management of the tea industry. The following officials were interviewed:

(i) Office of the President - District Officers, chiefs and assistant chiefs.

(ii) Ministry of Agriculture - District Crops Officer, District Range and Farm Management Officer, Assistant Agricultural Officers, Junior Agricultural Assistants (Field extension officers).

(iii) Tea Board of Kenya - Secretary to the Board, Assistant Secretary to the Board.

(iv) K.T.D.A. - Marketing Officer.

Scheduled interviews were used for those officials involved with the production of tea in the district and the two factories under study. These were: Leaf Officers - Nyankoba and Nyansiongo tea factories; Factory Managers - Nyankoba and Nyansiongo tea factories; Tea Officers - Kisii and Sotik. This form of interviews differed from the informal interviews in that the data to be sought was set out in a format which however could be changed depending on the disposition of the interviewee and the trend of discussion.

Secondary sources of data were mainly the Annual Reports of the KTDA, District Reports, Statistical abstracts and Metereological Department data and other government documents.

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DATA ANALYSIS

Because of unavailability of detailed data and because the study could not, given the already mentioned constraints, be able to look at all the linkage aspects of the industry, it was not possible to use methods such as input-output analysis or regional multipliers.

With the data available, it was decided to use descriptive content analysis and tabulation which gives us percentages in data categories.

PROBLEMS

The major problem experienced in the research is data unavailability. This was evident in the interviews as farmers were not willing to give the exact figures of incomes from tea or other crops. Thus figures of output had to be used to compute incomes using the previous year's rates of payment for their crops. Data on mileage and benefit of 'tea roads' were not available but approximations of the existing situation are made and serve as useful indicators of the benefits that accrue to the rural areas. In the case of rural housing, similarly exact data was not available on the way that the tea industry has influenced the standard of housing though a general trend was observed that houses in

the tea growing zone were of a better standard than those in non-tea growing zones of the district.

CHAPTER TWO

THE TEA INDUSTRY IN KENYA

AND

OTHER PRODUCING COUNTRIES

2.0 Since Kenya is only a part of the world tea industry, a brief discussion on the production and consumption of tea among the major world producers and consumers will enable us to fully appreciate Kenya's place and future prospects in the world tea industry. Such knowledge is essential for the understanding of the industry's contribution to the development of the country and the study area. This chapter also introduces the reader to the development of the tea industry in the country and the roles of the estate and smallholder sectors in this development. The experiment of smallholder production in the country would not have been as successful as it has been were it not for the establishment of the Kenya Tea Development Authority. Thus apart from tracing the growth of smallholder production, this chapter will also study the organization of this production under the K.T.D.A. and the Tea Board of Kenya.

2.1 THE TEA PLANT

Tea is made from the young leaves and unopened buds of the tea plant (camellia sinensis), a species of plant which includes widely different varieties.[1] Of the three main varieties - the

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1. Acland, J.D. East African Crops (FAO/Longmans, London, 1971).

China, the Assam and the Cambodia - the Assam jat[2] is the most suited for East African conditions. Its original habitat was in the triangular shaped area roughly described by Cambodia, Northeast India and Southern China.[3] Tea is an evergreen tree which flourishes in warm rainy regions of the tropics and the sub-tropics. If unattended, the tea plant can grow to a height of between thirty and seventy feet high.

The tea plant requires deep well-drained acidic soils (4 to 5.8 pH).[4] In Kenya ferrisals offer the highest potential although other types usually do not represent any serious restrictions.[5] Tea generally requires rainfall of above 1750 mm but this is not rigid as it depends on temperatures

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2. jat is Hindu for Caste.
3. Harler, R.C. Tea Growing (London, Oxford University Press, 1966) pg.1.
4. Eden, T.: Tea (Second edition, London, Longmans, 1965).
5. Arvo Jr. (1968) op. cit.

and thus attitude and latitude. The range of temperatures may be considerable but temperatures below 12-13 degrees centigrade and over 30 degrees centigrade can damage the crop.[6] The best quality tea is grown at high altitudes where extremes of temperature are less marked and growth is slower.

When grown on a tea 'garden', the tea plant is maintained to a height of about one metre by periodic pruning to maintain a 'plucking table'. As the bushes are planted close together, the mature garden looks like a luxuriant well kept lawn raised above the ground.

2.2 TEA IN THE MAJOR PRODUCING COUNTRIES

Of the major tea producers, India, Bangladesh, Sri Lanka, Indonesia, the Soviet Union, Mozambique and Malawi rely on estate producers while Taiwan, Japan, China and Kenya focus on smallholders. Sri Lanka has a large hectarage grown by smallholders (16 per cent of total) but its poor state because of organisational problems makes it of little economic value. It is particularly in African

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6. Eden, T. op. cit.

countries that smallholder schemes have caught the interest of governments following the success of the smallholder scheme in Kenya. Smallholder schemes are now being tried with a certain amount of success in Uganda, Tanzania and Malawi.

The geographic distribution of tea production has been changing significantly since the mid-1950's. Country growth rates of production between 1955-57 and 1971-73 ranged from about 9.2 per cent a year in African countries to 2.4 per cent in India and 1.3 per cent a year in Sri Lanka.[7] The combined share of the world's two largest producers, India and Sri Lanka, in world production declined from about 70 per cent to roughly 58 per cent while the total share of african countries rose from 4.7 per cent to about 12 per cent in this period.[8] At the same time, production tended to stagnate in Bangladesh and Indonesia but showed a marked increase in Argentina, Turkey, Uganda, Tanzania and Kenya.

Table 2 shows average tea production by selected countries and their share of world total production between 1955-7 and 1971-3.

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7. IBRD: Coffee, Tea & Cocoa; Market Prospects and Development Lending (Baltimore. John Hopkins, 1977) Pg.50.

8. IBRD op. cit. pg.50

TABLE 2

AVERAGE TEA PRODUCTION BY SELECTED COUNTRIES AND SHARES IN WORLD TOTAL 1955-7 AND 1971-3.

COUNTRY	PRODUCTION 1955-7	'000 METRIC TONS 1971-3	ANNUAL % CHANGE IN PRODUCTION	% OF WORLD TOTAL 1955-7	% OF WORLD TOTAL 1971-3
Argentina	2	28	18.0	0.3	2.4
Bangladesh	23	27	0.6	3.3	1.8
India	309	451	2.4	44.9	39.2
Indonesia	45	51	0.8	6.5	4.4
Japan	72	94	1.7	10.5	8.2
Sri Lanka	175	214	1.3	25.5	18.6
Kenya	10	49	10.4	1.4	4.3
Malawi	9	21	5.2	1.2	1.8
Mozambique	6	18	7.1	0.9	1.6
Tanzania	2	12	11.8	0.3	1.0
Uganda	3	21	12.9	0.4	1.8

Source: Coffee Cocoa and Tea (1977).

The above table shows that African countries have significantly improved their position in terms of percentage share of world total production - this applies to the countries of East Africa and in particular Kenya.

However, production figures of tea that is sold in the world market often leaves out socialist bloc countries since their tea is not marketed in the West and production figures are not easy to obtain. Thus what is usually obtained is a rough estimate of their production. Thus the use of total hectarages is a useful indicator of the respective positions of the major tea growing countries.

Table 3 shows the hectarage in the major tea growing countries in 1972, so as to properly gauge the place of African producers in terms of hectarage. Although tea production takes place in many countries the bulk of output is concentrated in a handful of nations. In 1973, 65 per cent of total world production (excluding China and the USSR), was supplied by India, Sri Lanka and Kenya. Kenya and other African countries are in a position to take advantage of the decline in the tea industries of Indian, Sri Lanka and Bangladesh. The tea industries of these countries

TABLE 3

TEA HECTARAGE IN VARIOUS COUNTRIES 1972

OTHER MAJOR PRODUCERS	HECTARAGE	AFRICAN PRODUCERS	HECTARAGE
India	360,180	Kenya	49,763
China	317,500	Uganda	19,085
Sri Lanka	241,851	Malawi	15,842
U.S.S.R.	74,700	Mozambique	15,605
Indonesia	62,124	Tanzania	14,012
Bangladesh	42,649		
Taiwan	33,500		
Turkey	28,782		
Argentina	35,000		

Source: International Tea Committee (1975).

have been declining since the 1950's because of ownership changes after independence and problems of plantation labour.

The tea industries of these traditional producers are coupled with several problems:

- More than 30 per cent of the tea bushes in India are more than fifty years old and therefore are relatively unproductive. Unless replanting programmes and other rehabilitation measures are undertaken, the growth of the Indian tea industry cannot be maintained.
- In Sri Lanka, the situation is critical - about two thirds of the bushes are more than seventy years old and should be replaced.[9]
- Only about 40 per cent of the Bangladesh tea bushes fall in the 5-40 years bracket which is the economic bracket.[10]

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9. Gyllstrom, B. op cit. pg.68.

10. Chowdhury, N.: The Tea Industry of Bangladesh: Problem and Prospects (Dacca, Bangladesh Institute of Development Studies, 1974). pg.72.

- Generally there is soil deterioration in the three countries and labour productivity is low particularly in Bangladesh.

By contrast, African tea growing countries have several advantages over the older producers that could augur well for the future of their tea industries:

- Their factories are modern in design and have up-to-date equipment, thus processing costs can be lower and breakdowns are not frequent.
- Soil deterioration has not reached an advanced stage.
- Their plants are young and high yielding because of the use of vegetatively propagated superior clones.
- Kenya in particular has had an experimental station for a long time (Tea Research Institute since 1949) and is also in a position to learn from the older producers.

In terms of consumption, 60 per cent of the total output is consumed outside the producer countries, and about 75 per cent of the total registered export is destined for Europe and North

America (especially to Britain and the United States).[11] A general tendency is that the markets of the developing countries are growing in importance relative to those of the industrialized countries. In India, for example, domestic consumption has been growing at about 5.5 per cent per year since 1960--this is faster than production which has been growing at 2.9% per year.[12] In order to avert a situation of depressed prices as a result of overproduction, this increased consumption will be desirable particularly in the producer countries.

The World Bank has projected demand for tea to grow at 3 per cent per year until 1985. It has similarly projected world tea production to grow at 3 per cent per year between 1973 and 1985 with 1974 as the turning point and as a result tea becoming a deficit commodity.[13] This has not been borne out by facts and the only boost in tea prices as a result of increased demand was in the 1977-78 period. This increased demand was however as a result of the phenomenal rise in coffee prices necessitated by

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11. Gyllstrom, B. (1977) pg.27.

12. IBRD (1977) pg.50.

13. Ibid. pg. 70.

decreased supply of coffee in the world market after a failure in the Brazilian crop.

With new tea plantings gaining maturity especially in the newer producers, and with the competition among producers to capture as much of the market as possible (because of the non-existence of an agreement on tea production), supply in the 1980's will tend to outstrip demand. Thus tea is far from becoming a deficit commodity.

However, with increased incomes in the developing countries in general and producer countries in particular, and the promotion of tea drinking among the population, the surplus tea produced should be able to be absorbed in these countries. This proposition is particularly feasible bearing in mind the fact that tea is the cheapest beverage (if compared to coffee and cocoa) and is what the majority of the people in the developing countries can afford. These factors should aid the world tea industry (and particularly prices) in remaining relatively stable over this decade.

2.3 BACKGROUND TO TEA IN KENYA

Tea was first planted in Kenya in 1903 at Limuru. But it was not until the 1920's that

planting on a commercial basis was undertaken as the crop spread to Kericho, the centre of Kenya's tea industry. Expansion in the 1930's and 1940's was however severely restricted under the International Tea Agreement to which East Africa adhered to until 1947 when the Agreement was terminated.

The initial expansion of the industry was along the lines that had become acceptable practice in the leading tea producing countries, India and Sri Lanka: large estates of 250 to 1000 hectares each were cleared from forest land and planted with tea by companies that usually had extensive tea interests in Asia. Some tea was also grown by rich European settler farmers. At this time, because of legal prohibition and financial constraints, Africans did not grow tea. However, today not only is tea the second most important crop to coffee in the country, but also, production by African smallholders forms a major share of total tea output and is steadily increasing.

What is particularly interesting and noteworthy is the success that the smallholders have had in growing tea since 1960 in the face of scepticism from certain quarters in the intial period. The

smallholder sector is thus adjusting to the disequilibrium caused by the removal of the technical, legal, financial and administrative constraints that formerly prevented Africans from growing tea and participating in the International market economy.

2.4 BEGINNINGS IN SMALLHOLDER PRODUCTION

Experiments in Kericho and Nyeri in the early 1950's showed that Africans were able to grow tea successfully. These experiments were as a consequence of a desire by the colonial administration to improve the economy of the country. It also aimed at improving agricultural production in the face of rising opposition by the African population of the colonial administration's policies and especially the prohibition of cash crop growing. It was thus hoped that the growing of cash crops by Africans would provide them with a source of income and thereby stir local economy activity.[14] This study will in part be concerned with how far this is true in respect of tea in Kisii district.

In 1954 a landmark in the colonial administration's planning efforts came in the form of the Swynnerton plan. The basic ideas

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14. Arvo Jr. (1968) op. cit pg.59

behind the plan were that by consolidating and enclosing land holdings, establishment of individual title to land, providing financial assistance, supervisory assistance and by encouraging cash crop production, African farmers would be able to derive an appreciable money income above subsistence.[15] Swynnerton proposed further that tea should be a major component in his plan for the diversification of African agriculture and recommended 12,000 acres be planted by 1968 and mentioned a potential of 70,000 acres.[16] This is far below the total estimated high potential tea area of 1.5 million acres in the country.[17]

The Swynnerton plan did not however result in immediate widespread cultivation since registration and consolidation were deemed necessary before agricultural improvements could be emphasized. Thus the smallholder tea scheme was a result of the need to put the Africans in the market economy by producing cash crops on their smallholdings which had

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15. Swynnerton, J.R.M.: A plan to Intensify the Development of African Agriculture in Kenya (Nairobi, Government Printers, 1954).

16. Ibid. pg. 18.

17. Stern. N.H. op cit. pg.13.

been consolidated and registered. The form of production that was to evolve (namely, smallholder) was because consolidated land holdings were too small for large scale farming, and because the smallholder had to plant tea he could effectively manage while at the same time growing food crops for his subsistence needs.

With some progress in smallholder grown tea, it became apparent that some means of processing and marketing would be necessary. Thus in 1955 the Central Province African Grown Tea Marketing Board and the Nyanza and Rift Valley African Grown Tea Marketing Board were set up.

The decision to commit planning funds and efforts to expanding the development of African grown tea met with some doubts because few people could believe that Africans could cope with a crop so removed from subsistence agriculture.
E. Huxley's comments best exemplify these doubts:

> "This whole tea project, one of the boldest and most ambitious ever taken on in Africa is a tremendous gamble. It is a gamble primarily with human nature. Can you turn an indolent, cattle-loving, illiterate, easy-going and suspicious

tribesman into an industrious, steady-going, intelligent tea planter in a few years? Tea will grow undoubtedly, but can you assure that it will be tea of good quality? Everyone agrees that if poor tea is grown the experiment will fail; prices of low quality grades cannot stand the costs of production. It must be good tea or nothing. As good as the big companies grow on their estates with all their experts training, capital and experience."[18]

These fears and views were proved to be unwarranted, for not only did African smallholders produce tea but they produced tea of a superior quality to that produced by the estates.[19]

However, the success of the smallholder tea production necessitated complementary organisational inputs of a large scale nature. Its success can thus be attributed, apart from the willingness of the smallholders to take up the crop, to the careful

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18. Huxley, E. A new Earthian Experiment in Colonialism. (London Chatto and Windus, 1961) pg. 87-88.

19. Mathare, J. Khalifan and Mahindi C.: "Tea Industry in Kenya" (Dept. of Economics paper, University of Nairobi 1968) pg. 1.

way in which the industry was nurtured. This was true of nursery management, extension services, transportation, processing and provision of credit. There is little doubt that had the development been in the form of backyard plantings, the industry would be suffering from the same problems that have plagued smallholder production in Sri Lanka because of lack of sufficient organizational machinery.

2.5 SMALLHOLDER VERSUS ESTATE PRODUCTION

Within the tea industry, the suitability of establishing smallholder production versus that of establishing estate production under any given set of conditions is a discussion that has not come to any conclusive agreement. Each system of production is seen to have peculiar advantages that do not necessarily apply to the other. Thus the establishment of any one form of production arrangement will depend on what advantages are deemed as more beneficial to those of another set of production arrangement.

Estates are seen to have the following advantages over smallholder production:

(i) Efficiency of operation and organization.

(ii) A high quality product through better

management during the growing and manufacturing stages.

(iii) Availability of experienced and knowledgeable personnel and access to research information.

(iv) More easily obtained financing.

(v) Estates generally provide facilities such as medical care which would otherwise not be available.

(vi) Connections with other agricultural endeavours are often available with resultant lower costs for various products such as fertilizers.

Production by smallholders is also seen to have the following advantages:

(i) Smallholders are not economically dependent on one crop hence not subject to price slumps

(ii) Individuals retain their hold on the land.

(iii) Disease and insect attacks do not spread as rapidly.

(iv) It is the easiest means of expanding production in areas where there are established factories and population density is high.

(v) Profits go into the local economy.[20]

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20. Arvo Jr. op cit. pg.59.

Also, the organization of production on large scale estates generates an alienating environment since the facilities provided are passivating as they make employees heavily dependent on employers.

Many of the advantages of the large estates over smallholders have been overcome by the establishment of a central administrative body for the smallholders - the Kenya Tea Development Authority.

With about 15,000 hectares of tea under estate production in the country in 1960 as compared to only 1,000 hectares under smallholder, the estates formed the dominant sector within the tea industry in Kenya. However, during the 1960's smallholder producers under the umbrella of the KTDA were making steady progress to break this dominance. By 1970, smallholders had 18,000 hectares under tea as compared to 22,300 hectares owned by estates.[21] This position had changed by the mid-1970's as

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21. Data from Kenya Tea Development Authority (KTDA) 1969/70 Annual Report; East African Tea Boards, Tea, 1969; and Statistical abstract 1970 and 1977.

smallholders overtook estates in terms of hectarage. Estates, however, still continued to dominate production of green leaf since most of the smallholder bushes had not come to full production because of the age of their tea bushes.

By 1978, KTDA had 46,800 hectares under smallholder tea which had grown to 48,950 hectares in 1979. The KTDA has about 123,000 smallholders with average holdings of 0.38 hectares.[22] KTDA smallholders are now the major producers of tea in the country.

2.6 THE KENYA TEA DEVELOPMENT AUTHORITY

Because of the need for a central organization to handle theinternational financing required for the expansion of the smallholder tea programme in the country, the Special Crops Development Authority (SCDA) was established in 1960. It took over the marketing responsibilities of the two Boards (the Central Province African Grown Tea Marketing Board and the Nyanza and Rift Valley African Grown Tea Marketing Board) in 1962. The first task of the SCDA was to obtain finance from the International

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22. KTDA: 1977/8 Annual Report and 1978/79 Annual Report.

Development Association (IDA) and the Commonwealth Development Corporation (CDC) for the financing of its first two Development plans (1960-67 and 1964-70). In 1964 the SCDA was reconstituted and renamed the Kenya Tea Development Authority (K.T.D.A.), logically enough, since the S.C.D.A., totally preoccupied with the rapid development of smallholder tea, had never actually got round to developing any other special crops.

The KTDA, in its efforts to promote and foster the development of Kenya's smallholder tea, performs four main functions:

1. It establishes and finances the tea nurseries and supplies planting material and fertilizers to the farmers for cash or credit terms.
2. It supervises cultivation in the fields and provides training facilities.
3. It arranges for the inspection, collection and transportation of green leaf to the factories.
4. It arranges for the processing of smallholders' leaf in existing factories or new ones and participates in financing them, and also arranges the marketing of processed tea.

The KTDA has thus centrally organised those parts of the tea industry that have economies of scale - processing, transport, education, accounting and marketing - and has helped farmers to carry out those parts that can be rewardingly centralized, namely careful husbandry.

The Authority's Development Programme is based on Five-Year Plans, each plan being built around an agreed planting programme based on assessed needs and demands for planting in each growing district and also the construction of additional factories to process the increased green leaf output. This expert and tight organization has been crucial to the success of KTDA's plans and the general expansion of smallholder tea production in Kenya.

Figure 1 shows the organizational structure of the KTDA under the Board on which sit representatives of the growers, the government, financiers and the Tea Board. Under the general manager, the various departments are organised to deal with the various functions of the authority, namely, field supervision, collection, processing, marketing, accounts and administration.

THE FORMAL STRUCTURE OF K.T.D.A

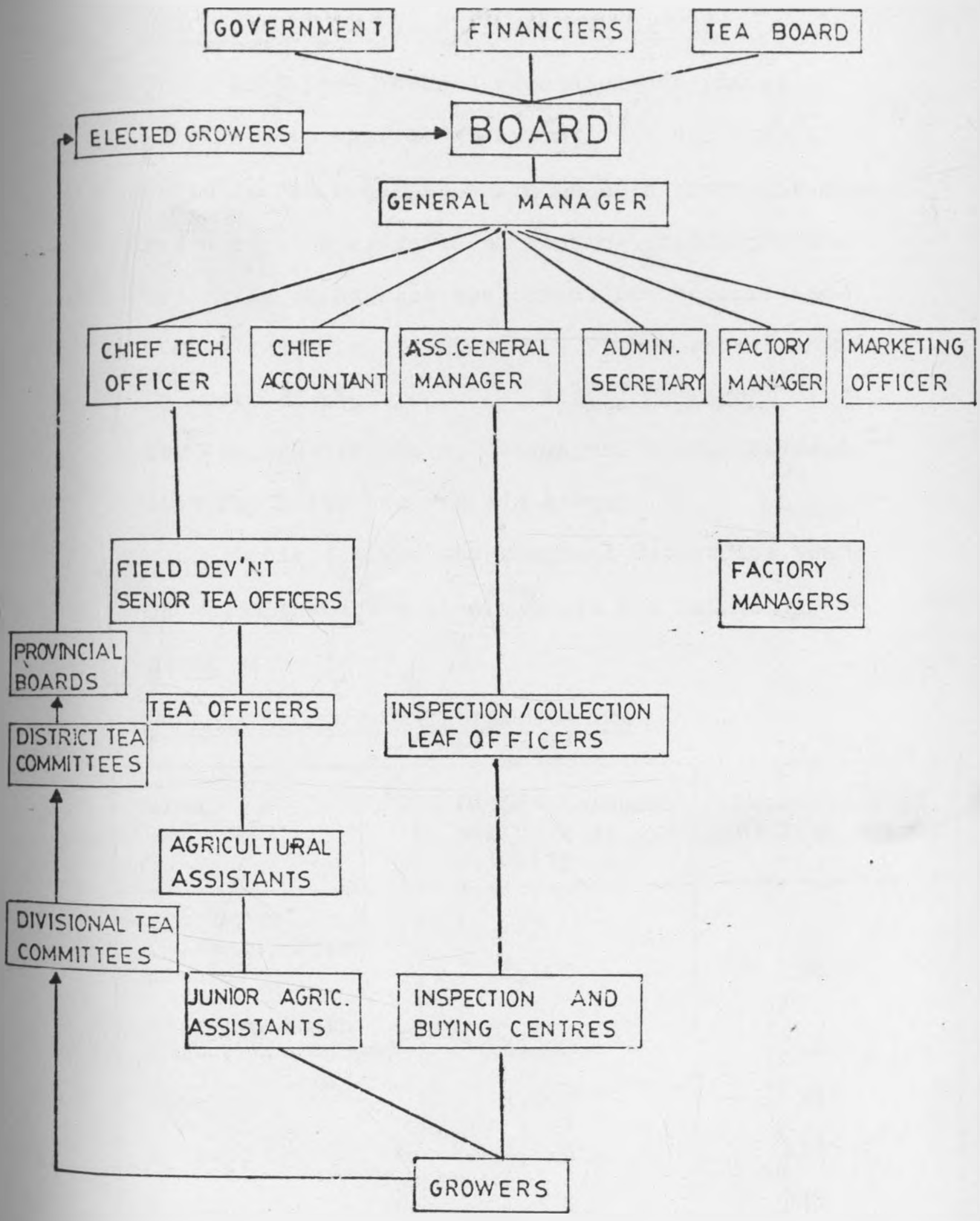


FIGURE. 1

Source: KTDA (1974)

2.6.1 REGIONAL OUTPUT AND PLANTING PROGRAMMES

In future, KTDA's expansion programmes will have to take into account regional output variation in order to maximize on a given investment. Based on this criteria of ranking priority areas depending on highest tea output per hectare and lowest labour cost, Stern (1972) has ranked them in order of preference as: Kisii, Kericho, Mt. Kenya South, Meru, Aberdares, Nandi/Kakamega.[23] (See map 1 for tea growing areas).

Table 4 gives the regional output for tea on which the above observations are based.

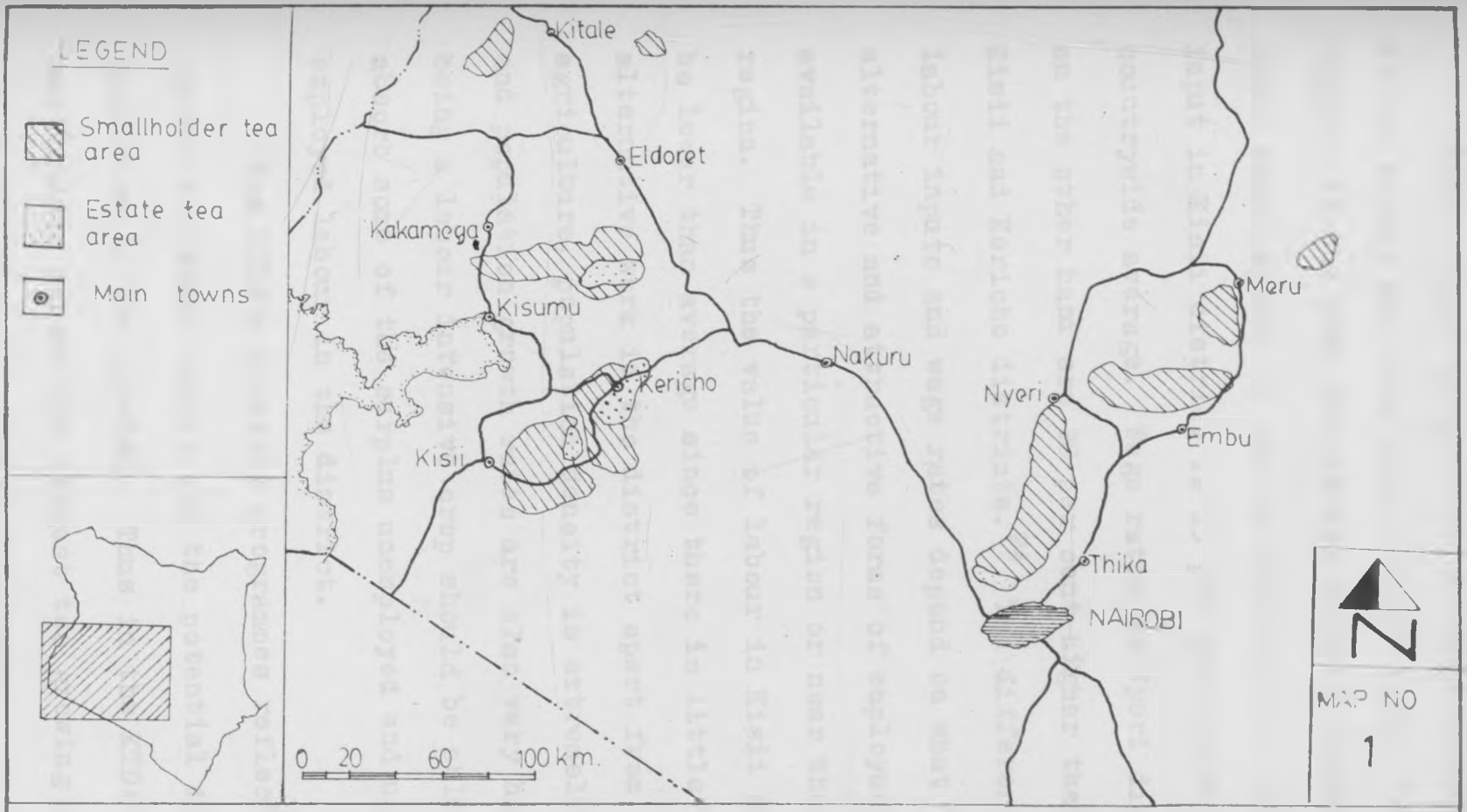
TABLE 4

REGIONAL OUTPUT VARIATION FOR TEA

Area	Output:lb/annum per acre at maturity	Percentage of average output
Aberdares (Muranga, Nyeri Kiambu)	1,100	94
Mt.Kenya South (Embu, Kirinyaga)	1,300	111
Meru	1,000	94
Kericho	1,300	111
Kisii	1,350	115
Nandi/Kakamega	900	77

Source: Stern (1972) pg.89

23. Stern. N.H. op. cit. pg.102.



KENYA: MAIN TEA – GROWING AREAS

Labour input is probably closely correlated to tea output and thus labour input varies between regions in the same way as tea output. Based on these assumptions, it can be implied that labour input in Kisii district is 15 per cent above the countrywide average. Wage rates in Nyeri district on the other hand are 20 per cent higher than in Kisii and Kericho districts.[24] The difference in labour inputs and wage rates depend on what alternative and attractive forms of employment are available in a particular region or near the region. Thus the value of labour in Kisii should be lower than average since there is little alternative work in the district apart from agriculture, population density is extremely high and population growth rates are also very high. Tea being a labour intensive crop should be able to absorb some of the surplus unemployed and under-employed labour in the district.

The KTDA's planting programmes reflect this aspect of labour supply and the potential for further expansion in the growing. Thus in the KTDA's smallholder scheme the largest tea growing districts are Kisii, Muranga, Kericho and Meru.

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24. Stern. op cit. pg.89.

Table 5 gives the potential tea growing areas in the various districts and the planted area in 1977.

TABLE 5

POTENTIAL SMALLHOLDER TEA AREA AND AREA PLANTED 1977

(in '000 hectares)

DISTRICT	POTENTIAL AREA	AREA IN 1977	% OF POTENTIAL
Kiambu	28.6	4.8	17.1
Muranga	49.2	6.5	13.4
Nyeri	21.1	4.3	20.7
Kirinyaga	16.7	3.2	20.0
Embu	14.4	1.7	12.3
Meru	44.0	5.1	11.7
Kericho	117.7	8.0	5.2
Kisii	155.3	8.4	5.4
Nandi	84.7	1.7	2.1
Kakamega	77.6	1.2	1.6
Mar'bwet	2.0	0.8	17.4
Total Areas	626.0	44.3	7.0

Source: A Report on the Tea Growing Potential of Kenya (M.O.A. 1966) and KTDA's Fourth Plan.

At the end of its Fifth Plan (1978-82) the KTDA hopes to raise to total area by over 5,000 hectares to reach 54,689 hectares.[25] Because most of its planting programmes are usually completed well ahead of schedule, the total hectarage under tea by 1982 might well be above the planned figure.

2.6:2 FINANCE AND EMPLOYMENT

The huge expansion of the tea industry in Kenya represents not only dramatic increase in smallholder production but also new investment in commercial companies involved in tea and also more government expenditure on the provision of infrastructure and personnel. The KTDA's main expenditure items are factories, nurseries, planting, staff housing, field development, training centres, interest paid on capital and administrative expenses.

Its operations are largely financed with loans raised from the I.D.A., the C.D.C. and Kreditanstalt fur Wiederaufgabeu of the Federal Republic of Germany. In the factory sector, funds are raised from the CDC and commercial tea companies. The factories are aimed at becoming independent financial entities once the loans are repaid and the local smallholders have bought shares in their respective

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25. KTDA: Annual Report 1978/9, and Fifth Plan.

local factories.[26] The Kenya goverument contributes housing and staff who are seconded to the KTDA from the Ministry of Agriculture for field extension work. Also a considerable amount of money is raised from the cess imposed on the farmers at the rate of 31 cents per kilogram of green leaf delivered to the authority by the smallholders, in order to cover its costs.

The tea industry is an important employer of labour and has been steadily growing. In 1968 it employed 48,000 people (9% of total employed labour-force in the country) and increased to 56,000 people employed in the tea estates and factories alone in 1978. Within the smallholder sector, tea also provides substantial employment on the farms and in the factories. Although KTDA encourages farmers to grow on average 0.4 hectares (1 acre) of tea so that they can use family labour, there are many farmers who plant larger hectarages and find it necessary to employ labour. In 1968 there were 32,000 smallholders (who largely depend on tea to earn cash incomes) and had increased to 123,000 in 1979. Add to this figure the wives, children, other family members

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26. Kenya Govt. National Development Plan 1966-70 (Nairobi, Govt. Printers, 1966) pg.179.

and labourers, and the figure of employment in the smallholder sector is much higher. Also the KTDA employs a substantial number of people in its 24 factories (an average of about 150 per factory) and other staff at the headquarters and in the field. Thus with expansion, the tea industry will continue to increase in importance as a major employer of labour.

2.7 THE TEA BOARD OF KENYA

After the Ministry of Agriculture, the Tea Board of Kenya is the second most powerful body in connection with the tea industry in the country. Formed in 1950, the main function of the Board is to liaise between the tea growers and the Kenya government. It is in charge of the licensing of the planters of tea and also formulates the basic overall policy with regard to the growing of tea. It also tries to promote the market for Kenyan tea overseas as well as encouraging research locally at the Tea Research Institute in Kericho.

Thus unlike the KTDA which caters specifically for smallholders, the Tea Board is responsible for policy formulation and licensing for the whole tea industry in Kenya, large scale estates and smallholders alike.

2.8 SUMMARY

The structure of the tea industry in Kenya has changed drastically over the last twenty years. From production dominated largely by estates and excluding Africans, the dominant feature now is that of smallholders forming a major share of the country's output. This move has necessitated large investments, both by the government, overseas financiers and the KTDA in infrastructural facilities and agricultural inputs in order to make the smallholder experiment a success.

At the same time, the expansion of the smallholder scheme has been accompanied by a drastic improvement in Kenya's standing in the world tea industry. Because of the relatively stagnating tea industries of the older producers, especially India, Sri Lanka, Indonesia and Bangladesh, the Kenyan tea industry stands to gain in future at the expense of these other producers.

Tea being a labour intensive crop and an important and rising employer of labour in the country its expansion and improvement will mean an increase in employment and incomes to the country and the growing areas in particular which are often densely

populated and the most likely to experience unemployment problems. More smallholders will thus be able to increase their incomes and thus their general standard of living - contributing significantly to rural development.

Thus with the bettering of Kenya's position in the world tea market, the prospects for the tea industry contributing even more significantly to raising rural incomes, providing employment and the stimulation of rural development are better than ever before.

CHAPTER THREE

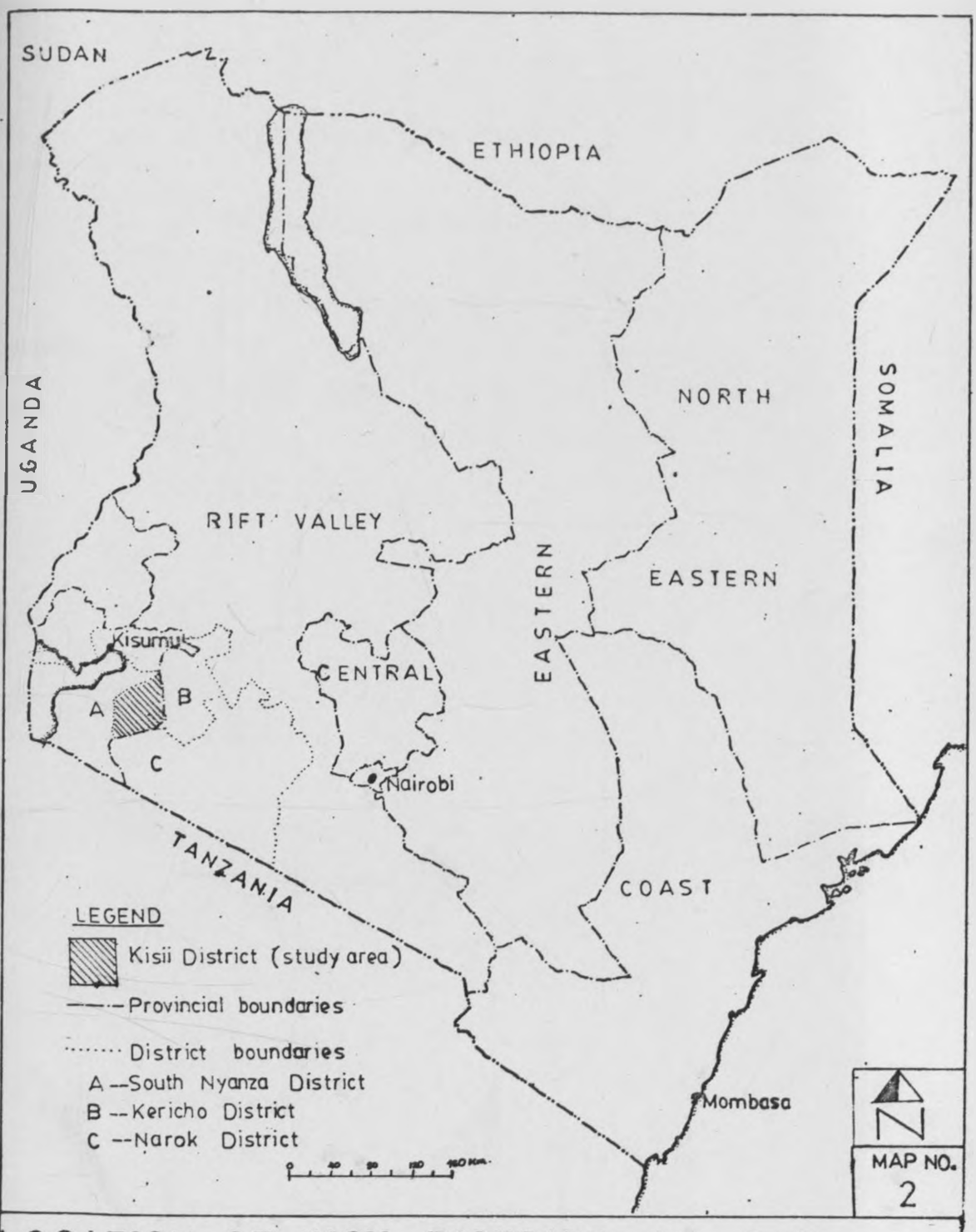
BACKGROUND TO THE STUDY AREA AND THE DEVELOPMENT SITUATION IN KISII DISTRICT

3.0 This Chapter introduces the reader to the district which is the study area. Apart from providing background information, the discussion in this chapter is on those aspects that give us a general understanding and appreciation of factors that have an effect on the development of the district. Thus apart from a discussion on the physical characteristics, agricultural zones and major agricultural activities, it will also be necessary to look at demographic characteristics, carrying capacity, industrial development and finally, a synthesis of the major development problems of the district. An appreciation of these factors and development problems will be necessary to the understanding of the role the tea industry plays in the development of the district as will be discussed fully in subsequent chapters.

3.1 LOCATION AND SIZE

Kisii District is one of the four districts of Nyanza Province in Western Kenya. The district is about 50 kilometres east of Lake Victoria, about 80 kilometres south of the Equator and 400 kilometres west of Nairobi (see maps 2 and 3).

Stretching about 60 km. from south to north



LOCATION OF KISII DISTRICT IN THE NATIONAL .CONTEXT.

LEGEND

INTERNATIONAL BOUNDARIES

PROVINCIAL BOUNDARIES

DISTRICT BOUNDARIES

MAJOR URBAN CENTRES

MAP NO.
3

MICHOMA J G M

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UNIVERSITY OF NAIROBI

M.A THESIS
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CONTEXT

and about 40 km. from east to west (distance northeast to southwest: about 70 km.) the district covers an area of nearly 2,200 sq.km. The district borders on Rift Valley Province in the east and north (Narok and Kericho districts), and on South Nyanza district in the west and south. The district is the home of the homogenous group of people called the Gusii, and had a population of 867,000 people in 1979.

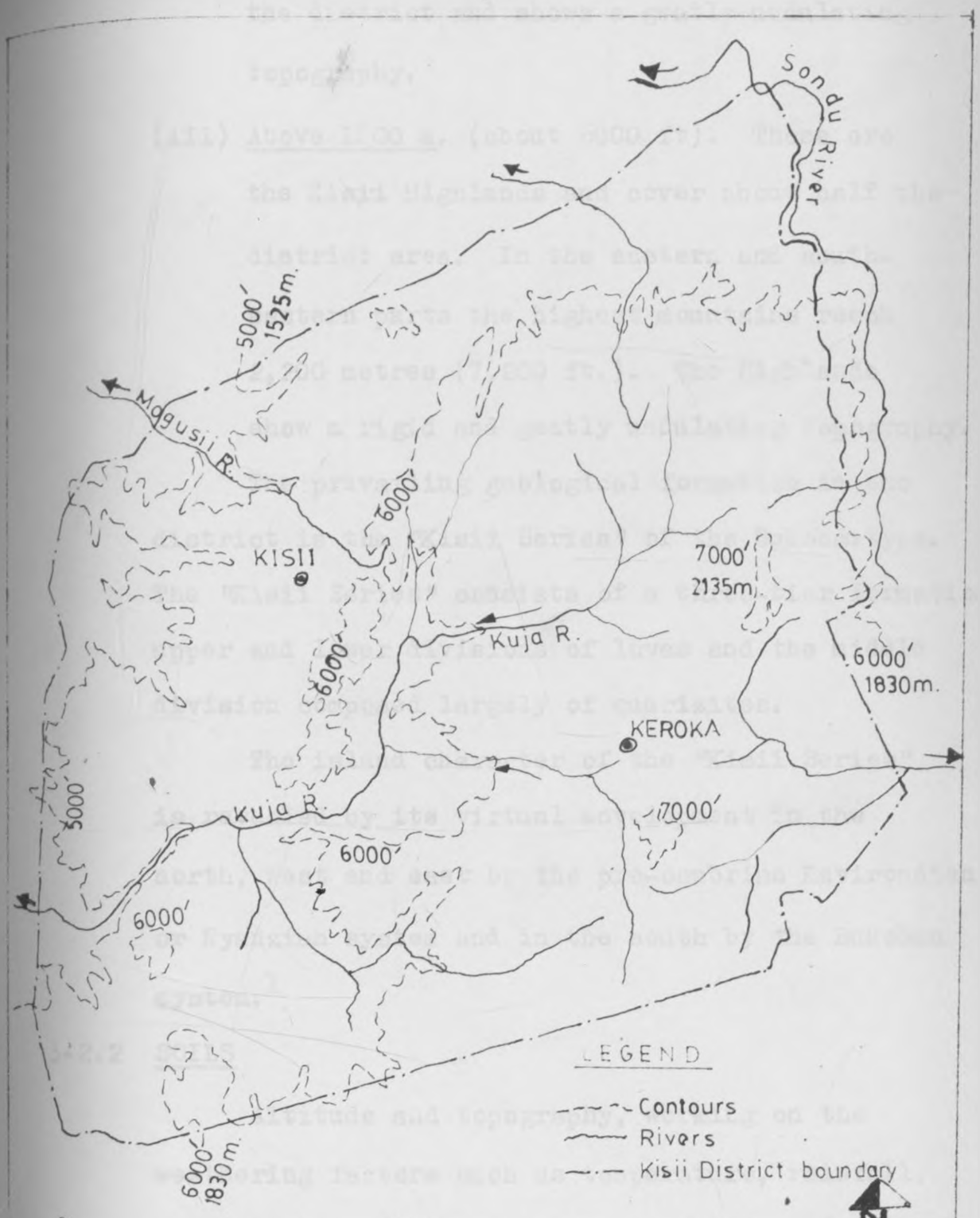
3.2 PHYSICAL FACTORS

3.2.1 TOPOGRAPHY AND GEOLOGY

The district ranges in elevation from about 1500 metres (5000 feet) to over 2135 metres (7000 feet) above sea level. The Kisii Highlands cover the greatest part of the district which topographically can be divided into three main zones corresponding to altitude: (see map 5).

(i) Below 1500 m. (about 5000 ft.): These are the lower areas of the region stretching along the western boundary of the district. This area covers only about 5 per cent of the district area and can be considered part of the Lake Victoria Basin.

(ii) 1500 m. to 1800 m. (about 5000 ft- 6000 ft.) This area covers about 40 to 45 per cent of



MAP NO. 5

SOURCE: SURVEY OF KENYA, 1:250,000 TOPOGRAPHIC, 1969.

KISII DISTRICT: TOPOGRAPHY AND DRAINAGE.

the district and shows a gently undulating topography.

(iii) Above 1800 m. (about 6000 ft). These are the Kisii Highlands and cover about half the district area. In the eastern and south-eastern parts the highest mountains reach 2,200 metres (7,200 ft.). The Highlands show a rigid and gently undulating topography.

The prevailing geological formation in the district is the "Kisii Series" of the Bukoban type. The "Kisii Series" consists of a three-tier formation, upper and lower divisions of lavas and the middle division composed largely of quarizites.

The island character of the "Kisii Series" is revealed by its virtual envelopment in the north, west and east by the pre-cambrian Kavirondian or Nyanzian system and in the south by the Bukoban system.[1]

3.2.2 SOILS

Altitude and topography, working on the weathering factors such as temperature, rainfall, and time have resulted in two main types of soil associations in Kisii district; (See map 6).

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1. Kenya Government, Geology Dept.: The Geology of the Kisii Highlands (Nairobi, Govt. Printers, 1952).

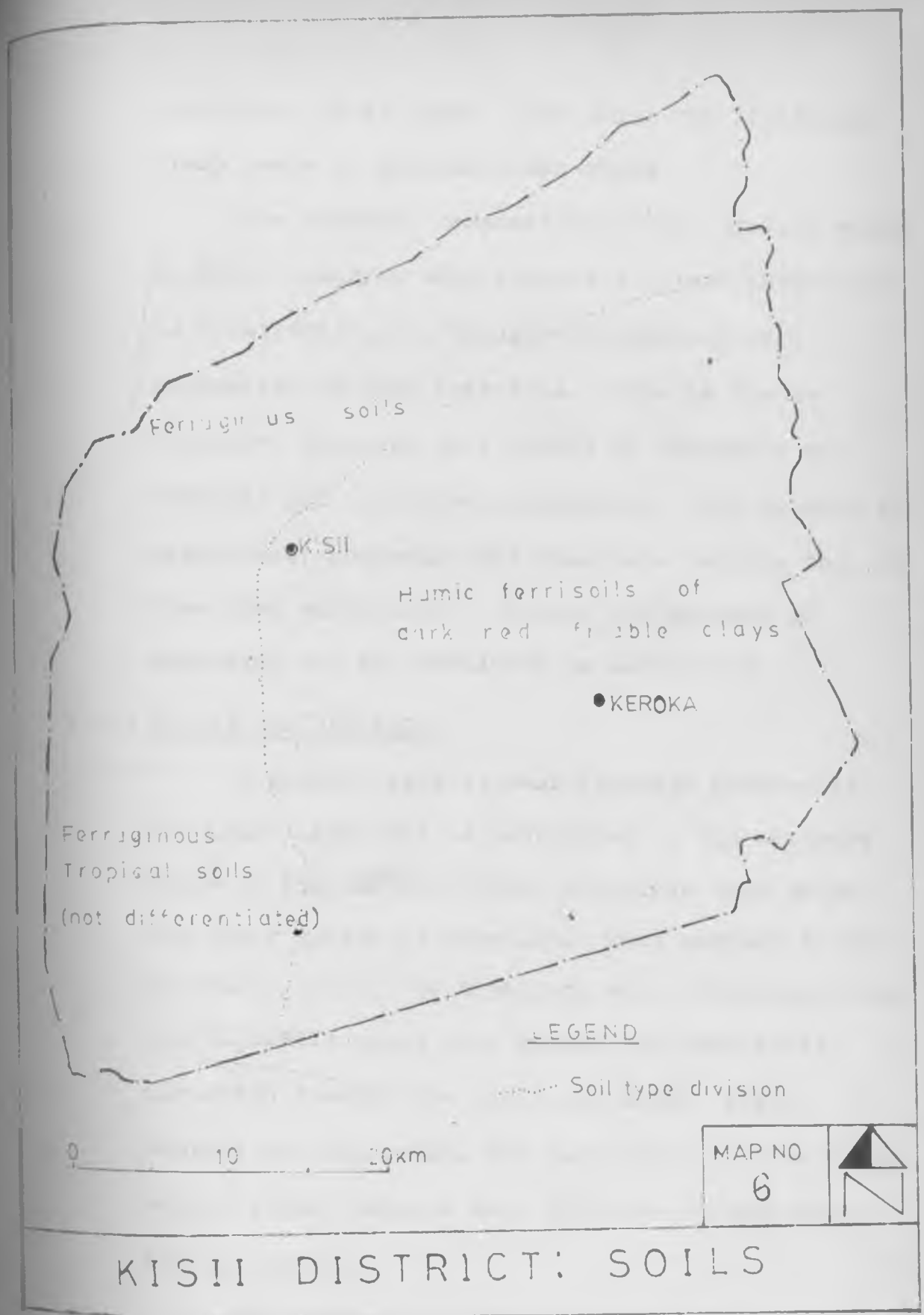
(i) Middle Lands (1500-1800 m.)

On top of the hills there are mainly red friable clays, the Kisii Savannah loams (similar to the dark friable clays in the highlands). Downward the hills the soils are more considerably determined by the influence of the weathering factors, namely leaching and swilling away of soluble and solid soil particles. The soils have changed into dark red friable clays with a laterite horizon. On the lower slopes there is a brown to yellow-red sandy clay with laterite horizon. Down the slopes the soils are less humid and the pH-value has increased through the accumulation of cations from the upper part of the hills.

(ii) Highlands (above 1800 m.)

On the top of the ridges or higher hills sometimes shallow stony soils with rock outcrops as a result of accelerated erosion can be found. In the flatter areas an accumulation of the leached soluble products from the upper areas, highly saturated, neutral or alkaline, massive structured soils can be found (dark friable clays).

In the flatter areas which cover only a marginal part of the district's area, typically an accumulation of leached soluble and solid soil



KISII DISTRICT: SOILS

particles can be found. The soils are light-grey loamy sands or greyish-brown clays.

The chemical composition of the typical soils in Kisii district with respect to plant production is relatively poor, though the district is classified as high potential. This is due to intensive leaching as a result of intensity of rainfall and intensive utilization. The content of phosphorus, potassium and sometimes calcium too, is less than sufficient. However the content of magnesium can be considered as sufficient.

3.2.3 RELIEF AND DRAINAGE

A general east to west drainage pattern of the Kisii highlands is controlled by the westward slope of the ancient tilted peneplain into which the river system is enbedded. Most streams in the northern part of the district, when debouching from the highlands swing to a general northwesterly direction towards the Kavirondo Gulf. After leaving the highlands, the Gucha (Kuja) River turns southwestward towards Lake Victoria through South Nyanza district.

The drainage of the Kisii highlands is mainly through the three principal river systems: the Sondu River, the Mogusi River, the Gucha River and

their respective tributaries (see map. 5). The drainage of the whole highland area finally flows into Lake Victoria. The Sondu river and one of its principal tributaries, the Kipsonoi river drain much of the extreme northeastern and eastern Kisii district. The Mogusi, the smallest of the three rivers and a tributary of the Awach-Tende River, drains approximately 20 per cent of the northwestern portion of the district. Most of the central and southern parts of the district are drained by the Gucha river and its minor tributaries, while the extreme southern edge of the district is tapped by a major tributary of the Gucha, the Migori River.[2]

3.3.0 CLIMATE

3.3.1 TEMPERATURE

Temperature in an equatorial region such as Kisii is largely a function of elevation, the season of the year, and the time of day. Owing to its comparatively high altitude, temperatures are not excessive despite its proximity to the equator. Also, fluctuations of temperatures are comparatively low, thus no extremes of temperatures are likely to occur.

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2. Geology Department: The Geology of the Kisii Highlands (1952) op. cit.

The mean daytime temperatures for Kisii town is 28.9 degree centigrade (84°F), while the mean night temperatures is 12.8 degrees centigrade (55°F).[3] The highest temperatures of the year occur during the months of January, February and March, the latter part of the dry season before the long rains. Due to the scarcity of data, no figures of temperatures are available for any other part of the district except Kisii town. But due to elevation it can be assumed that Keroka, at 2040 metres (6800 ft.) above sea level will average about 2.8 degrees centigrade (5°F) cooler.

3.3.2 RAINFALL

Except for January and April, the average monthly rainfall is between 100 and 200 mm. The rainfall is sufficient for most crop activities and is of a fairly reliable timing. Average rainfall in Kisii town is 1710 mm., Kamagambo in South Mugirango location 1525 mm. and the Kisii Farm an average of 1820 mm per annum. (See Figure 2.)[4]

The distribution of precipitation corresponds very roughly with the occurance of the highest

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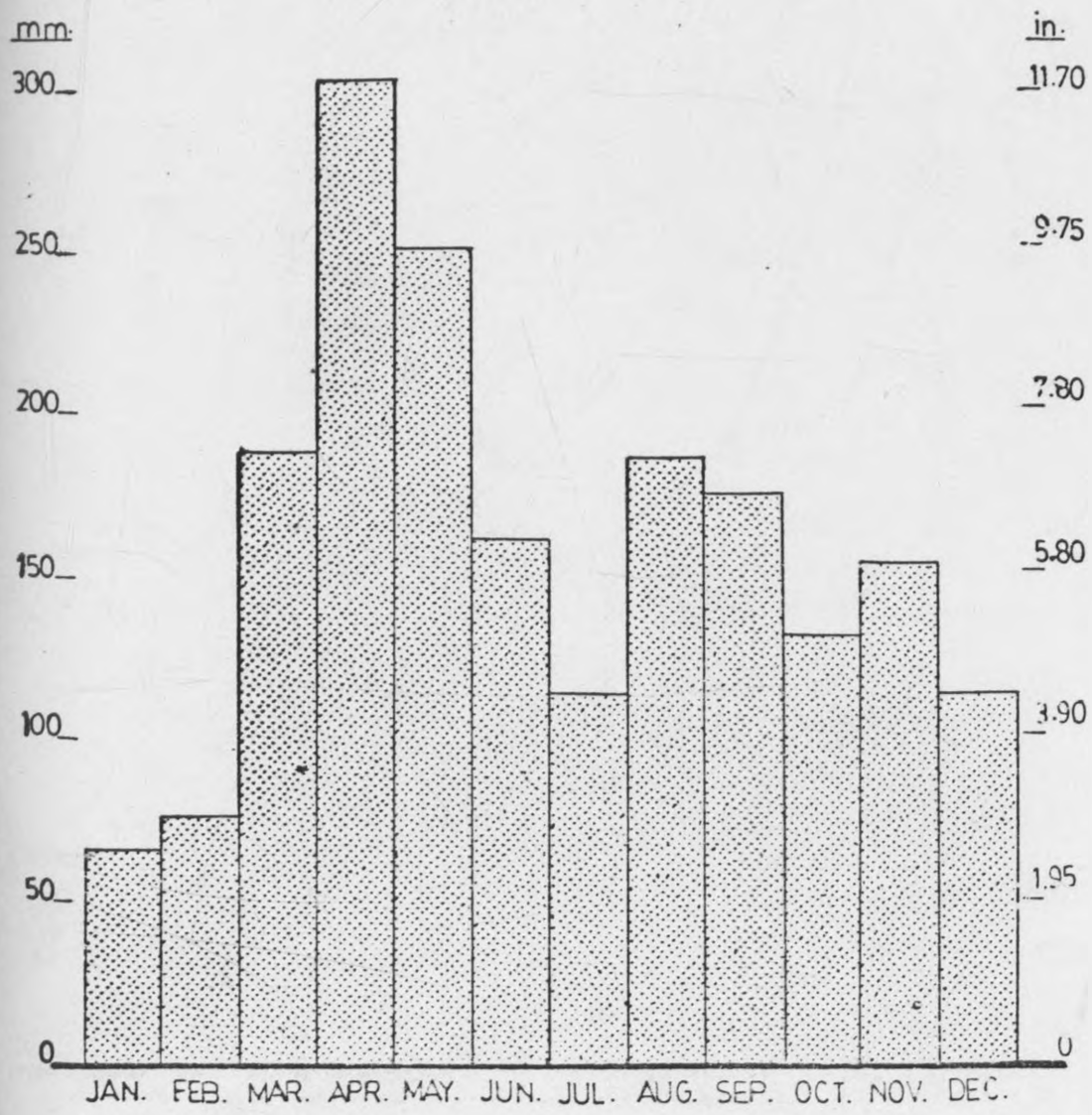
3. Meteorological Department: Kisii Station 1978.

4. Meteorological Department. op cit.

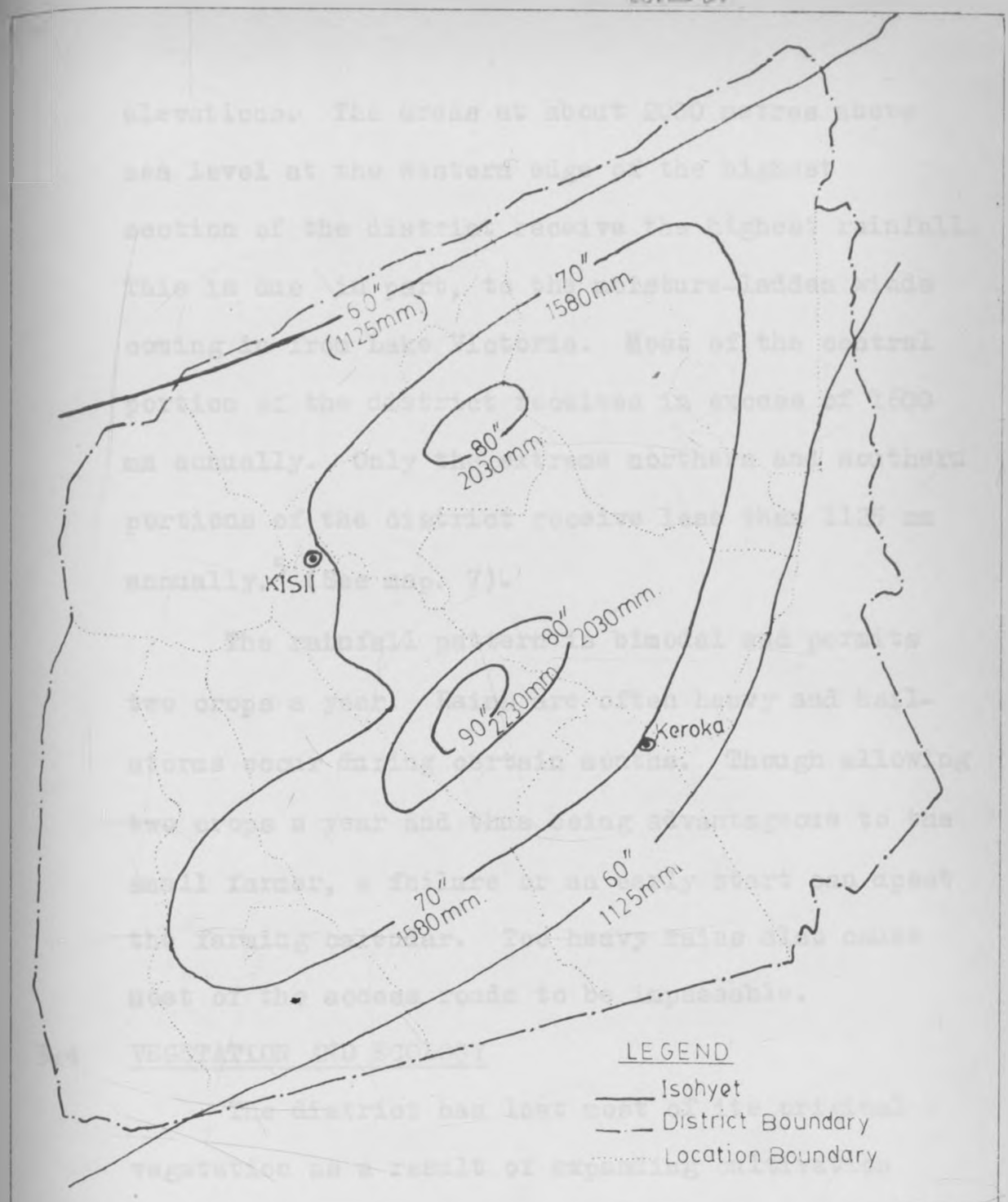
FIGURE: 2

ANNUAL PRECIPITATION

KISII FARM (annual rainfall: 73 inches)
1825 mm.



SOURCE: SURVEY OF KENYA, CLIMATE AND VEGETATION MAP, 1970.



MAP NO. 7

SOURCE: SURVEY OF KENYA, CLIMATE AND VEGETATION MAP 1970

KISII DISTRICT: ANNUAL PRECIPITATION

elevations. The areas at about 2000 metres above sea level at the western edge of the highest section of the district receive the highest rainfall. This is due in part, to the moisture-ladden winds coming in from Lake Victoria. Most of the central portion of the district receives in excess of 1600 mm annually. Only the extreme northern and southern portions of the district receive less than 1125 mm annually.[5] (See map. 7).

The rainfall pattern is bimodal and permits two crops a year. Rains are often heavy and hail-storms occur during certain months. Though allowing two crops a year and thus being advantageous to the small farmer, a failure or an early start can upset the farming calendar. Too heavy rains also cause most of the access roads to be impassable.

3.4 VEGETATION AND ECOLOGY

The district has lost most of its original vegetation as a result of expanding cultivation induced by population pressure and cash cropping. Nyangweta forest in the southern part of the district indicates that the original vegetative cover was a moist montane forest. This has now

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5. Ibid.

been replaced by a moist montane scrub grassland and cultivation savannah. Only scattered groves of black wattle trees and scattered eucalyptus and cypress occasssionally appear on the hills and river valleys showing the original vegetation.

Ecologically, most of the district lies in the Kikuyu grass/star grass zone, both which are zones of high potential with adequate rainfall, good deep soils and moderate temperatures. The Kikuyu grass zone, lying above the 1800 metre contour is particularly suited for the growing of crops like tea and pyrethrum. The star grass zone, below 1800 metres, is well suited for maize, coffee and exotic cattle. The Kikuyu grass zone offers the greatest potential due to coincidence with the better soils and generally heavier rainfall.

These two belts offer excellent opportunities for the district to develop a diversified form of agricultural production based on the potentialities of each zone.

3.5.0 AGRICULTURAL ZONES AND MAJOR AGRICULTURAL ACTIVITIES

The agricultural zones conform the variations in soils, rainfall, temperatures and altitude. Each zone specializes in a different combination of crops. On this criteria, three agricultural zones can be differentiated:

1. The area under tea and pyrethrum: This zone roughly coincides with the highlands and the

rainfall is higher than 1500 mm per annum. This area covers slightly under half of the district.

2. The coffee and banana zone is the second major zone and it covers the middle lands and its extension is similar to that of the highlands.

3. The small remaining rest, the lower areas, mainly in the western parts of the district, sugar cane, english potatoes and groundnuts are found as the typical crops.

Maize, the main staple food, is grown in the whole district. The varieties in the highlands are later maturing than those in the lower areas. No major differentiation can be observed for the other production activities like passion fruits and milk (which are yet more intensively produced in the highlands), and for beans and finger millet which are grown widely in the district.

A comparison of the zones shows a regional imbalance in so far as opportunities for cash-earning enterprises are at present better, (or better utilized) in the highlands. The areas where tea and pyrethrum are grown and most of the passion fruits and milk production concentrated are considered of a higher potential. These are also the areas with the highest population densities in the district. It is doubtful whether the potential for agricultural

production in the lower areas has been fully recognised or utilized to redress the regional imbalance in economic development in the district.

Average farm holdings in the district are 2 hectares, and in regions with the highest density which are also the areas of high value cash crops, the average goes down to 1.5 hectares or less. Thus with the exception of the settlement scheme area (Borabu location) which covers some 15,800 hectares (average farm holdings are 5 hectares), Kisii district is a small scale farm area.[6]

3.5.1 TEA

Since it was first introduced into the district in 1957 around the Makomoni and Magombo area in East Kitutu location, tea development in the district has been quite successful. With a considerable and fast expansion of hectarage, the crop has become one of the major sources of income for farmers in the highlands. The Kenya Tea Development Authority with factories at Nyankoba, Nyansiongo, Kebirigo, Kiamokama and Nyamache provides the growers, as already shown in Chapter Two, with a package of services including extension services, tea road development and maintenance, as well as marketing at guaranteed prices.

At the beginning a "tea line" was established

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6. Hubert K: Draft Plan for the Kisii District Dev. Committee (District Commissioner's Office, Kisii, 1972) pg.22.

around the area where tea was first introduced in order to control the outward expansion of tea growing. Anyone living inside the line could grow tea while those outside were prohibited. The line was however moved continually (about 5 km. annually) until most of the district is now inside the "tea line". (See map. 8). A recent tendency of growing tea below 1700 metres can increase the quantity of leaf produced but may have negative effects on the quality.

Tea can be a profitable crop depending on the intensity of production, labour inputs and yields. Yields will be affected by the initial investment, performance of labour operations, and the rate of fertilizer applications. In 1978 the district had 29,627 smallholders who grew 9,844 hectares of the (average plot size was 0.33 hectares).[7]

The potential of the district has not been fully developed and the organization of KTDA tea growing and marketing does not as yet show severe problems. The payment system that provides continuous cash income makes the crop very attractive. Expansion into lower areas should be carefully considered to avoid a reduction in profitability and efficiency of production. Intensification of growing in the present producing areas and the continued

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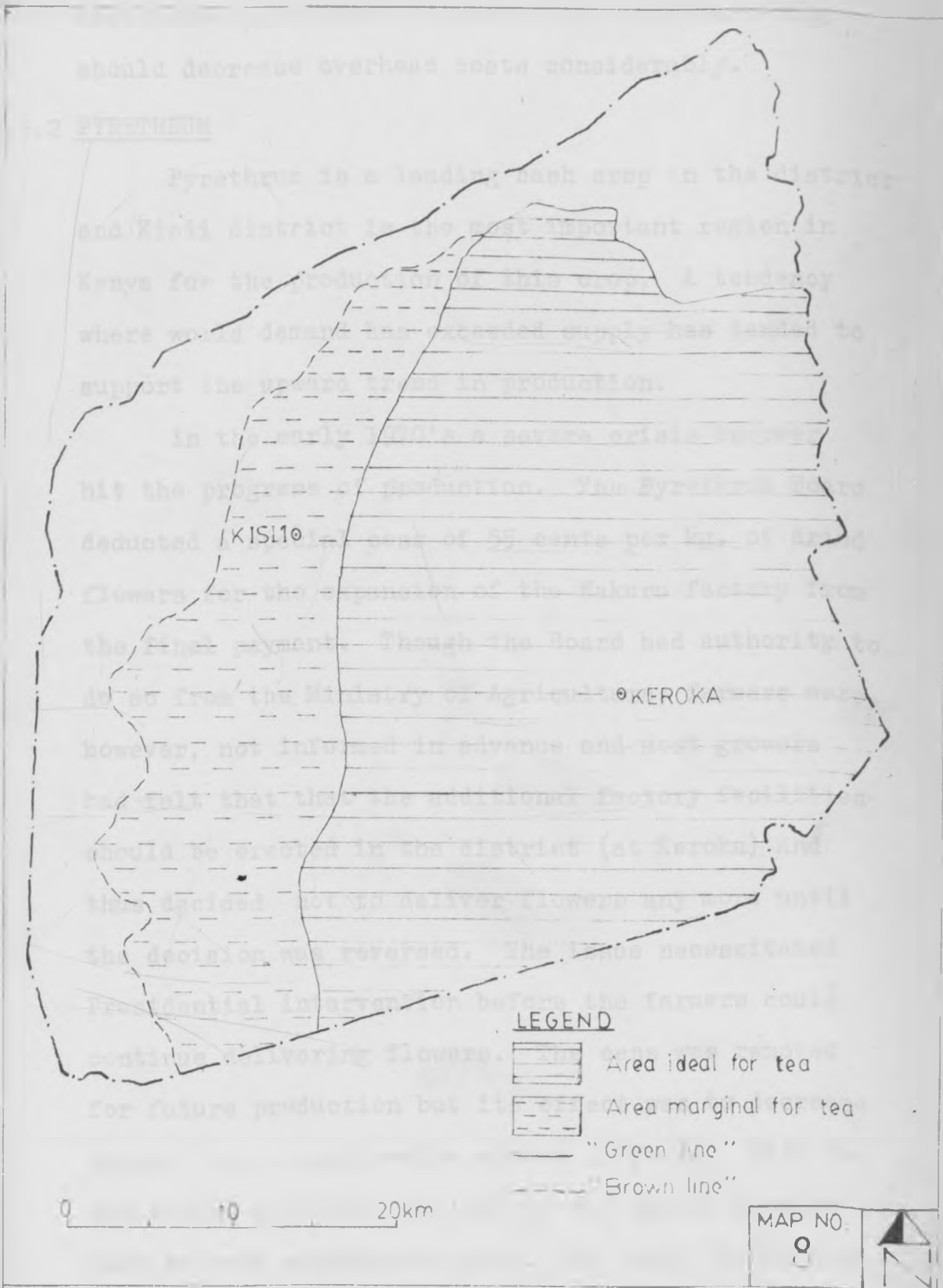
7. KTDA: Annual Report 1977/78, pg. 22.



KISII DISTRICT: TEA GROWING POTENTIAL

efficient organization of collection and marketing should decrease overhead costs considerably.

3.5.2 PYRETHRUM

Pyrethrum is a leading cash crop in the district and Kisii district is the most important region in Kenya for the production of this crop. A tendency where world demand has exceeded supply has tended to support the upward trend in production.

In the early 1970's a severe crisis however hit the progress of production. The Pyrethrum Board deducted a special cess of 55 cents per kg. of dried flowers for the expansion of the Nakuru factory from the final payment. Though the Board had authority to do so from the Ministry of Agriculture, farmers were, however, not informed in advance and most growers had felt that that the additional factory facilities should be erected in the district (at Keroka) and thus decided not to deliver flowers any more until the decision was reversed. The issue necessitated Presidential intervention before the farmers could continue delivering flowers. The cess was removed for future production but its effect was to decrease output for a considerable number of years. With the new prices announced in 1979 by the Board, growers have resumed production again. In 1978, 11,930 hectares of pyrethrum were grown in the district

producing 7,750 tons of dried flowers.[8]

Production and marketing of the crop is relatively well organised and flowers are delivered to collection centres run by member co-operative societies of the Masaba Union.

Pyrethrun is a labour intensive crop like tea and its success depends on the pyrethrin content of the varieties grown (about two thirds of the farmers still grow low content pyrethrum.). Also important for the production of the crop is amount of labour input, fertilizer application and spraying which are hardly done in Kisii district (these, if used could increase yields by about 20 per cent).[9]

Among the major cash crops, pyrethrum has one of the highest land productivity and can be considerably increased by the use of high content clones, increase of labour inputs and use of fertilizer and spraying.

3.5.3 COFFEE

The conditions for coffee growing in the middle parts of the district are fair and there is a dense network of factories well distributed over the area. The industry has, however, been experiencing management problems at the co-operative society level and

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8. Ministry of Agriculture and Ministry of Economic Planning and Development: District Agricultural Data Sheet (Nairobi 1978)

9. Hubert, K. op. cit.

a resultant decline in output.

Labour input and quality is important for successful coffee growing, especially land preparation at the establishment of the crop, the weeding, pruning and spraying have all an important bearing on yields. Neglection of these activities in the early 1970's resulted in low yields for coffee in the district. Crop husbandry has however considerably improved since the mid 1970's when farmers became encouraged by the good prices during the "Coffee Boom".

Handling in factories also affects quality of coffee produced - the factories, however, often have inexperienced and insufficiently qualified managers. In 1978, the district yielded 2,550 tons of coffee from 6,740 hectares.[10]

The potential for improvement in the district is high, quality must however be improved in order to compete effectively in the world market. Long delays in payments to farmers often kill incentives as farmers have to wait for 6 to 10 months after delivery before they are paid. This compares unfavourably with other major cash crops such as tea and pyrethrum where regular monthly and two monthly payments are made respectively.

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10. District Agricultural Data Sheet (1978) op. cit.

3.5.4 PASSION FRUIT

Although experiments with passion fruits in the district have not been encouraging in the past, this crop must be considered as one with promising prospects. After failure in the mid-1960's (which was mainly ascribed to unsolved disease problems), and after a short-lived expansion in 1969-70, a new stagnation arose in the 1970's arising from:

(i) The socio-psychological effect of the removal of the main processing facilities from Sotik to Thika. This was seen by the growers as a move designed to benefit other people at their expense.

(ii) Problems of production techniques - the production process is very complicated and knowledge about it is still insufficient.

(iii) The high material inputs required: these are both financial and organizational. Investment costs per hectare are well over Ksh.10,000 and the provision of material inputs such as wooden posts cannot always be assured.

Such factors make it difficult to exhaust the potential which lies in the production of this crop; a virtually unlimited world market demand makes passion fruit a high potential foreign exchange earner. Its particular suitability for the Kisii conditions is due to the natural production conditions of the region and the high labour

intensity of the crop.

Quality and quantity of labour input, fertilizer application, proper spacing, spraying and plant protection, if properly utilized can increase plant lifespan and increase yields. Average yields per hectare in the district is about 5 tons fetching little (about Kshs.600) because of low husbandry standards.

Marketing is organized along certain routes where lorries pick up the fruits - thus so far only farmers within reach can be served, but with expansion of production the network for collection could be expanded to serve new farmers and new areas also.

3.5.5 MAIZE

Maize is the most important subsistence crop in the district. Kisii is generally self-sufficient in maize. The productivity of the crop in the district mainly depends on the following factors:

(i) The variety - whether it is local or hybrid variety that is grown. It is estimated that 70 to 75 per cent of the farmers grow hybrid maize.

(ii) Application of fertilizers - the estimated rate of fertilizer application is 20 to 30%.[11]

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11. Hubert, K. op cit.

(iii) Land cultivation - exact timing of planting is required. Delays have a greater negative impact in the lowlands than highlands. Farmers usually plant maize in March and April instead of January and December which would be ideal.

(iv) Altitude - there are two crops possible in the lower areas where short-maturing varieties are planted, however double cropping (namely two crops a year) is hardly found here.

Most farmers' decisions on their maize production are nearly always exclusively aimed at ensuring that the family's subsistence consumption is met. In the Settlement Scheme area where it is grown as a cash crop there are however problems of storage and marketing.

In 1978, 98,160 tons of maize were produced in the district from 31,160 hectares.[12] Quantities sold to the Cereals Board are less than 5% of the total production in the district. However, it is only the surplus over what can be absorbed in the local markets that is sold to the Board.

There is considerable scope for the improvement of maize production. FAO trials should be continued and every effort made at district level to sharpen the effectiveness and strengthen the coordination

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12. District Agricultural Data Sheet (1978) op. cit.

of the different categories of extension service.[13]

3.5:6 BANANAS

During recent years bananas have become a significant cash earner in certain parts of the district, mainly in the lower regions like South Mugirango, Majoge, Wanjare and West Kitutu locations. Bananas are important mostly as a subsistence crop as production for market is constrained by poor marketing arrangements. Only those areas where pick up lorries pass by are important producers for cash. Inspite of this Kisii district is the biggest supplier within Kenya for urban markets. In 1978, 37,000 tons of bananas were produced in the district.[14]

Though exact data on growing areas, yields and prices paid to farmers are difficult to find, it appears that the potential for bananas is not being fully exploited. Profitability mainly depends on the initial investment on the plantation and performance of labour operations. There are virtually no material inputs during the bearing period. More could be realized from this crop with increased use of existing potential and research into the

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13. Kenya Government: Kisii District Development Plan 1974-8 (Govt. Printers, Nairobi, 1975) pg. 4.

14. District Agricultural Data Sheet op cit.

possibility of processing for local and export markets.

3.5:7 DAIRYING

Probably between one third and one half of the district is covered with grassland. Although the area under grassland shows a decreasing tendency which is due mainly to competition with cash crops, it however remains an important aspect of the agriculture of the district in order to ensure sufficient milk production both for market and home consumption.

Compared to other agricultural enterprises, pasture farming is relatively poor as hardly any pasture husbandry is done or any fertilizers applied. This is due to the general lack of awareness among farmers to the potential of their pastures. In 1978 there were 239,000 cattle, 72,000 goats and 56,000 sheep in the district. The district produces over 50,000 million kg. of milk per year out of which one quarter is sold to the Kenya Co-operative Creameries, local societies and local markets. The rest is consumed at home.

The introduction of grade cattle was aimed at increasing milk production both for sale and home consumption. The risks of keeping them are however higher. A cheaper, slower, and probably more adequate way to improve the livestock would be through upgrading.

This also calls for use of artificial insemination and measures to deal with disease problems.

Only milk marketing in the settlement scheme areas can be considered effective (may be due to proximity to the KCC factory at Sotik). In improvement in the marketing facilities in the other parts of the district would go along way towards encouraging milk production and marketing. This should be accompanied with continued improvement of the herds and the husbandry standards in the district.

3.5:8 OTHER CROPS

Other crops which have good chances of success and for which the potential is still large include Irish potatoes, sugarcane, vegetables and groundnuts.

Experiments on potatoes in the mid 1960's showed good results but they were not introduced on a larger scale may be due to unsolved disease problems and unassured market outlets. Potatoes are hardly consumed by the local population and thus the absorpotive capacity of the local market is very limited. Some potatoes are picked by lorry traders who deliver them to urban ecentres.

A regionally limited potential exists in the areas under 1500 metres for the production of sugar cane. The sugar is presently processed in jaggeries. The recent opening of the South Nyanza Sugar Company factory at Awendo should encourage further production

as the market is now assured.

With respect to vegetables and fruits, lack of knowledge of marketing outlets is a hindrance to increased production of various varieties that could be grown in the district. Also tobacco and soya beans can be grown in the lower parts of the district. This would further diversify the agriculture of this zone and increase cash incomes.

3.5:9 MARKETS FOR CROPS

From the foregoing discussion, it can be seen that there exists a considerable economic potential in most agricultural enterprises which is still not fully utilized. For full utilization of this potential to be realized, however, the marketing outlets must exist (including organization of marketing). These facilities do not exist in the same quantities for all agricultural products in the district. There are two broad categories of agricultural products in the district if the criteria of the existence of markets and the supporting organizational structure are used:

1. Products where regulated and established markets exist. These include the main cash crops: tea, pyrethrum, coffee and to some extent maize.

The markets of these crops are characterised by:

(a) Marketing prospects and price are determined by factors beyond the district (either by world demand or by national product policy).

(b) Markets are regulated by laws carried out by established statal or parastatal organizations.

(c) The marketing prospects are comparatively well known.

While using this type of crops and their markets for district planning, we should therefore bear in mind that most factors are predetermined and any recommendations as to their development for the benefit of the district will most probably concentrate on their organizational aspects or intensification of production as a means of a more efficient performance of existing organizations' activities.

2. Products for which markets are relatively free from state influence or intervention and are in the initial stages of development. These include: potatoes, passion fruits, bananas sugar cane, vegetables and milk. These have several common features:

(a) Prospects for their further development are likely to be good.

(b) The existing marketing facilities are provided by private traders.

(c) Relatively little is known of the details of such prospects as market capacity, marketing

costs, and the optimum spatial organization of marketing facilities.

These products provide a big challenge to district planning if the production potential is to better utilized in order to provide increased incomes in rural areas. The supply and demand conditions will need to be analysed before any recommendations for their further development are made and their organizational aspects looked at. This is however outside the scope of this study which will look at tea which falls in the first category of agricultural products in the district.

3.3 INDUSTRIAL ACTIVITIES

The districts economy is nearly exclusively agricultural, and non-agricultural activities are of very limited scope. Industrial activities of all kinds will have a very important role to play if further development of the district is to be achieved and if a set-back in the economic and social standards reached is to be avoided.

This observation becomes particularly evident considering the density of population and its further increase in connection with the scarcity of land and the continuing tendency of splitting up the already small landholdings. This situation implies the danger of an increasing part of the land being required for subsistence production which might be

accompanied by stagnation or even reduction in cash crop production. To avoid this, income and employment will have to be created at an increasing rate from non-agricultural activities. However, at present industrial enterprises of large scale nature are virtually non-existent in the district. Thus future industrial activity will have to start from the present minimal basis.

3.6.1 PROCESSING OF AGRICULTURAL PRODUCTS

Under ideal conditions, and bearing in mind that the district is predominantly agricultural, this sector would provide most of the employment and income-earning opportunities outside agriculture. This sector experiences severe limitations:

(i) Tea processing is done in five factories at Nyankoba, Nyansiongo, Kiamokama, Kebirigo and Nyamache each employing only about 150 persons.

(ii) There are 62 coffee factories in the district which may employ about 250 labourers permanently and may provide additional employment for some 1000 seasonal labourers at the peak months of July and September.

(iii) Pyrethrum and passion fruits are not processed in the district but are transported to Nakuru and Thika respectively.

(iv) A similar situation exists with respect to the dairy industry. The Kisii dairy mainly

performs marketing functions. The only KCC factory near the district is at Sotik in Kericho District.

All these limitations mean that the employment generated by agricultural processing factories are few and further hindered by the type of technology used, particularly in the tea factories which are mostly capital intensive.

3.6:2 TABAKA SOAPSTONE INDUSTRY

The activities of the Tabaka Industry are based on Kisii soapstone which is carved into handicrafts and curios for the tourist trade and export. It can also be used in the ceramic industry and as base material for the production of insecticides. The soapstone could also provide the basic material for a profitable production of chalk, electric insulators, basins and bath tubs.

The soapstone deposits are virtually unlimited (in South Mugirango location) and are the only valuable mineral deposit in the district. The soapstone could well provide the basis for an industry run on a comparatively large scale which could also have considerably favourable effects on other enterprises in the district that may be directly related to it.

3.6:3 OTHER MANUFACTURING

Other forms of manufacturing are on a comparatively small scale and employ a relatively small number of people. Activities which exist on a small scale include: a tannery, bakeries, motor repair garages, building and construction, printing and carpentry.

Apart from the need of expanding these activities in order to create more employment and incomes, new possibilities for industrial development should be sought in order to create employment on such a scale as to absorb surplus non-agricultural labour.

3.7 DEMOGRAPHIC CHARACTERISTICS

Until 1961, Kisii district was part of South Nyanza district, an administrative unit that replaced the former South Kavirondo District. The population figures for the Gusii population prior to 1948 are not available. There is evidence, however, of an increasing population among the Gusii.

In 1931, it was estimated that the Gusii formed 10.7 per cent of the African population of Nyanza Province (thus about 125,000 people). The population of Gusii Kenya Africans rose from an estimated 4.25% in 1932 to 4.0% in 1948 and reached

6.0% in the 1962 census.[15]

The differences in economic opportunities within the district led to internal redistribution of population and attracted people to the high potential areas of Kitutu, Mugirango and Nyaribari locations. In so far as unused land was put under production, the growth of population contributed to the agricultural output and helped to promote the enclosure movement in the highlands. By the 1960's, however, most of the land was occupied and the district had to cope with increased population on an already occupied land base.[16] The total population of the district increased from 519,000 in 1962 to 675,000 in 1969[17] growing at an average rate of 3.8% per year. By 1979, the population was 867,000 and growing at an average rate of 2.8% per year.

With an average density of population of 380 persons per km^2 in 1979, Kisii district has the highest density of population among all Kenyan districts. Within the district itself, population

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15. East African Statistics Department (1948) and Kenya Population Census 1962.
16. Uchendu and Anthony: Agricultural Change in Kisii District. op cit. pg. 17.
17. Central Bureau of Statistics: Kenya Population Census 1979, (Government Printers, Nairobi, 1980)

increases as one moves into the higher areas of the district (see map 9). These are also the areas of the most intensive agricultural cultivation. With the present rate of population growth, land scarcity is already becoming a district-wide problem and a threat to the future development of the district.

3.7.1 POPULATION STRUCTURE

A notable feature of the age structure in the district is the high proportion of children (see table 6 and figure 3). The number of persons under 15 years old in the district is more than 55% and if one adds persons over 60 years of age to this group, it means that nearly 60% of the total population consists of dependents for which only about 40% productive adults have to care.

Another important implication of this population structure with its broad base of young people is that the average household size in 1969 was 7.6 persons. If this figure remains the same in the future when present children are in child bearing age then the growth rate will remain at its present high level or even increase.

3.7.2 MIGRATION

Considering the density of population and the pressure on the relatively scarce land, it would be assumed that the district has a high net outflow of persons. Exact figures of migration are not

TABLE 6

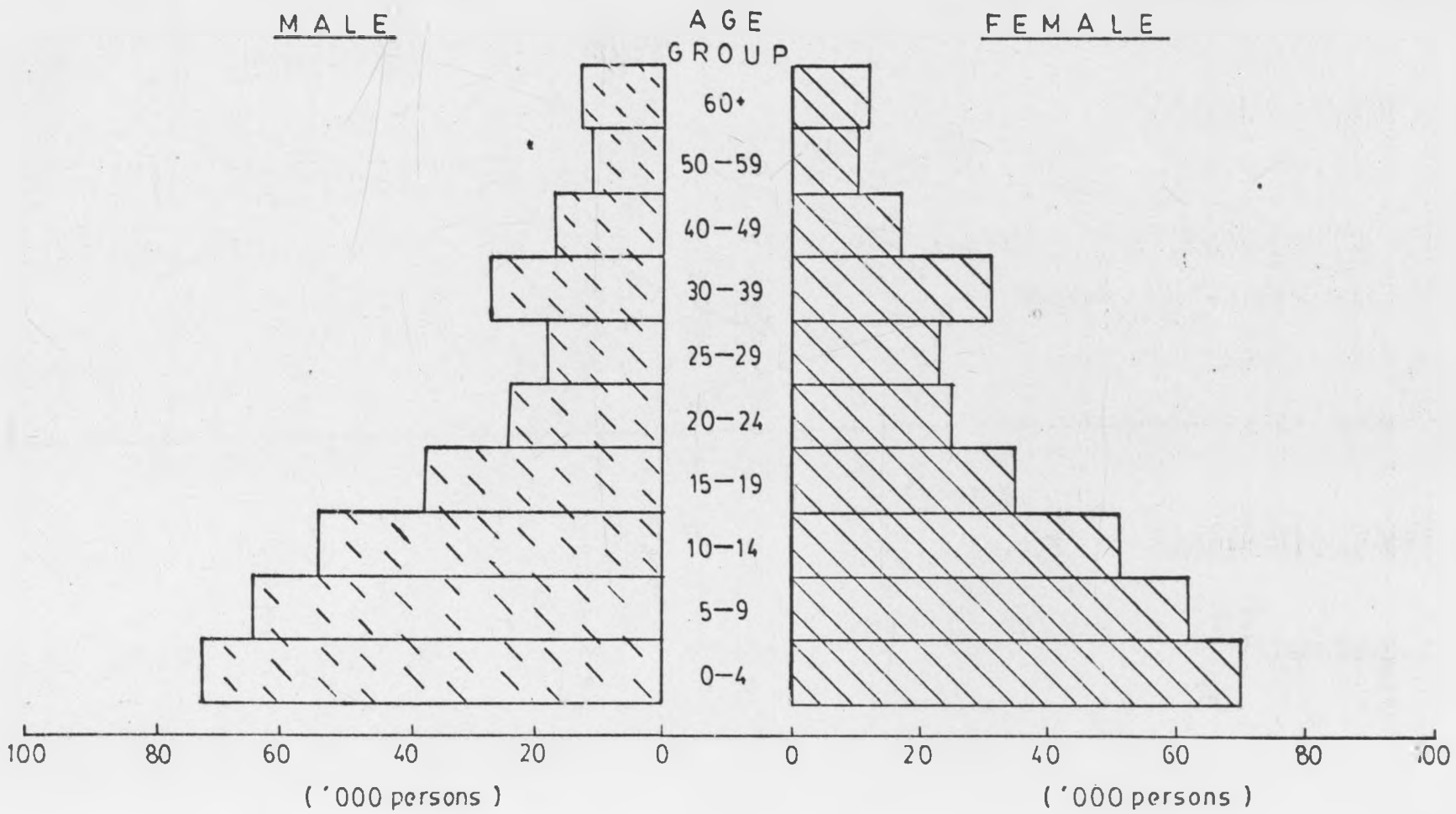
KISII DISTRICT: POPULATION BY AGE AND SEX 1969

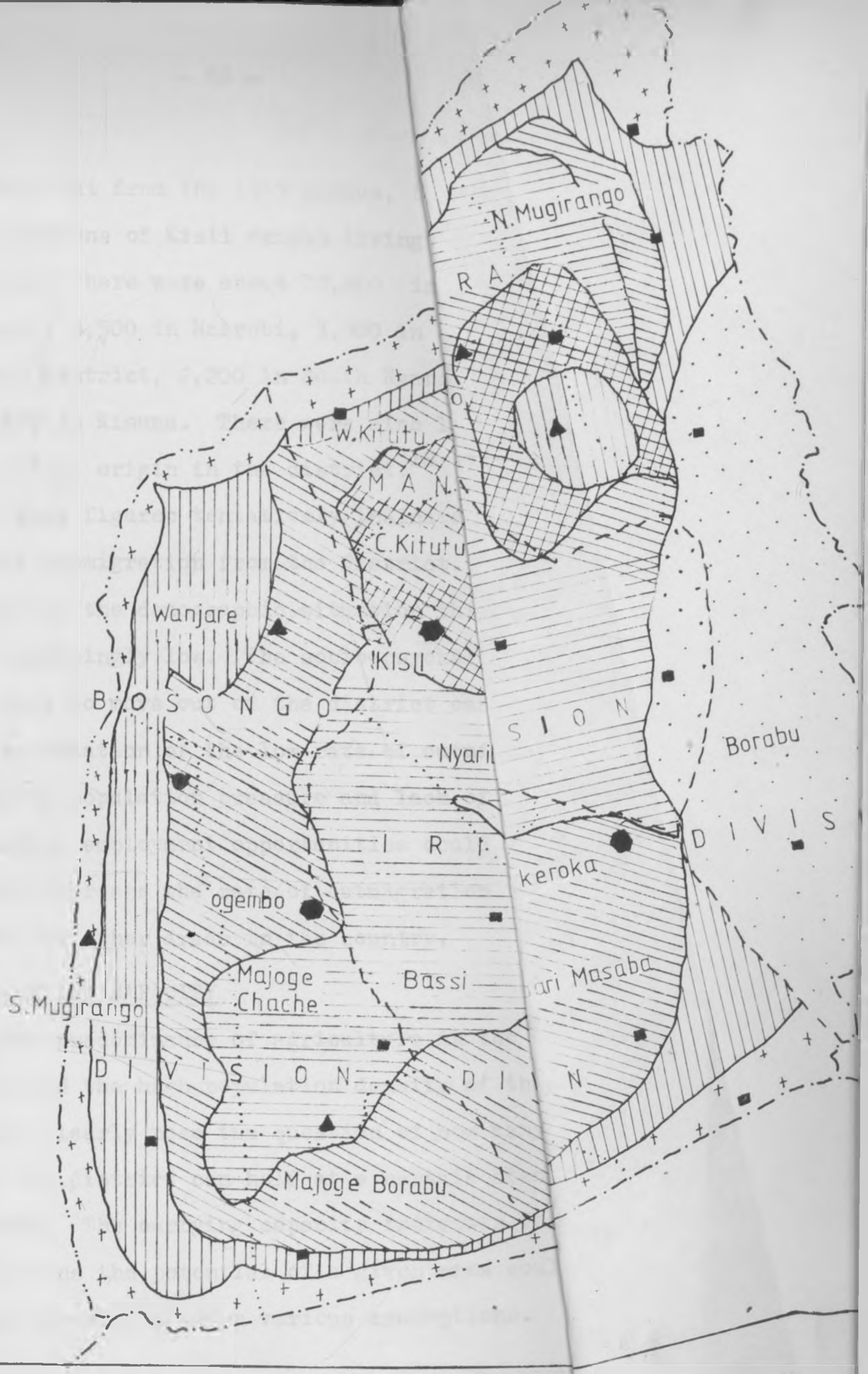
AGE GROUP	MALES	FEMALES
0 - 4	72,390	69,722
5 - 9	64,320	62,317
10 - 14	54,355	50,578
15 - 19	37,600	35,370
20 - 24	24,599	25,232
25 - 29	18,088	22,521
30 - 39	27,004	31,041
40 - 49	17,567	17,055
50 - 59	10,520	10,267
60+	12,517	11,969
TOTAL	338,960	336,072

Source: 1969 Population Census.

FIGURE. 3

POPULATION PYRAMID OF KISII DISTRICT





KISII DISTRICT — POPULATION

available but from the 1969 census, there were about 40,000 persons of Kisii origin living outside the district. There were about 19,200 in Kericho district, 4,500 in Nairobi, 3,900 in Nakuru, 2,500 in Nandi district, 2,200 in South Nyanza district and 1,600 in Kisumu. There were also 15,000 people of non Kisii origin in the district.[18]

These figures tentatively indicate that there is a net outmigration from the district. However considering the demographic situation this movement seems suprisingly low. The socio-psychological resistance to move out of the district can be seen as an explanation of the low rate of outmigration. Increasing population pressure and lack of alternative employment opportunities could change this and increase the rate of outmigration from the district to other areas in the country.

3.8 LAND CARRYING CAPACITY

The predominance of agriculture in the district's economy and the high population density of the district clearly pose the question of how many people the district can hold at a certain standard of living. The carrying capacity indicates for how many persons the potential of a given area could provide livelihood under various assumptions.

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18. 1969 Population Census op. cit.

The decision on what can be termed the carrying capacity of a particular area depends on what is defined as the minimum income and living standard and also on the productivity of an area (which depends partly, on the level of technology).

Under the assumption which seems to correspond with the existing situation, namely a minimum of 0.1 hectares per person for the production of subsistence food, an average size of farm family of 7.5 persons and an average productivity of Kshs.1600 per hectare of cash crop production, the maximum farming population for various cash income targets in the district would be as shown on table 7.

TABLE 7

MAXIMUM FARMING POPULATION UNDER VARIOUS INCOME TARGETS

CASH INCOME TARGET (above subsistence) Kshs.	MAXIMUM FARMING POPULATION ('000 persons)
0	1,700
500	1,240
1000	990
1500	820
2000	700

Source: Hubert, K. Kisii District Planning.

The Town Planning Department[19] projected the population who will need resettlement in the district under two assumptions:

(a) if farms are allowed to be reduced to minimum size,

(b) if average farm sizes increased to allow an income of Kshs.2000 per annum plus subsistence.

Under the first assumption therefore, families will be living at bare subsistence and the surplus population by the year 2000 would be 360,000. Under the second assumption, the district would have a surplus of 342,000 people in 1980 and 109 2000 in 2000.[20]

Since 1970 there has been no significant resettlement of the district's population outside the district and thus farms continue to be sub-divided to smaller sizes. Given these conditions the target of Kshs.2000/- income per family cannot be maintained. Even if the target income was to be reduced to Kshs.1,000, the district would reach its maximum carrying capacity by 1985.

3.9 BASIC RURAL DEVELOPMENT PROBLEMS IN THE DISTRICT

The basic rural development problems of the district stem from two facts: the almost exclusive

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19. Town Planning Department: Nyanza Physical Development Plan. (Government Printers, Nairobi, 1970).

20. Ibid pg. 13.

dependence on the agricultural sector in a situation of high population growth and, consequently, an increasing land scarcity.

Theoretically, the following possibilities exist to avoid "overpopulation" in the district:

1. Reduction of the income target.
2. Outmigration.
3. Increase of productivity in the subsistence sector.
4. Increase of productivity in cash crop production.
5. Creation of employment and income earning opportunities outside agriculture.
6. Reduction of population growth.

The reduction of target cash income can only be considered as a theoretical possibility to "solve" the problem of overpopulation. However such an objective would be completely out of line with government policy to increase target incomes and alleviate poverty and thus would not be a feasible solution.

Migration is widely considered as a solution to the population problem. In the context of the study area it comes up against many limitations however. Migration to urban areas is marginal as the absorptive capacity of the urban areas is small and creates many social problems. Migration to other

rural areas comes up against problems of unavailability of land, competition from other densely populated areas of the country and the production potential of the land available for settlement. The Gusii do not move out of their homeland easily - and when they are finally pushed out by socio-economic factors, other people may already have taken up most of the land available. Thus at present migration can only marginally contribute to relieving the problem.

Increase in the productivity of subsistence production is an important and feasible solution in the short run. This would release more land for cash crops and/or more persons could be fed from the available land.

More efficient production of cash crops resulting in higher land productivity is also a feasible solution to relieving the population pressure problem. This would have the effect of increasing the carrying capacity of the district, and thus absorbing more people. However, the absorptive capacity of agriculture being limited even with improvements in production methods, a viable development strategy must involve some industrial development.

Since resources for large scale industries are not available in the district, the aim of industrial development should be to develop

small scale industries. Anxiliary activities such as cottage industries, construction of houses and infrastructure would provide employment in rural areas. Agricultural labour which is seasonally employed could work in such industries and related activities when not involved in agricultural work.

Population planning and thus the reduction of the presently high rate of population growth is a desirable long term measure to assist small scale industrial development. It is however likely to come up against traditional beliefs and must be persued vigorously if rural development problems in the district are to be overcome.

3.10 SUMMARY

In this chapter we have looked at the physical background of the district, the main agricultural and industrial activities and the demographic characteristics. It has been shown that the district is predominantly agricultural in character and that because of the small land base and increasing population, it faces population pressure problems.

In order to increase or maintain the standards of living, it is necessary that income earning opportunities be found outside agriculture to employ surplus labour. In the medium run however, the aim must be to increase the carrying capacity of the district by more intensive production of both subsistence and cash crops. Tea is one of the most

important and attrative cash crops in the district which is also labour intensive.

An increase in productivity of tea production, both by an increase in the husbandry standards and in the organization of production and marketing, would considerably increase both employment and incomes in the district. In order to assess its present and potential future contribution to the development of the district, the next chapter is devoted to a case study of the tea industry in the district.

CHAPTER FOUR

THE TEA INDUSTRY IN KISII DISTRICT: A CASE STUDY.

4.0 Within the overall attempt to assess what role tea industry plays in the creation of employment and incomes and the promotion of other activities, two factories in the district have been chosen as case studies. One begins from the factory as the central unit within the overall activities of the tea industry and then looks at its forward and backward linkages in order to assess the impact of the industry on the rural economy. Backward linkages are those that involve inputs into the production process in the factories. Forward linkages refer to those activities set in motion by the further processing or sale of the finished product and its contribution to the rest of the economy. It is hoped that such an analysis will allow a full appreciation of the role played by the industry in the rural economy. The two factories chosen as case studies (namely Nyankoba and Nyansiongo) will enable one to make a generalization of the contribution of the industry to the district's economy.

4.1 NYANSIONGO AND NYANKOBA TEA FACTORIES

Nyankoba and Nyansiongo tea factories are among the five factories presently in operation in the district. The other factories are at Nyamache,

Kiamokama and Kebirigo (another is under construction at Tombe).

Nyankoba Tea Factory was established in 1965 by the KTDA out of a Commonwealth Development Corporation loan like other KTDA factories in the country. At its inception, the managing agents were James Finlay and Company, who were later replaced by the KTDA itself. Apart from the KTDA some smallholder tea farmers who deliver tea to the factory are shareholders.[1]

The Nyansiongo Tea Factory was established in 1974 by the KTDA and it was the third factory in the district after Nyankoba and Kebirigo. Its construction was necessitated by the increased output of tea in the settlement scheme area (Borabu location)

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1. The shares are sold at Kshs. 5 per share subject to a maximum of 600 shares per farmer. This condition is to prevent a few people buying all the shares and monopolizing the ownership of the factory. It also ensures that the factory has as many shareholders as possible and that any benefits thereof benefit a large number of people.

Plate 1 : The Nyansiongo Tea Factory.

Plate 2: The Nyankoba Tea Factory.

and in order to relieve congestion in the other two existing factories. Smallholder member farmers also hold shares in the factory subject to the same conditions that apply at the Nyankoba factory. The Nyansiongo factory is a much larger factory than Nyankoba, with a daily capacity intake of 40,000 kg. of green leaf per day.[2]

4.1:1 MANUFACTURING

There are many methods of tea manufacture used all over the world depending on the type of made tea that is to be produced. The processing method used in the two factories and indeed most factories in Kenya, is the Cutting, Tearing and Curling (C.T.C.) method in order to produce black tea (see figure 4).

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2. This gives the Nyansiongo factory an annual capacity of about 12 million kg. of green leave which is an equivalent of 2.6 million kg. of made tea per year at a 22.75% conversion (i.e. 1 kg. of made tea is equal to 4.5 kg. of green leaf). The Nyankoba factory on the other hand has annual capacity of 7.6 million kg. of green leaf which is an equivalent of about 1.6 million kg. of made tea per year.

The green leaf is spread on long troughs called tats, and air, which can be heated if necessary, is passed over and through the tats for periods of upto 18 hours. This process is called withering and the aim is to evaporate excess moisture and make the leaf flaccid.

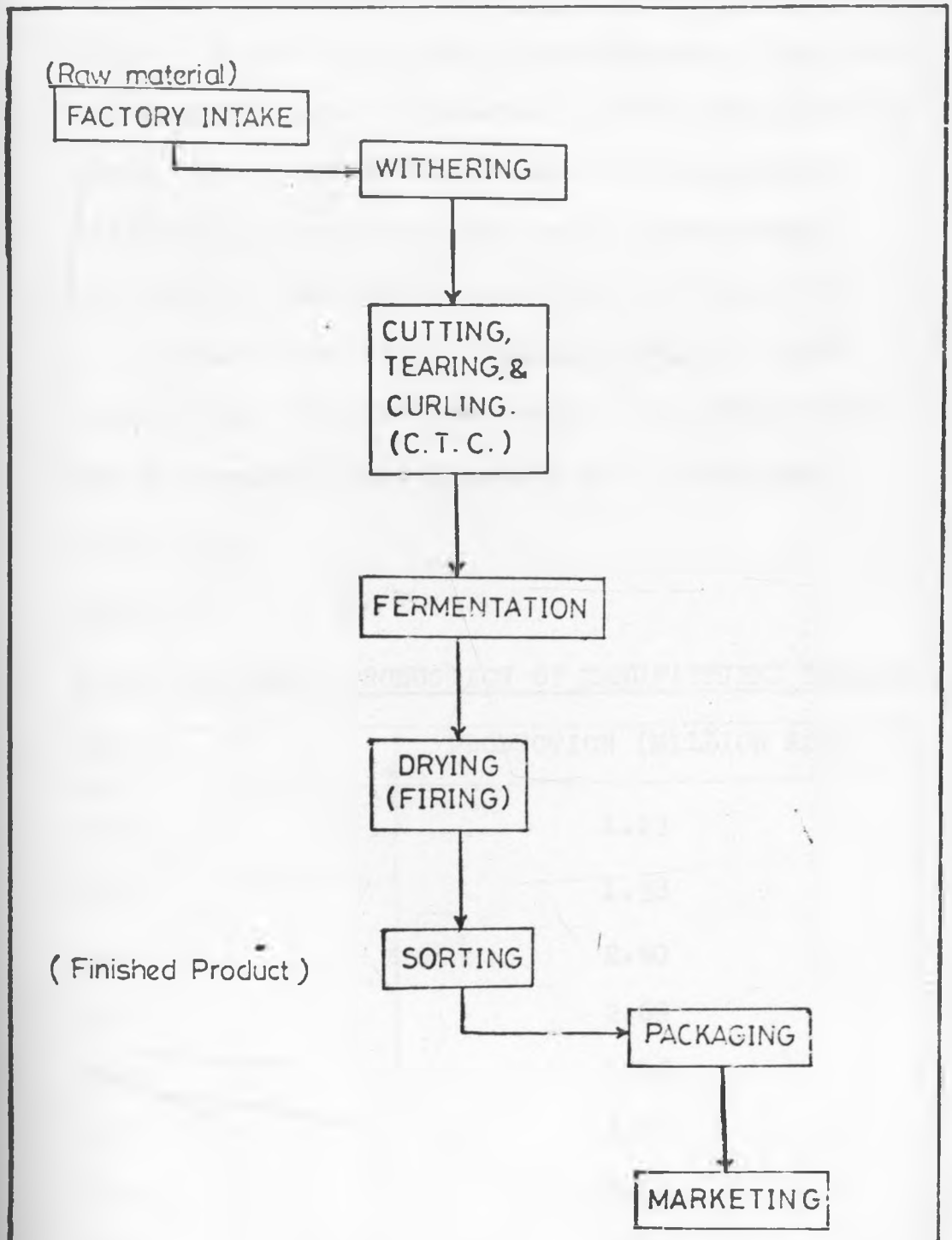
The leaf then comes into the C.T.C. machine where it is cut and rolled. The cutting raptures the cells and releases the juices and spreads them over the surface; the rolling forms the tea into tiny balls in which the juices are preserved. This process takes about 30 minutes and larger particles are returned into the process once again after the smaller particles have been sifted.

The tea is then fermented and dried. It is then sorted into about eight different grades according to the size and twist of the leaf to suit different consumer demands. The teas are then packed into wooden chests lined with aluminium foil to prevent deterioration and are them ready for export. The locally consumed teas are packed into bags and sent to the Kenya Tea Packers (KETEPA) factory at Kericho for blending and packaging for the local market.

Output of manufactured tea in the district

FIGURE: 4

THE TEA MANUFACTURING PROCESS



has been rising constantly over the last 10 years. Table 8 shows the output of manufactured tea from the district over a nine-year period from 1970 to 1978. The increase has indeed been phenomenal with the greatest increase being experienced between 1976 and 1978 (also refer to figure 5).

Out of the total district output of 6.88 million kgs of made tea produced in 1978, 48.5% was processed at the Nyankoba and Nyansiongo factories.

TABLE 8

KISII DISTRICT: PRODUCTION OF MANUFACTURED TEA 1970-8.

YEAR	PRODUCTION (MILLION KGS.)
1970	1.23
1971	1.38
1972	2.40
1973	2.69
1974	3.16
1975	3.64
1976	4.04
1977	5.86
1978	6.88

Source: Tea Board of Kenya (1979).

FIGURE 5

KISII DISTRICT:

PRODUCTION OF MADE TEA 1970-1978

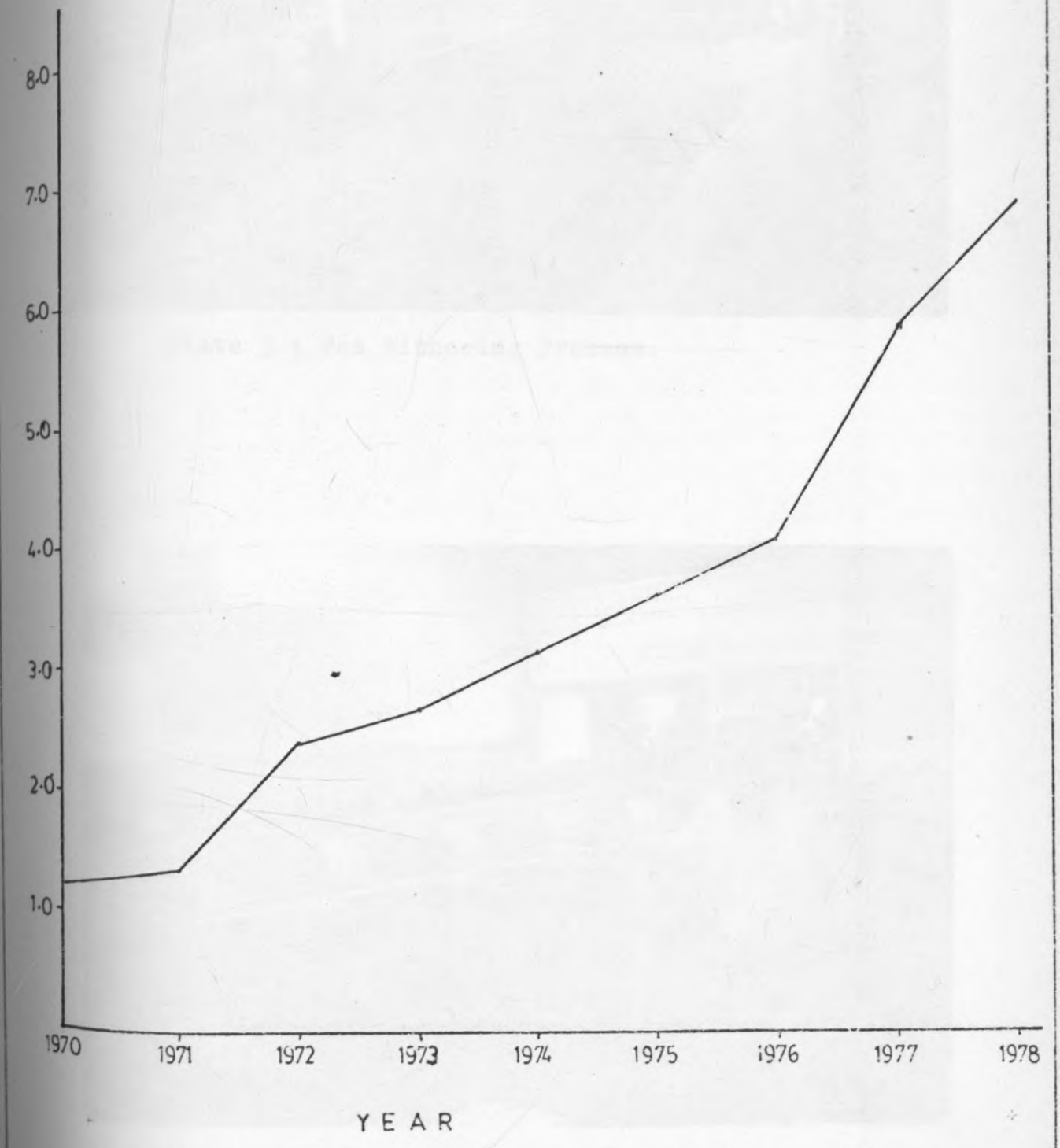


Plate 3 : Tea Withering Process.

Plate 4 : Tea fermentation. Note thermometers in tea trays.

Table 9 shows the production figures for the two factories since they were started in 1965 and 1974 respectively (see also figure 6). In 1978 Nyankoba was operating at 87% of its total capacity while Nyansiongo operated at 72% of its capacity. This underutilized capacity should be made use of by increased production from the farmers and thus increase incomes and employment both at the factory and on the farms.

It should however be recognised that the output of green leaf from the farms, where production is concentrated in the rainy months ("flush" period) does not allow the full utilization of capacity. This is because, while the factories may be congested with green leaf during the "flush" period, they have to operate considerably under capacity during the rest of the year.

The increased output by the factories can be seen as an indication of increased output by farmers who deliver to the factories. Similarly the increase in factory output and the consequent greater benefits to farmers in terms of incomes can be seen as a further inducement to the farmers to produce more.

TABLE 9

PRODUCTION OF MANUFACTURED TEA FROM NYANKOBA AND NYANSIONGO TEA FACTORIES

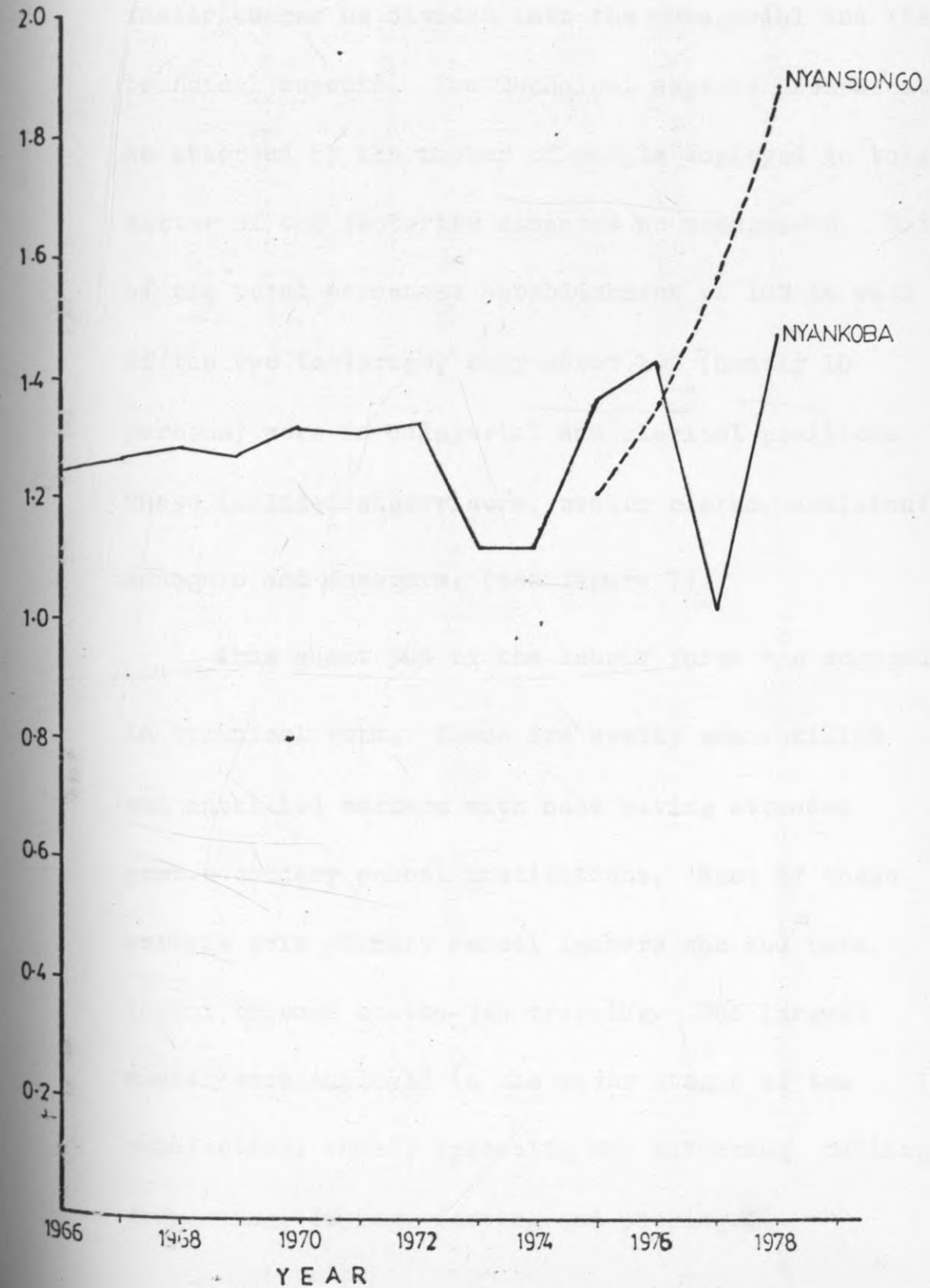
YEAR	PRODUCTION (IN MILLION KGS.)	
	NYANKOBA	NYANSIONGO
1966	1.12	-
1967	1.12	-
1968	1.12	-
1969	1.12	-
1970	1.13	-
1971	1.13	-
1972	1.13	-
1973	1.11	-
1974	1.11	-
1975	1.35	1.20
1976	1.41	1.34
1977	1.07	1.56
1978	1.46	1.88

Source: Survey Data (1980).

FIGURE. 6

PRODUCTION OF MADE TEA FROM NYANKOBA AND NYANSIONGO TEA FACTORIES

(IN MILLION KGS.)



4.1:2 EMPLOYMENT STRUCTURE AND LINKAGES

Organizationally the structure of the factories can be divided into the managerial and the technical aspects. The Technical aspects predominate as observed by the number of people employed in this sector of the factories compared to management. Out of the total permanent establishment of 102 in each of the two factories, only about 10% (namely 10 persons) were in managerial and clerical positions. These included supervisors, senior clerks, assistant managers and managers. (see figure 7).

Thus about 90% of the labour force was engaged in technical work. These are mostly semi-skilled and unskilled workers with none having attended post-secondary school institutions. Most of these workers were primary school leavers who had been taught through on-the-job training. The largest number were employed in the major stages of tea manufacture, namely spreading and withering, cutting, fermenting, drying, sorting and packing.

K.T.D.A. FACTORY / LEAF BASE ORGANIZATIONAL CHART

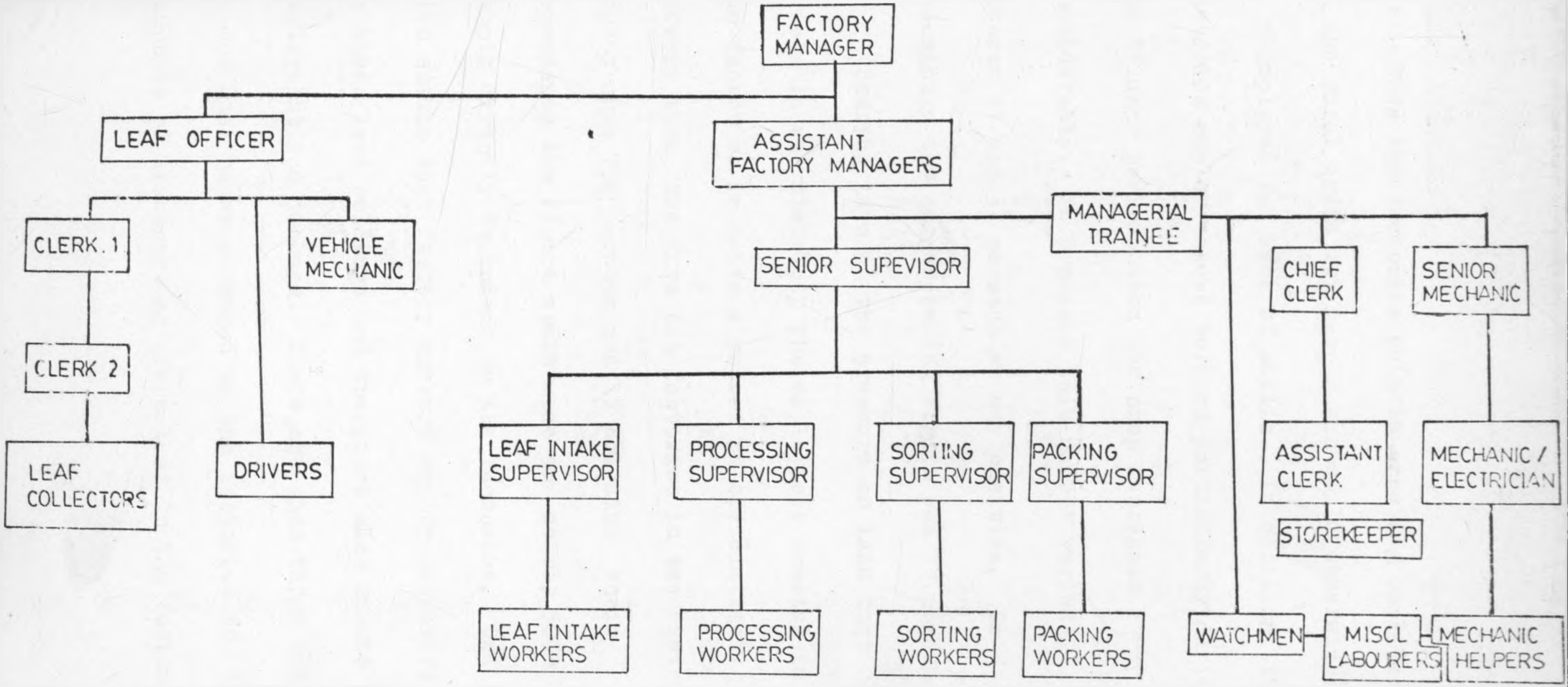


FIGURE: 7.

Source: KTDA (1979)

Thus the factories help in creating employment in the rural areas for people who would otherwise be unemployed for lack of skills. In addition, the factories employ casual workers particularly during the "flush" periods when the crop increases considerably. In Nyankoba this number varied between 47 and 57 persons at any one time. In Nyansiongo the corresponding figure was 78 persons.

Bearing in mind the pressure on land that exists in the district, the employment created in the factories is quite a relief on the district. Between them, the five tea factories in the district employ some 750 persons and if one adds their dependents the figure would come to nearly 5000 people directly dependent on the factories. One can also assume that factory workers employ labourers on their land holdings and therefore also create employment and incomes. There are also those employed in the leaf bases attached to the factories for the purposes of transporting green leaf to the factories.

However, compared to the total district population, the employment created by the factories either directly or indirectly is still very small and has only a marginal effect on the unemployment problem in the district.

In Nyansiongo, all the operatives come from the district and therefore one can argue that all the benefits of employment in the factory accrue to the district. In Nyankoba less than 5% of the total employees come from outside the district, namely from Central Province and other parts of Nyanza Province. Thus in this respect the benefits are not only confined to the district but permeate into other areas of the country as well.

4.1:3 INCOME GENERATION AND INCOME LEVELS

In terms of income generation, the employment in the factories can be seen to provide livelihood for the people directly or indirectly involved in the factories. Though the income levels are low in the various categories of technical employment, it can generally be assumed that a significant proportion of the income is repartriated to the families of the employees. This may be in the form of cash or the employment of farm hands permanently or temporarily on their holdings. Because of low

incomes of the factory workers, the amount repatriated must be assumed to be small.

The five factories in the district employ about 750 persons and a further increase in this number in the future could help in raising the incomes and employment levels in the district. At present casual workers are paid wages of Kshs.7/20 per day while the other permanent workers can be assumed to earn between Kshs.300 and 450 per month though exact figures are not available. This is quite a low figure and a rise in incomes could go along way towards raising the standards of living of the employees and their dependents and contribute to the rural economy.

4.2.0 FORWARD LINKAGES

Forward linkages involve further processing toward a finished product or the expanding of an existing production process so that other products are produced from the same raw material inputs. Thus an industry's strength in terms of forward linkages can be measured by knowing to what extent it sets off other economic activities that can be deemed beneficial in the regional economy. An industry that does not exhibit a tendency of encouraging and setting in motion these other

activities from its output can be said to exhibit a weak forward linkage structure.

With respect to tea, it is observed that what is produced from the factories is for all purposes a finished product and does not allow any further processing. Except for blending and packaging of the product for distribution to consumers, the possibility of the existence of other manufacturing activities is non-existent. Thus tea can be said to exhibit a weak forward linkage structure; and its ability therefore to create incomes and employment when it leaves the processing factories is small.

In the following sections we shall look at three levels of forward linkages (namely packaging, sale for export, and sale for local consumption), and assess how much the industry is able to set off chains of growth in the regional economy, though on a small scale.

4.2:1 PACKAGING

Packaging as an activity in the tea industry can be seen from two levels: first is the packaging for the export market, and second, packaging for the local market setting off significant forward linkages in the economy.

Packaging for the export market is done in the processing factories themselves and thus create employment in the rural economy in areas neighbouring the factory. Significant inputs in the packing are the wood and aluminium foil used in the making of tea chests. The factories buy their wood from Elgeyo in the Rift Valley Province. Thus the factories contribute in the promotion of the timber industry in the country by creating demand for wood products. It similarly boosts the transport industry as large amounts of timber have to be made available to the factories (though it was not possible to get the exact figures of timber used in the factories). The finished product has to be transported to Mombasa (a distance of about 900 km) for export overseas. All this creates employment and incomes in various sectors of the economy.

Aluminium foil is imported, and a significant saving in foreign exchange for the country could be achieved if the product could be manufactured locally, thereby also creating employment and incomes.

Packaging for the local market is done at the KETEPA factory at Kericho. The only significant

Plate 5 : Drying (firing) of Tea.

Plate 6 : Packing Tea: Note tea in wooden chests for export and in sisal bags for local consumption. Also note timber for making chests.

linkage here in terms of material supply is the paper used in making the packets for tea distribution This also aids the local paper industry to increase employment and incomes.

From the foregoing observations it can be said that although the forward linkages are generally weak, they however make a significant contribution to the country's economy. The setting up of local industries to supply all inputs in packaging would save scarce foreign exchange and create employment and raise incomes.

4.2:2 SALE FOR EXPORT

The bulk of the manufactured tea is sold overseas either at the Mombasa or the London Auctions and therefore can be said to gain the country foreign exchange. Out of the total manufactured tea of the two tea factories, 40% is sold at the Mombasa Auction, 30% at the London Auction and 17% to private overseas purchasers. Thus about 87% of the manufactured tea is sold overseas and earns the country foreign exchange.

4.2:3 SALE FOR LOCAL CONSUMPTION

Sale of tea for local consumption falls into three categories: the factories deliver about 10% of their output to KETEPA for packaging and

distribution to local consumers in the country. About 2% of total production from the factories is sold to private local large scale purchasers such as institutions. The remaining 1% is sold to growers only, at a subsidized price. The tea delivered to KETEPA is sold at about Kshs.7 per kg. which is much lower than the shs.12 to Kshs.15 that it would fetch in the export market. This ensures that KETEPA is able to sell local packed tea at a low price thus benefitting consumers in the country.

In the following two sections we shall discuss local tea trade at two levels in terms of linkages with the local economy.

4.2:3:1 WHOLESALE AND RETAIL TRADE

The tea delivered to KETEPA by the factories is blended and packed and distributed to the public by appointed agents in each district in the country. In Kisii District the appointed agents for the distribution of tea to retailers are Mogumo Tea Company. This can be seen as a significant forward linkage which ensures that the product reaches the consumers in the country. Wholesale distributorship has also created employment and incomes for the proprietors and workers of

distributor companies.

In terms of retail trade, the benefits are even more widely spread since most shops in all designated centres in the district sell made tea and this boosts their business and profits since tea is a widely consumed commodity in the district.

4.2.32 EMPLOYMENT AND INCOMES

The employment capacity of any wholesale or retail shop enterprise is limited since the elasticity of demand for tea is low. However, taken together, the establishments can be said to employ an appreciable number of people in the rural areas who are usually uneducated and unskilled. In this respect this is a significant contribution to the rural economy and the promotion of rural development. This is despite the fact that incomes earned in this sector are low. One can assume that since the proprietors and employees are residents of the district their incomes are largely spent in the region. This increases effective demand for products from within and outside the region and thus create incomes and employment in other sectors of the economy.

From the above observations it can be seen

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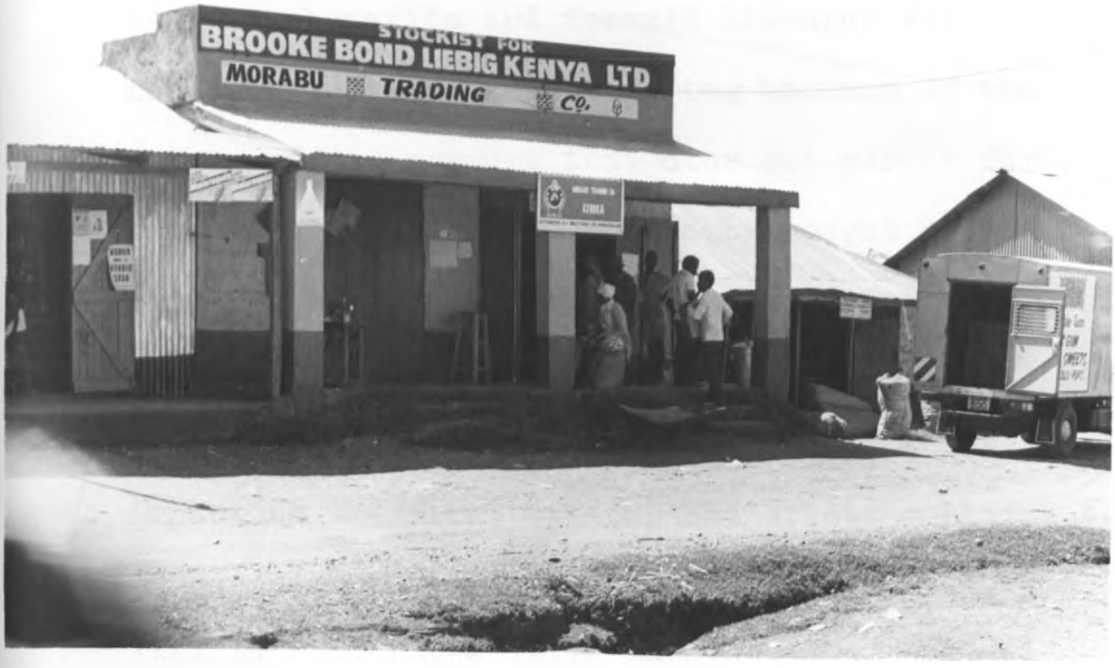

Plate 7 : Tea Retailing in Keroka Town.

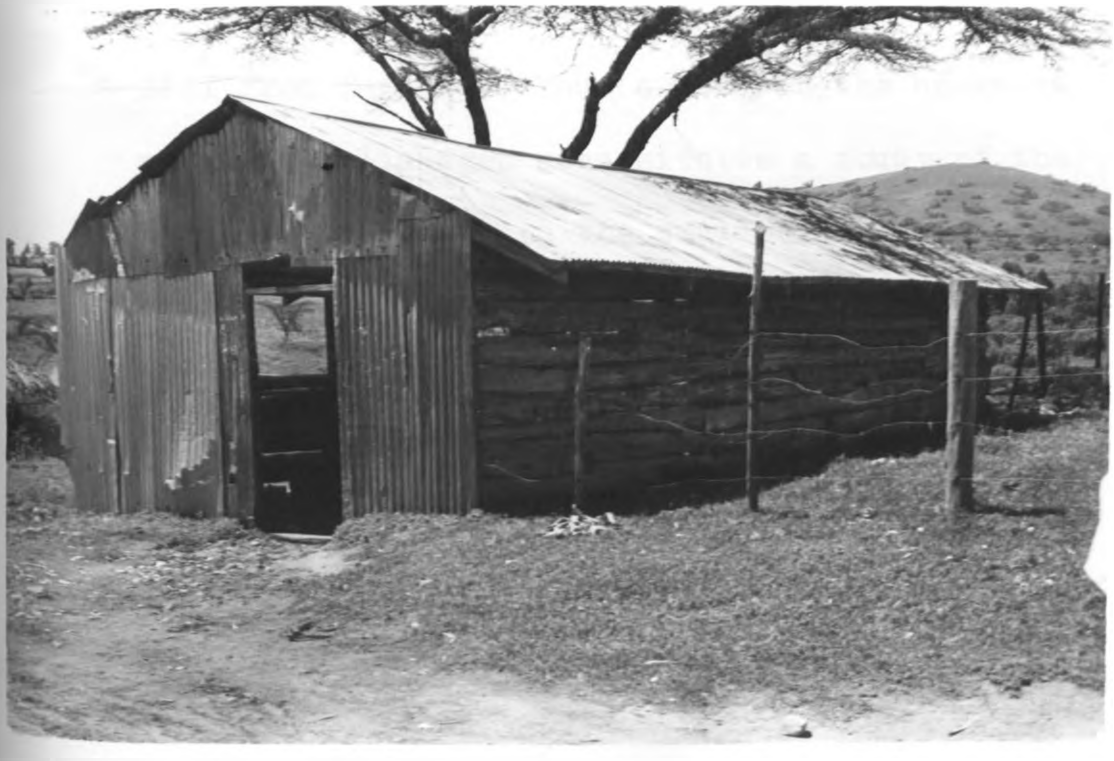

Plate 8 : Tea Buying Centre.

that the benefits and forward linkages for manufactured tea are not strong because of the nature of the product that does not permit further processing. Thus ways should be sought on how to pool resources available and benefits accruing to the region from the manufacture of tea in order to invest in activities that have a significant impact on the rural economy and create employment. Investments in rural small scale industries, and cottage industries could go along way towards creating employment, raising incomes, and diversifying production in the district.

4.3:0 BACKWARD LINKAGES (FARM LEVEL)

The basic input in tea factories is green leaf from farmers. Thus a look at the backward production linkages necessitates a study of the production process on the smallholder farms in the study area. This section therefore deals with production on the farm level and its various aspects before moving to the next section which deals with another aspect of backward linkages (the buying centres) through which the farmer gets his product to the factory.

4.3:1 SCALE OF PRODUCTION

Within Kisii district tea is predominantly a smallholder crop unlike the neighbouring Kericho district where estate production predominates. The crop is grown on small plots of land that cover a sizeable percentage of total land holdings. In the survey area, it was found that smallholder tea plots covered between 10% and 12% of total farm sizes.

The average size of farm holdings in the study area was found to be 5.7 hectares out of which an average of 0.63 hectares per land holding were planted with tea. These figures do not however allow an appreciation of the disparity that exists between the areas served by the two factories in the study area. Land holdings and tea plots sizes in the settlement scheme area (Borabu location) which serves Nyansiongo factory are much larger than those of the areas that serve Nyankoba tea factory (Nyaribari Chache and Masaba and Kitutu East locations). This fact is borne out by table 10.

The small nature of the scale of production can also be shown by the fact that out of the

TABLE 10

AVERAGE SIZE OF FARM HOLDINGS AND TEA PLOTS

FACTORY CATCHMENT AREA	AVERAGE SIZE OF LAND HOLDINGS	AVERAGE SIZE OF TEA PLOTS	PERCENTAGE OF TEA PLOTS IN TOTAL LAND HOLD.
Nyankoba	2.8	0.36	12.9%
Nyansiongo	11.1	1.12	10.0%

Source: Survey Data (1980).

farmers interviewed, 86% had planted tea plots of less than 1.0 hectare while only 1% owned tea plots above 2.0 hectares. Infact it was only in Borabu location where farmers planted tea on plots larger than 1.0 hectare.

The average size of tea plots in the catchment area of the Nyankoba factory of 0.36 hectares, compares quite favourably with the national average tea plot sizes among KTDA small-holders of 0.38 hectares. The average tea plot sizes in the catchment area of the Nyansiongo factory of 1.12 hectares is far above the national

average among smallholders. But this can be explained by the large size of land holdings and the relative absence of land pressure as experienced in the other parts of the district.

Table 11 shows the percentage of tea farmers per given farm size category by location and factory catchment areas.

The smallness of the farms can be seen as a constraint to the further increase in output of tea in the district because of competition with other crops and the existing land shortage. Thus better husbandry standards for tea and more intensive use of existing land both for subsistence and cash crop production will be necessary to sustain increased population.

In addition to the smallness of the farms, another limiting factor to future expansion of tea production is the number and attractiveness of major cash crops in the district. Among farmers interviewed, all grew maize largely for subsistence but sometimes for cash (mostly in Borabu location). Nearly all farmers interviewed also kept cattle for milk both for domestic consumption and for sale.

TABLE 11 PERCENTAGE OF FARMERS IN GIVEN TEA PLOT SIZE CATEGORIES

FARM SIZE CATEGORY (HECTARES)	BORABU LOCATION PERCENT-AGE	NYANSIONGO FACTORY CATCHMENT AREA %AGE	NYARIBARI MASABA LOCATION PERCENTAGE	NYARIBARI CHACHE LOCATION	KITUTU EAST LOCATION	NYANKOBA FACTORY CATCHMENT AREA	TOTAL STUDY AREA.
Below 0.4	4	4	93	67	87	82	54
0.5-1.0	60	60	7	33	13	18	32
1.1-1.4	14	14	-	-	-	-	5
1.5-2.0	18	18	-	-	-	-	6
Over 2.0	4	4	-	-	-	-	1

Source: Survey Data 1980.

Plate 9: Scenery of smallholdings in Nyaribari Masaba location. Note small size of landholdings and improved standard of rural housing.

Plate 10: Smallholdings in Borabu location. Note larger size of land holdings.

Table 12 shows percentage of tea farmers per location who grow other major cash crops. It shows that tea faces competition from pyrethrum and coffee especially in Nyaribari, Masaba and Chache respectively.

TABLE 12

PERCENTAGE OF TEA FARMERS WHO GROW OTHER MAJOR CASH CROPS PER LOCATION

	MAJOR CASH CROPS		
LOCATION	Pyrethrum	Coffee	Maize
Borabu	34	-	18
Nyaribari M.	93	-	-
Nyaribari C.	46	86	-
Kitutu East	33	-	-

Source: Survey Data (1980.

Notwithstanding this competition, the majority of tea farmers expressed a desire to increase their tea plot hectarages. This can be seen as an indication of the attractiveness of tea in terms of greater benefits as compared to the other major cash

crops grown. Farmers in Borabu location were more willing to increase their hectarages most probably because they own larger land holdings.

Table 13 shows the expressed desire to increase or not to increase the hectarage of tea plots per factory catchment area.[3]

TABLE 13

NUMBER AND PERCENTAGE OF FARMERS EXPRESSING DESIRE TO INCREASE OR NOT TO INCREASE TEA PLOT HECTARAGES

FACTORY CATCHMENT AREA	"YES"		"NO"	
	NUMBER	PERCENTAGE	NUMBER	PERCENTAGE
Nyankoba	54	60	36	40
Nyansiongo	36	72	14	28
TOTAL STUDY AREA	90	64.2	50	35.7

Source: Survey Data (1980).

3. Expressed increases were between 0.1 and 1.1 hectares with the largest increases being expressed in Borabu location.

Out of the 40% of the farmers in the Nyankoba factory catchment area who did not wish to increase their hectarages of tea plots, 38.8% and 61.1% said it was because of labour and land shortage problems respectively. The labour problem was most pronounced in Nyaribari Chache while the land shortage problem was most prevalent in Kitutu East and Nyaribari Masaba locations.

Out of 28% of the farmers in the Nyansiongo factory catchment area who did not wish to increase their tea hectarages, 64% said it was because of labour shortage while 21% said that it was because of land shortage. The remaining 14% said it was either because of poor soils or because they had just expanded their tea plots.

Thus because of the larger tea hectarages in Borabu location and the fact that land shortage is not acute, the critical factor for further expansion of tea production is the availability of labour. This is because though labour exists in the district, they would prefer to go to urban areas to look for employment rather than be employed in the rural areas plucking tea. In the rest of the tea growing areas of the district, land is a bigger constraint than is labour.

4.3:2 PLANTING AND CULTIVATION

In order to maximize on production and yields and therefore income, it is essential that the best quality seedlings be planted in the fields and be properly cared for before reaching maturity.

In the past seedlings were provided to farmers by the KTDA from its central nurseries at Kangaita in Kirinyaga district and at Kabianga in Kericho district. Farmers would pay only a part of the cost of the seedlings while the rest would be repaid later through deductions when the tea reached production age. The seedlings were usually about two years old and were pruned to a 4 inch stock before planting. Planting normally is in the March-April period when rain is plentiful. The fields should be well prepared and special care should be taken to ensure that all roots and previous plants or weeds are removed from the soil. This avoids diseases that affect tea.

The practice of producing 'stumps' from seed was, however, virtually stopped since 1965 as superior parent clones (18 in all) were isolated by the Tea Research Institute and the KTDA, and increasing emphasis was placed on the vegetative propagation (VP) of tea bushes. Growers have been

issued these clones to grow on their farms and the extension service staff holds demonstrations on how to take cuttings and plant them in nurseries.

Nurseries are built by farmers from local materials available (such as tree branches or grass) under guidance from the extension staff. The farmers take cuttings from their mother bushes and plant them in polythene sleeves previously filled with subsoil properly mixed with fertilizer for the proper establishment of the "cuttings". The plantings are then covered with polythene sheet for 3 months when the cuttings start growing and the sheet is removed. The cuttings are ready for field planting within 8 months.

This is a considerable saving on time and thus money as compared to the seedlings which take between 18-24 months. It also allows the farmers to grow the amount of cuttings they need for their planting instead of relying on central nurseries. The cuttings are also superior to seedling 'stumps' in that, being developed from superior clones, they are more resistant to disease and are higher yielding; both of which are advantageous to the small farmer.

Cuttings are planted in holes about 2 feet deep and 9-12 inches wide on a well prepared field.

The spacing adopted west of the Rift Valley has been 5'x3' giving 7183 plants per hectare. East of the Rift Valley spacing is 5'x2½' giving 8620 plants per hectare. Tea takes a relatively long time to reach maturity (about 4 years) and investment costs are high. This is a long time for a small farmer to wait to reap benefits when he could well use the land for something that will bring immediate benefits at lower cost to set up.

It must be a tribute to the profitability and attractiveness of tea when it has reached maturity that such a large number of smallholders are ready to wait through the growing stages until it reaches maturity in order to reap the benefits. Demand for planting materials is so great that out of the 5,000 hectares to be planted with tea over the present five year plan period (KTDA's fifth plan ending in 1982), more than 1,100 hectares were planted in the first year of the plan alone, During the same one year, an extra 3,877 new growers joined the KTDA schemes, raising the total number of small scale tea growers to 126,169 by 1979.

4.3.2:1 PRUNING

High yields throughout the life of the bush, depend strongly on the formation of a strong

spreading 'frame' of lower branches which must be developed during the early years after planting. Frame formation, normally through pegging during the early growth period, is aimed to suppress the natural upward growth of the primary branches and to encourage the maximum sideways spread.

Mature tea is prunned periodically to stimulate new growth and maximize yields, to remove unproductive and diseased wood, to bring the plucking table down to a manageable height, and to allow correction of an uneven plucking table by giving a fresh start. Pruning is supplemented by "tipping in" which is essentially a form of light prune designed to give a plucking table parallel to the slope of the ground.

All this requires skills and knowledge on the growth of the crop. The husbandry standards in the district, though among the highest in the country among smallholders, are in need of improvement in order to maximize yields and thus incomes. Little fertilizer is applied during the planting period or even at maturity. This certainly affects yields. The plucking table is often uneven because little care is taken by most farmers to ensure that the plucking table is even and parallel

to the slope of the ground. Also, most farmers have not bothered to fill-in spaces from where some plants have died. This minimizes yields, makes it difficult to have an even plucking table and encourages the growth of weeds which increase the labour inputs of the farmers thus decreasing profitablity.

Advice should be given by the KTDA through their extension agents on the demerits of poor husbandry standards on crop yields and farm productivity.

4.3:3 PLUCKING

Plucking is the most important labour input in the tea plot after the bushes have reached maturity. Tea is largely a labour intensive crop in most of the producing countries except the USSR and to a lesser extent Japan where mechanical tea 'harvesting' processes are used. The importance of labour in plucking is shown by the fact that about 70% of the farmers interviewed said that they spend between 2 and 4 days a week on their tea farms picking tea (depending on the size of the tea plot).

In Kenya, plucking continues throughout the year with between 6 and 12% of the annual crop

coming in any one month. During flush periods which coincide with the rainy months, 'plucking rounds' may be five to seven days apart decreasing to 10-14 days in the drier months. A 'plucking round' is defined as the action of plucking all ones tea. The time between rounds is then the time between successive pluckings of any given bush.

Plucking itself is a skilled task in which only two fresh leaves and a bud are taken as saleable product. The KTDA insists on this form of plucking in order to get good quality tea which can fetch good prices in the international market and assure the farmer maximum returns. The correct shoots are recognised and plucked, while dormant shoots (technically called banjhi) are broken off and rejected, necessitating considerable manual desterity. Because of the newness of the crop or mismanagement, the plucking is often not to standard and thus has an adverse effect on quality.

This occurs in areas such as Kisii district where children, particularly during school holidays, are used for plucking because of shortage of labour for the tea plots. Though tea plots in the small-holder programme were supposed to be sufficiently

served with family labour, this is however not the case because the smallholders engage in other labour intensive activities and as such they are sometimes forced to hire labour. Apart from growing subsistence crops the smallholders also grow other labour intensive cash crops such as pyrethrum, and coffee, and they also often keep exotic cattle. Initially, smallholders were supposed to grow 0.4 hectares of tea (1 acre) which was deemed small enough for the family labour to manage. From the survey it was found out that 45% of the farmers grow over 0.5 hectares of tea which means that they have to hire labour to help on the farm. Among farmers interviewed, it was found out that 53% had to hire labour to help them on their farms.

Table 14 shows the percentage of farmers per amount of labour employed. It is clear from the table that farmers in settlement scheme area (around Nyansiongo) use more hired labour than those in the Nyankoba factory area. This can be explained by the fact that on average their farms are larger and they grow more tea than average smallholders in the district and the country.

TABLE 14

PERCENTAGE OF FARMERS PER NUMBER OF HIRED LABOUR EMPLOYED.

FACTORY CATCHMENT AREA	NUMBER OF HIRED LABOURERS				
	None	1	2	3	4+
Nyansiongo	20%	20%	32%	20%	8%
Nyankoba	62%	24%	-	-	-

Source: Survey Data 1980.

To the smallholder, labour is a relatively expensive input into his tea plot and may decrease profitability if the farm is too small. The average cost of employing one labourer was found to be shs.130/- per month. For seasonally hired labour to pluck tea, the cost was -/30 to -/35 cents per kilogram of green leaf plucked. This is quite a high cost to the farmer as it is 45% of the earnings of the smallholder per kilogram of tea delivered to the KTDA during the initial payment.

30% of the farmers interviewed stated that they do not have enough labour to pluck their tea.

Plate 11: Plucking of tea on a smallholding.

Plate 12: Tea plucking on smallholding. Note the use child labour and unfilled spaces which allow growth of weeds.

The percentage (40%) was higher in the settlement scheme area than other parts of the district (24%). The shortage of labour is partly because of the high cost and secondly because most people grow their own tea thus few are willing to be hired on another persons' farm. As a result, farmers in the tea growing zone have had to look further away for labour, such as Wanjare, Majoge and South Mugirango locations.

The importance of labour in tea is shown by the fact that 55% of the farmers interviewed ranked tea as the most labour intensive crop they grow as compared to 43% and 1% for pyrethrum and coffee respectively. Though labour intensive in its demands, the payment system for tea is attractive compared to the other cash crops. 91% of the farmers interviewed ranked tea as the best paying among their cash crops as against 6% and 3% for pyrethrum and coffee respectively. This explains why more farmers want to plant tea or expand their present hectarages.

4.3:4 VOLUME OF OUTPUT

The area of the district above 1800 metres above sea level has already been shown to have soils ideal for the growth of tea. Because of this and

the large labour inputs into the crop by farmers in the district, average yields are among the highest in the country. The amount and quality of labour inputs are important for good yields in tea.

The average yields per hectare in the study area were found to be 5,450 kgs. of green leaf per year. The figure is not uniform but ranges from 3680 kgs per hectare in Nyaribari and Kitutu locations to 5900 kgs per hectare per year in Borabu location. The difference can be explained by the predominant use of hired and thus better skilled labour in Borabu location as compared to the predominant use of family and child labour in the other parts of the district.

The remarkable difference between the average yields as found in this study and those found by Stern[4] in 1973 for the district can be attributed to better husbandry standards adopted by smallholders, maturity of the tea plants and thus higher yields, and increased labour input. The extension staff have increased their efforts at reaching the smallholder who in the process has internalised better standards of husbandry for his tea. The drastic rise in tea prices during the

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4. Stern N.H: An Appraisal of Tea production on smallholdings in Kenya. Dev't Centre of OECD 1973, pg.89.

1977/8 period convinced farmers that better husbandry standards and increased labour inputs would be worthwhile. Thus most farmers have tried to improve their yields in the hope of increasing their incomes.

Among the farmers interviewed 92% stated that they were applying fertilizer in their tea plots. This shows that farmers are receptive to extension staff advice and want to maximize yields by making use of the KTDA fertilizer loan provided to all smallholder tea farmers in the country.

4.3:5 EXTENSION SERVICES

To counter problems that are often faced in traditional extension services, the primary emphasis of any rural development programme should be at higher intensity of extension. This will involve the increase in number of extension agents in a limited geographical area so as to increase the agent/farmer ratio. In this way all farmers can be reached as opposed to the earlier strategies where extension was aimed at the 'progressive' farmers only.

In order to intensify its extension services as much as possible so as to reach as many farmers as possible, the KTDA set a maximum of 150 farmers per one Junior Agricultural

Assistant (JAA). The JAA should visit the farmers at least 4 times in 6 months giving an average of one visit every six weeks. In the survey it was found out that about half the farmers were well served with extention staff while only 2.8% said they are not visited by extension staff.

Table 15 gives the percentage of farmers interviewed per frequency of extension staff visits.

TABLE 15

PERCENTAGE OF FARMERS AND FREQUENCY OF EXTENSION STAFF VISITS.

	ONCE A MONTH	ONCE IN TWO MONTHS	ONCE IN THREE MONTHS	NONE
Percentage	42.8	15.7	38.5	2.8

Source: Survey Data 1980.

Reaching the farmer by more intensive extension services, however, may not bear much fruit if it is not accompanied with an aim to impart a technological package that is sufficiently

profitable at the farm level to provide an incentive for the farmer to adopt innovations. The extension staff must also be trained to solve the specific but diverse farm level constraints faced by the farmer. In this regard, the technological package imparted by the KTDA is sufficiently attrative in its monetary returns to ensure that farmers adopt innovations.

Out of the two forms of extension services, that is, the "take it or leave it" approach and the contract farming method, the KTDA uses the latter. In the first approach, farmers are brought innovations and information which they are free to accept or reject. In the contract method, farmers who volunteer to receive innovations are granted a licence and those who fail to follow project guidelines may have their licences revoked.[5] Under the Tea cultivation order, the KTDA has legal authority to prosecute negligent tea growers. Because of the large investments in the smallholder tea project and the relatively sophisticated production techniques involved, the KTDA cannot afford to neglect field extension services.

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5. Lele, U. Design of Rural Development op. cit. pg. 64.

Through these frequent visits and the field days, the farmers are taught the benefits of better husbandry and how to improve yields. These efforts must be continued if Kenya is to produce high quality tea that is to be competitive in the world market. The often difficult terrain and the relative inaccessibility of some farmers may necessitate increasing the agent/farmer ratio still further so that agents can be able to reach the farmers in good time.

4.3:5 EMPLOYMENT AND INCOMES

Among farmers interviewed in the survey area 91% stated that tea was their major source of income and most important cash crop. The significance of the tea industry to income and employment creation may be further illustrated by the fact that it offers employment and incomes to 6634 families who deliver tea to Nyankoba tea factory and 2500 families who deliver tea to Nyansiongo tea factory. It can be assumed that a similar impact and role is played by the industry in the other factories' zones of influence.

The average incomes were quite varied in the survey area in the same way that hectarage were

varied. In Borabu location where size of tea plots was much larger than the rest of the district, average incomes per farmer per year (after first and second payments) were Kshs.15,200. However, figures in the other three locations were Kshs.4,250, Kshs.3,310 and 2,250 shillings respectively for Nyaribari Masaba, Nyaribari Chache and Kitutu East. This can be interpreted as a reflection of the small size of tea plots in the various locations and also a reflection of the land pressure existing in these locations.

Average values may however not be a proper indication of the impact of the crop in the region as they may suffer from extreme values. The aggregate amount of money that accrues to the region would be a more helpful measure. In 1978/79 Kisii district earned a total of Kshs.70.2 million from tea which was 17.4% of the total payout to smallholders in the country. It was the largest producer of smallholder tea in the country followed by Muranga (Kshs.63.3 million) and Kericho (Kshs.55.6 million) districts. The total payout to smallholders under the KTDA in the country was Kshs.401 million as compared to Kshs.360 million in 1977/78,[6]

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6. KTDA Annual Report and Accounts 1978/79

despite the fall in average prices of made tea in the world market from Kshs.15.68 in 1977/8 to Kshs.12.45 in 1978/79. Thus increase in output of green leaf has been able to cushion farmers against a fall in world market prices.

Among farmers interviewed who grew other cash crops apart from tea, the average incomes per year were Kshs.1900 for pyrethrum, Kshs.2000 for those grew maize (exclusively in Borabu location), and Kshs.2,200 for those who grew coffee (exclusively in Nyaribari Chache location). Thus on the average tea was a higher income earner than any other cash crop grown by farmers in the survey area.

It can thus be summarised that an intensification of tea production and an increase in husbandry standards will significantly increase incomes and employment in the rural economy. This is more so if the incomes earned are invested in improving housing or commercial and industrial activities that will create more jobs and incomes. The increased incomes can be used for the purchase of better building material such as corrugated iron sheets, stone, sand, and cement for construction of permanent dwelling houses in the rural areas. In this respect tea can be said to have significantly

is supposed to be as convenient for the farmer as possible. The location of a buying centre in a particular area is also dependent on the amount of green leaf produced. Ideally an area qualifies to have a buying centre if it produces a minimum of 2,700 kgs of green leaf per day.

So as to be convenient to the farmer, buying centres should be located at a maximum distance of 4.5 kilometres (3 miles) from one another. This ensures that a farmer is at least within 2 km of a buying centre. It also ensures that green leaf reaches the buying centres as soon as possible after plucking so as not to be damaged by sunshine and premature fermentation which would have an adverse effect on quality. The Nyankoba leaf base has 24 buying centres well distributed over its catchment area while the Nyansiongo leaf base has 34 buying centres so serve tea farmers in the area, (see map 10).

Among farmers interviewed in the survey area, 70% stated that the buying centres were under 2 km away and thus conveniently located to serve them.

The building of the buying centres is done by the tea growers on a 'Harambee' basis with the consent of the leaf officer. The centres are open six days a week to receive green leaf from

farmers. The buying centres must, however, be built along "tea roads" where the KTDA trucks can pick up the green leaf without undue difficulty.

4.4:2 TRANSPORTATION TO BUYING CENTRES.

It is best to transport tea in open baskets that allow air circulation and prevent fermentation. Special baskets are usually made of reeds that allow air to circulate through the tea. These are also used for plucking in the fields although in most cases smaller baskets are used in the field and then the tea is put in one or two large baskets for transportation to the buying centres. The tea industry has greatly increased the demand for this type of baskets which are locally made by traditional craftsmen. This can be seen as increasing incomes and creating employment for traditional craftsmen.

In the survey area it was found out that 98% of the farmers carry the baskets on their heads to deliver the tea to the buying centres. Transporting tea in this fashion is a difficult task considering that the terrain of the district is difficult and the baskets can contain between 25 to 40 kgs of green leaf depending on size of the baskets. It is thus essential that buying centres

be as close to the farmers as possible. Only 2% of the farmers in the survey area stated that they use wheelbarrow or bicycle to transport tea to the buying centres. These were mostly those who had large amounts of tea to deliver or those located far away from buying centres.

4.4:3 TRANSPORTATION FROM CENTRES TO FACTORIES

When farmers deliver their tea to the buying centres where it is bought by the KTDA, it is the responsibility of this body to deliver the green leaf to the factories. Quality of leaf is ensured by careful checking by the KTDA staff at the centre who reject any substandard tea. The tea is then weighed and the farmer given a receipt which shows the amount of delivered tea and the cumulative total for the month and year.

Transportation of tea is a difficult process that must ensure that tea reaches the factory as soon as possible and also that the leaf is not damaged during transportation. In order to deliver the leaf intact and in a good condition, it is packed in loosely knit sisal bags and loaded into a specially fitted lorry that allows a semblance of the withering process to take place as the tea is taken to the factory.

Plate 13: Delivering Tea to Buying Centres.

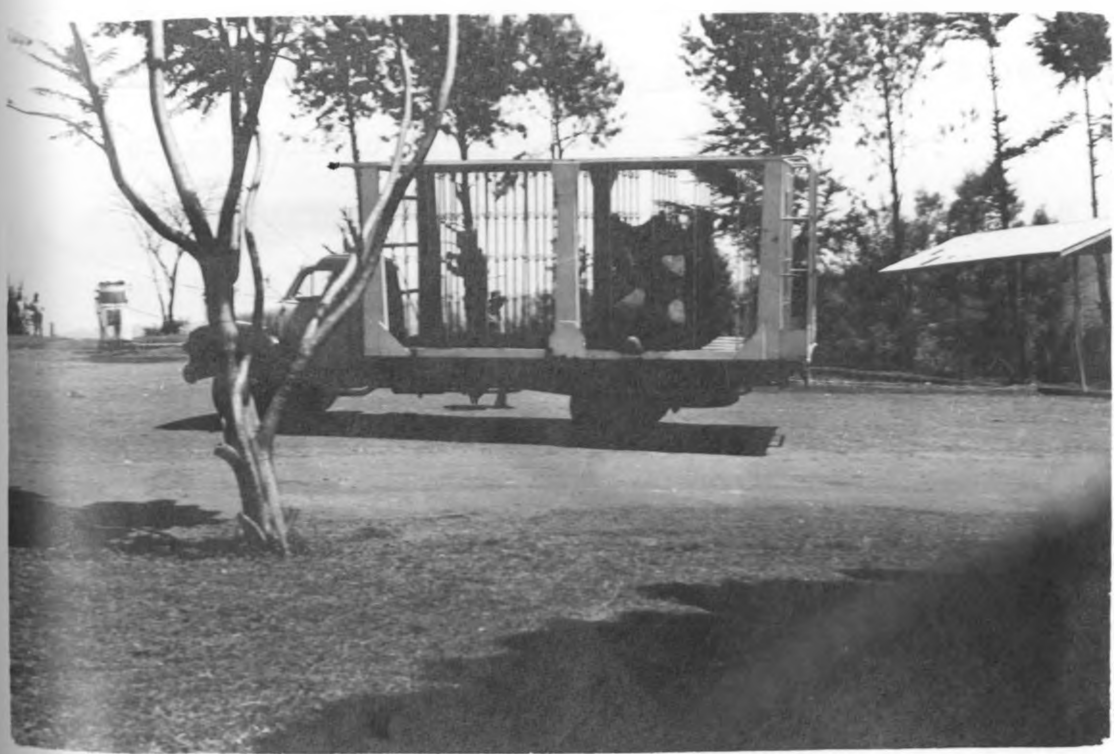

Plate 14: Transporting Tea to factories. Note the open truck.

At the Nyansiongo leaf base there are 10 lorries (7 tons each) to perform the task of transporting green leaf from 34 centres. At Nyankoba leaf base there are 9 lorries serving 24 buying centres. Thus the average over the survey area is 3 centres per lorry. Transportation can be done quite effectively during most of the year when road conditions are relatively dry and the output of green leaf per month is below average. However transportation problems are not uncommon during the rainy months which are also the peak production months. Roads are often impassable and as such most leaf cannot reach the factory in time and often gets fermented before reaching the factory thus necessitating considerable waste of green leaf and thus loss of revenue to farmers.

Further improvement of the road network is essential for proper transportation of green leaf to the factories from the buying centres. Tarmacing of difficult sections should also continue and be speeded up (See map 11).

4.4:4 EMPLOYMENT AND INCOMES

The leaf collection machinery is also a significant employer of labour. The Nyansiongo leaf base employs a total of 60 staff who include 10

drivers, 30 leaf callectors and several mechanics and offloaders. The Nyankoba leaf base employs a total of 50 staff who include 26 leaf collectors and 11 drivers. The total employment in the two leaf bases is 110 persons. In addition to those employed in the factories, the tea industry provides off-farm employment to a significant number of people in the survey area.

Incomes, however, are rather low and do not allow for any significant savings or repartriation in the form of school fees or harambee contributions. Leaf collectors earn an average of Kshs.400 p.m., while drivers earn an average Kshs.450; and the rest of the leaf base staff much less. It is however important to note that the people employed here are mostly primary school - or junior secondary school-leavers who would have little alternative employment opportunities in the rural areas and thus their absorption into gainful employment is a significant contribution to alleviation of unemployment and the raising of incomes and living standards in rural areas.

4.5.0 INFRASTRUCTURE

The development of a smallholder tea scheme necessitates considerable infrastructural inputs in order to be successful. Since, unlike plantations, smallholders are dispersed over a wide geographical area, and bearing in mind the fact that tea must reach the factory as soon as possible, the existence of good infrastructural facilities is essential for the success of a smallholder scheme. Not only must there be factories, and power supplies to these factories, but there must also exist a good road network to facilitate faster transportation of tea to the factories.

This section will briefly discuss what impact the existence of these facilities would have on a rural economy like the one in the study.

4.5:1 THE 'TEA ROADS' PROGRAMME

Road development is a major instrument of economic development. Investments in road development when accompanied with other opportunities in the agricultural sector, have a major impact on the rural economy. This is particularly true in rugged areas with good agricultural potential and dispersed settlements such as Kisii district.

One can thus argue that the 'tea roads' development programme, started in the late 1950s in the district when tea was first introduced to smallholders, has had a major impact in that these roads have encouraged the growth of the agricultural sector in the tea growing zone in general. The existence of a good road network is essential for agricultural marketing, and more so for tea which is more perishable than most other cash crops. Thus roads must be constructed to connect every buying centre to the factory so that tea can reach the factory as fast and as easily as possible. The roads must be all weather so that tea collection vehicles can pass even during the wet seasons. This is important because it is during the wet seasons that the bulk of the tea is produced. In order to facilitate easier transportation, it is necessary at times to tarmac difficult sections of the roads on hilly areas. This improves the general standard of road network in the rural areas considerably and improves transportation not only of tea but also of other crops and farm inputs.

The 'tea roads' programme is a considerable contribution by the KTDA and the Ministry of Transport and Communications to the provision of

infrastructure which aids the process of rural development and therefore the raising of standards of living in the rural areas.

4.5:2 ENERGY (ELECTRICITY)

Continued supply of energy is essential for the manufacture of tea. The tea factories in Kisii district are supplied with electricity from the national grid system connected to the Owen Falls dam at Jinja, Uganda. However, for emergency purposes, the factories have their own generators to supply them with electricity.

The distribution of electricity to the factories located in the various areas of the district has aided in the process of rural electrification in the district. Thus institutions, such as schools and hospitals, designated centres and other smaller centres and the dispersed homesteads have benefitted in that they are now able to get alternative sources of energy for heating and lighting. This is also another indirect but significant contribution of the tea industry to the rural economy.

4.5:3 PROMOTION OF OTHER ACTIVITIES

The tea roads programme as a supplement to the existing infrastructural facilities has aided

the improvement of agricultural marketing facilities, especially the development of pyrethrum growing and marketing and the keeping of exotic cattle. It has thus been instrumental in the transformation of the agriculture of the Kisii highlands.

This idea ties up with that of Uchendu and Anthony who found out that the economic advantages enjoyed by the Kisii highlands (tea growing zone) as opposed to other areas of the district lie not only in the more favourable natural environment and multiple high value cash crops, but also in their more extensive development of access roads = the results of tea development.[7] In other parts of the district, (especially the lower areas), poor access roads still limit agricultural production. Thus it would seem that a policy of increasing access roads would remove constraints both for marketing of produce and availability of farm inputs such as fertilizers and seed, and increase incomes and employment.

The improvement and construction of access roads not only aids marketing in the agricultural sector but also improves overall transportation and communication and thus the dissemination of ideas

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7. Uchendu V.C. & Anthony K.R.M.: Agricultural change in Kisii District Kenya (EAEB, Nairobi 1975) pg.96

and availability of inputs into agriculture. The increase in transport creates employment not only in transport sector itself but also in trade since supplies are available more easily and cheaply. The sum total of all these activities is to raise the general standard of living of people in the rural areas and thus contribute to rural development.

6:0 COMPARISON WITH A NON-TEA-GROWING AREA - BOSONGO DIVISION

The Bosongo division borders on South Nyanza district on the west and Narok district on the south. A comparison between this division and the tea growing zone would allow one to come up with a clearer picture of the contribution of the tea industry to the development of the higher zones of the district. The economy of Bosongo is quite different from that of the higher areas of the district and its further development poses different challenges from those faced in other parts of the district. Thus a comparison of such diverse areas within the same district allows us to more clearly appreciate the contribution of tea in developing the tea growing parts of the district.

The economy of the division is largely dependent on coffee, bananas and sugarcane as the major cash crops. In terms of infrastructure,

the division is not as well criss-crossed with access roads as the higher areas of Manga, Irianyi and Nyamira divisions which grow tea and thus have 'tea roads' for collecting of green leaf. This forms a constraint to agricultural marketing and provision of farm inputs which are essential for the development of the agricultural sector. It is however necessary to note that the division possesses the only mineral deposits that are to be found in the district - the Kisii soapstone at Tabaka. This is a resource that could be exploited and developed to create industries that would increase incomes and create employment in the division and also help in the setting up of other industries.

Because of the almost complete dependence on coffee as the major cash crop in the division, it seems that the diversification of the division's economy would increase income and improve the well being of the people. Thus the encouragement of sugar cane growing in the areas that have suitable conditions would be one way of increasing incomes. This idea is further strengthened by the existence of the South Nyanza Sugar Company's factory at Awendo which is near the division. This should be

able to give incentives to sugar growers in the area plus the fact that sugar is a better paying cash crop than most now grown in the division.

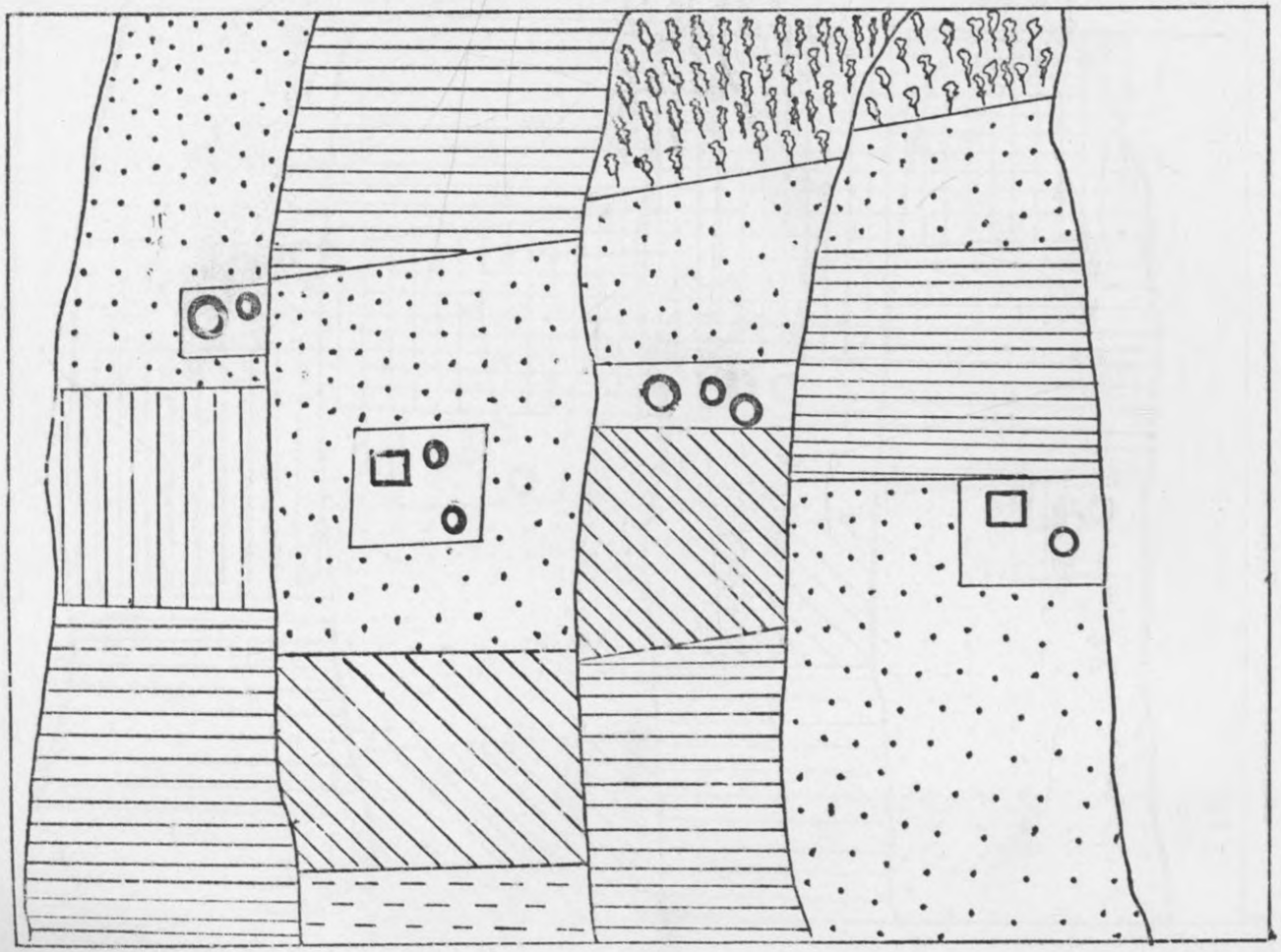
Apart from sugar, possibilities also exist for the growing of tobacco, and the keeping of exotic cattle. If developed sufficiently, these ventures could alter the economic life of the division and considerably increase incomes and create employment.

The development of the agricultural sector will however depend on the existence of marketing facilities and especially the existence of feeder roads. The development of the farming sector in the highland areas of the district has been made possible by the existence of feeder roads through the 'tea roads' programme. It has already been shown that this aided the growth and marketing of pyrethrum and the introduction of exotic cattle. At present, the lack of a good network of feeder roads in one of the most important obstacles to the agricultural development of Bosongo division.

Thus a policy that aims at decreasing regional disparities within the district and the general raising of standards of living must aim at increasing feeder roads to those areas (such as Bosongo

STAGE 1.

FARM LAYOUT AND DEVELOPMENT BEFORE INTRODUCTION OF TEA



PASTURE

SUBSISTENCE

PYRETHRUM

COFFEE

WATTLE

FALLOW

TEMPORARY (thatch) STRUCTURES

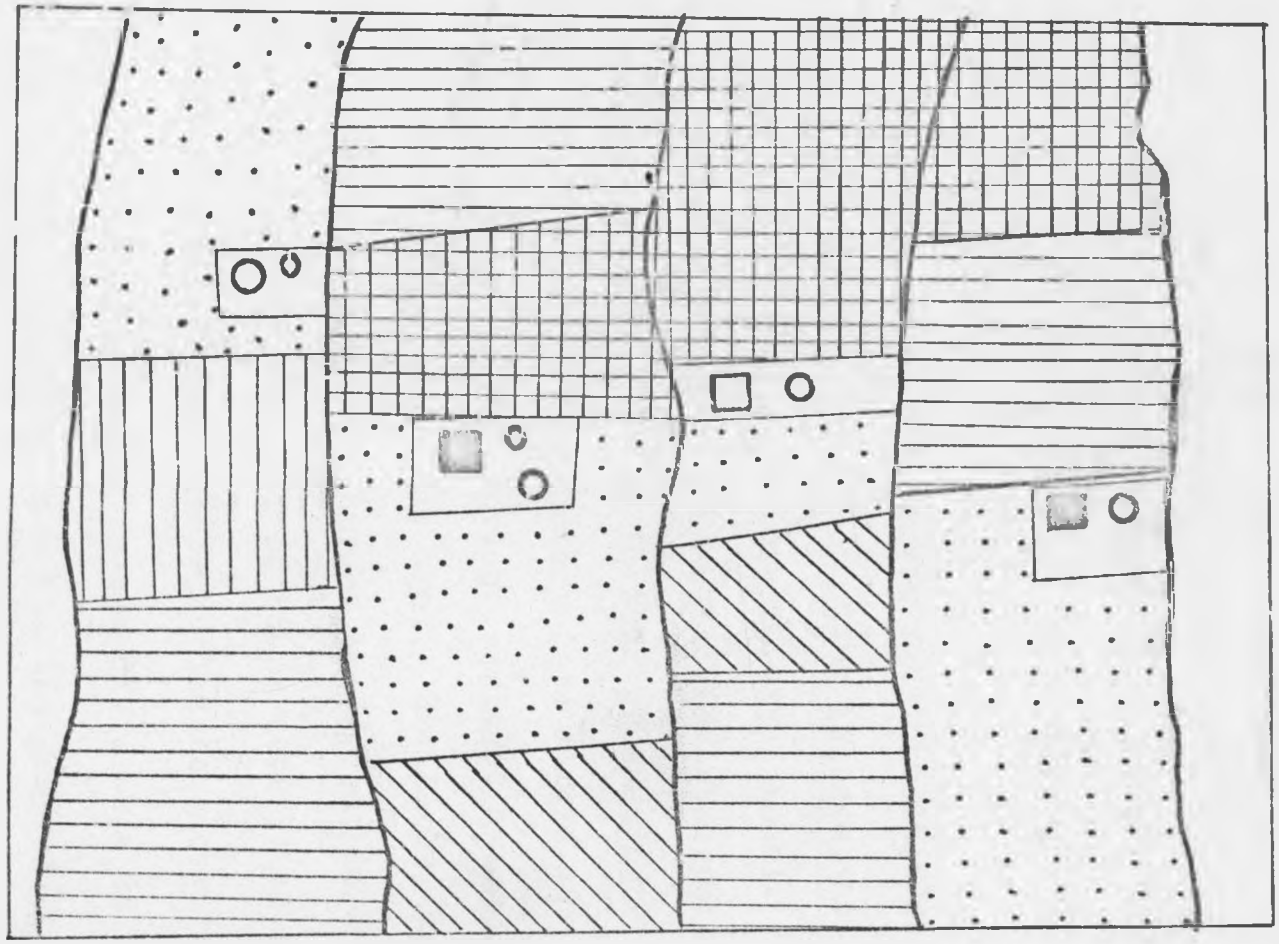
SEMI-PERMANENT (C.I.S) STRUCTURES

Scale: 1: 2500

FIG. 8

STAGE 2.

FARM LAYOUT AND DEVELOPMENT AFTER INTRODUCTION OF TEA



TEA

PASTURE

SUBSISTENCE

PYRETHRUM

COFFEE

TEMPORARY (thatch) STRUCTURES

SEMI PERMANENT (CIS) STRUCTURES

PERMANENT (stone) STRUCTURES

Scale 1:2500

FIG. 9

division) where further agricultural development and marketing of agricultural produce is constrained by the absence of connectivity to market.

4.7. SUMMARY

This chapter aimed at a study of the tea industry in the district using Nyankoba and Nyansiongo tea factories and their catchment areas as case studies. It was hoped that this would allow one to go into sufficient detail within the time available in order to be able to generalize for the rest of the district.

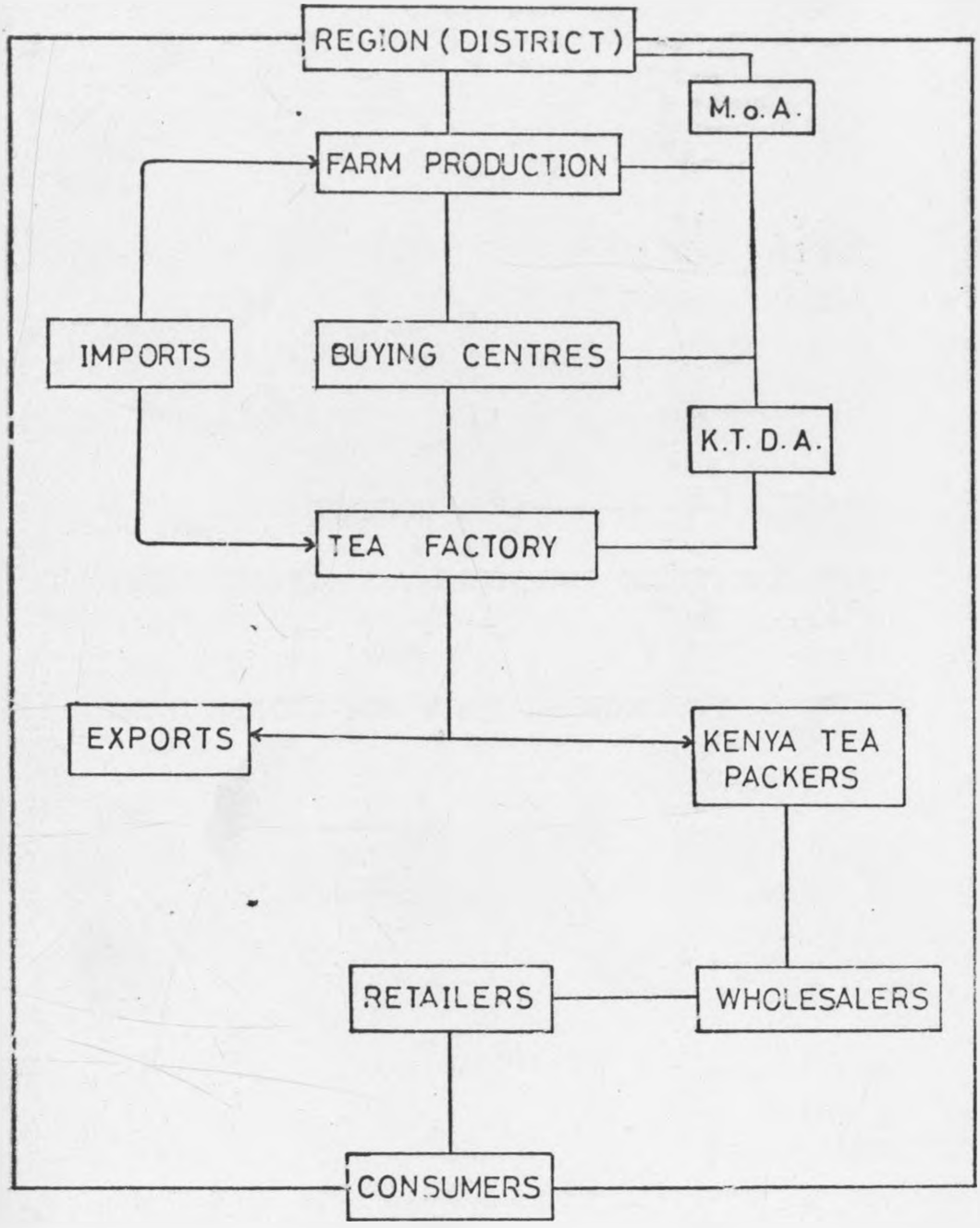
It is clear from the survey findings that the role of the tea industry in creating incomes and employment in the rural economy is significant. Though it has a relatively weak linkage structure especially those related to further processing after manufacture at the factory, (see figure 10) it is however the most important employer among agro-industries in the study area. Similarly, the incomes created either by direct employment in the industry or the setting off of other activities is also quite a significant contribution to the rural economy. This can be seen in the difference in the levels of development between the tea growing zone and the control area for our study: Bosongo

division.

The implications of the study findings and the problems faced at the various levels of linkages in the industry will be looked at in the next chapter in order to determine and evaluate how their solution will increase efficiency in the industry and contribute more fully to rural development.

FIGURE: 10

IDENTIFIED LINKAGE STRUCTURE IN TEA INDUSTRY



CHAPTER FIVE

PROBLEMS IDENTIFIED, SUGGESTED SOLUTIONS AND IMPLICATIONS FOR RURAL DEVELOPMENT

5.0 This chapter is devoted to problems identified in smallholder tea production in the district. The removal of constraints at the various linkage levels is seen as necessary to improve the performance of the smallholder scheme and to increase farm income.

One starts from the premise that the identified problems and constraints hinder the full participation and contribution of the tea industry to the process of rural development. This chapter highlights the constraints that could be removed at the various stages of production and marketing in order to make the tea industry more benefitial to the rural economy.

5.1. FARM LEVEL

5.1.1 PRODUCTION SCALE AND METHODS

Farm level production forms the most important input in the tea industry both in terms of labour inputs and its effect on the quality of tea produced. As already discussed in the previous chapter, the scale of production in the district is predominantly smallholder. The tea plots are supposed to be surficiently small so that they can be worked on by family labour without the necessity of hiring labour.

However, in the settlement scheme tea is planted on plots larger than the countrywide average of 0.38 hectares (refer to table 10) and hired labour is employed in addition to family labour. Occassional labour shortages are common among this category of farmers and this affects output of tea adversely.

In terms of actual production on the farm, labour inputs, fertilizer application and good plucking are important for high yields and good tea quality. The application of fertilizer in the district is satisfactory since the fertilizer is provided to farmers through a KTDA credit scheme. One problem noticed was the high prices of fertilizers and occassional shortages.

Since Kenya is a predominantly agricultural country, the continued supply of fertilizers at low prices is essential for continued growth of the agricultural sector and the country's economy in general. In order to get out of the present problem of importing fertilizers at high prices, the government should consider setting up a fertilizer plant in the country. The Ministry of Natural Resources and Environment (MNRE), the Ministry of Agriculture (MOA), and the Ministry of Industry (MOI)

should coordinate efforts in starting a fertilizer plant in the country. The Industrial Survey and Promotion Centre (ISPC) of the MOI should carry out feasibility studies on investment prospects in such an industry. If this is not possible, then the government must consider further subsidies to farmers for their fertilizer to ensure further growth of the agricultural sector.

In most parts of the district the use of child labour was identified as a problem that greatly affected the quality of tea produced from the farms. This practice decreases the potential prices that can be fetched for tea on the world market. In order to keep up the quality of tea produced, extension staff should insist on high quality plucking and the exclusion of child labour.

5.1.2 COMPETITION WITH OTHER CROPS

Because tea is grown in the high potential areas of the country, it naturally faces competition from other high value cash crops which thrive in the same climatic conditions. It is also these areas which register the highest population densities in the country and thus experience pressure on land. Since farm holdings are small, the farmer has to decide whether to grow tea and/or pyrethrum, passion

fruit, coffee or keep exotic cattle. The investment decision by the farmer will be determined by the returns he expects to get from growing a particular crop in relation to the other alternatives. Thus the farmer will plant the crop that ensures the greatest returns on investment in the shortest time.

In this regard tea has relative disadvantages compared to pyrethrum or exotic cattle (though not in relation to coffee) because of the long maturing period. The initial capital and labour investments are also higher per hectare than the other major cash crops. Tea has however one major advantage over the other cash crops in that returns are higher per hectare and also the payment system is more regular and assured (tea farmers are paid monthly). This then can be seen as one of the reasons why farmers can wait for a long time until their tea crop reaches bearing age, since from then on, they are assured of monthly returns that are higher than from the other cash crops they could grow.

In order that tea continues to be attractive to the smallholder in the face of increased competition from other high value cash crops, it is necessary that the efficiency of the present marketing system be increased. The KTDA should seek ways of minimizing

costs while at the same time rendering efficient service to the smallholder tea growers. Farmers have complained about the amount of cess charged by the KTDA for services rendered. With increased efficiency of operations, and with the 'tea road' programme now increasingly under the Ministry of Transport and Communications, decrease in cess should be possible. In order to do this, an alternative and more intensive operation of the production, marketing and thus processing is suggested.

5.1:3 EXTENSION SERVICES

It has already been shown in the previous chapter that the KTDA uses the contract farming method of extension service where farmers who accept to grow tea are granted licenses. This approach has worked in as far as it has helped the spread of tea among the more progressive farmers in the tea growing areas of the country.

This study however argues that in order to be in line with government policy of reaching the poor and also in order to be able to fully intensify its operations and effectiveness and thus decrease the costs of operation, the KTDA traditional extension approach must be altered. The MOA and the KTDA

should re-orientate extension approaches away from the "progressive farmer" approach to an approach that aims at reaching the poor small farmers and inducing them into the national market economy. This will necessitate not only an increase in the agent/farmer ratios presently existing but also that the extension agents reach those farmers with whom they do not necessarily empathise with as in the past. This approach will be in line with the suggested organisational model that intensifies operations and minimizes the costs of the KTDA field operations.

This extension approach will not only increase incomes for the poorer smallholders but could also have a significant impact on other aspects of life in rural areas. Increased incomes will mean that they can be able to invest in other profitable ventures in the rural areas such as trade and commerce. A considerable amount of income could be invested in improving the standards of rural housing. At present, however, building material shortages in the district are a constraint to the improvement of rural housing.

The Kenya Industrial Estates (Kisii Rural

Industrial Development Centre) should research into the use of locally available durable materials such as clay for the manufacture of bricks and tiles for the improvement of rural housing.

5.1.4 EMPLOYMENT AND INCOMES

It has already been shown in the previous chapter that tea is a significant income earner not only for the families of the smallholders but also for their employees on the farms. The investment of these incomes in trade, commerce and rural housing creates additional incomes and employment in these and other related sectors.

Low producer prices as compared to labour inputs in tea were identified as a problem hindering the expansion of tea growing in the district (as expressed by farmers interviewed). The disatisfaction with low producer prices stems from the fact that prices were at their highest in the 1977/78 year and have generally fallen since then. Farmers blame the fall in prices on the KTDA not knowing that the general fall in prices is a result of a decline in tea prices in the world market. In order to earn higher prices, farmers must be encouraged to raise standards of crop husbandry (particularly before maturity of the crop and high quality

plucking during maturity) in order to produce tea of good quality.

5.1.5 ALTERNATIVE SPATIO-ORGANIZATIONAL MODEL

In place of the present system where smallholders are widely dispersed over the country side thus necessitating considerable investment and recurrent expenditure in road construction and maintenance and also high cost per unit of tea collected, an intensification of the operations of the KTDA is suggested (see figure 11 and 12). This will involve the discouragement of tea growing into presently non-tea growing areas, and the intensification of tea cultivation in the presently tea-growing areas where potential for increase in tea hectarage exists.

It was found from the study area that only about 3 to 4 out of 10 farmers planted tea. Intensification of production will involve encouraging the rest of the farmers in the tea zone who do not presently grow tea to take up the crop. This will involve increased visits from field extension staff to convince farmers to grow the crop and also supply of subsidized planting material. This is necessary because it is the poorer small farmers in the tea zone who have not taken up the crop because of high costs of planting material and

other inputs. Research into ways of planting tea cuttings in nurseries without the use of polythene sleeves should be carried out as this will save considerable amounts of money for the small farmer who aims to plant the crop.

This strategy of increased intensity of tea production in presently producing areas rather than expansion into new areas will involve the KTDA in minimal infrastructural outlays in terms of road construction. It will however necessitate expansion of existing factories or the construction of new ones to take up the increased output of green leaf that will result from intensification of production at the farm level. This arrangement will also save on costs of collection of green leaf as more leaf will be collected from a smaller geographical area.

In terms of factory location and construction, the intensification of production will mean that factories have to be located closer together to serve a smaller catchment area than at present because of the increased output of green leaf. The costs of leaf collection will be lessened because of the smaller catchment area per factory and thus the services of KTDA to the farmer should cost less than before. In this way it will be

possible to decrease cess charged on farmers and be able to increase their incomes and overall standards of living.

This strategy would help in transforming the rural economy and reaching the poorer sections of the rural population. Since it is largely the "progressive" and thus mostly more well-off farmers who adopt innovations, it can also be said for tea that the "progressive" farmers were the first to plant the crop. This situation was accentuated by the early extension approaches that stressed on the "progressive farmer" approach hoping that the other farmers would copy from the "progressives" by a "trickle down" and "demonstration" effect.[1] This approach has however not proved to be successful as the poorer "laggards" have not adopted innovations as hoped. Thus a change in policy aiming at the poorer sections of the population will aid in bringing the rest of the rural poor into the national economy and will be in line with the aims of the 1979-83 National Development Plan to alleviate poverty and reach the rural poor.

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1. Mbithi, P.M.: Rural Sociology & Rural Development (East African Literature Bureau, Nairobi, 1974) pg. 31.

5.2 MARKETING OF GREENLEAF

Marketing of green leaf has been seen as a significant linkage between the farm and factory level operations. This operation is carried out directly by the KTDA - it links the individual smallholders to the factory companies. This operation is important because of the necessity that tea should reach the factory as soon as it leaves the farm in order not to be damaged. Thus the efficient and fast operation of this function is important to tea quality produced.

At this level of linkages we shall make recommendations on the identified problems at two levels; (i) the transportation of green leaf from the buying centres to the factories, and (ii) the operation and location of buying centres.

5.2:1 TRANSPORTATION

Transportation of green leaf to the factories is done by KTDA vehicles and staff from a leaf base located at a factory to which the leaf is transported. The leaf is transported from buying centres distributed over the factory's catchment area.

A common problem identified in the transportation of green leaf is the poor condition of roads particularly during the rainy seasons and the lack

of vehicles to transport tea during 'flush' periods. The 'flush' periods coincide with the rainy seaons when road conditions are poor. It implies that if a vehicle is stuck in the mud, it cannot be able to collect green leaf from all the buying centres it is supposed to serve. This results in wastage of green leaf as it cannot preserve for a long time without attention and care.

Construction of 'tea roads' is done by the KTDA with the aid of the Ministry of Transport and Communications (MOTC). The MOTC however only maintains classified roads which leaves the majority of 'tea roads' unmaintained since they are unclassified. Coordination between the KTDA and the MOTC is necessary in maintenance of unclassified tea roads which are the ones where transportation problems occur most. Bituminization of difficult sections of these roads which has been done sometimes by the KTDA should be encouraged and continued in their road programmes. The District Development Committee should also vote funds for road improvements in the tea zone, as it not only helps in the transportation of tea but also the overall access and feeder roads programme and the marketing of other farm produce.

5.2:2 BUYING CENTRES

Buying centres are another significant part of the marketing of green leaf and the efficient operation of these centres is important to the operation of the tea industry. Four major problems were identified.

(i) Distances that have to be walked by farmers in order to reach the buying centres are sometimes too long, such that hired labour on the farms sometimes refuses to carry the tea to the buying centre after plucking. Thus the farmer has to hire different persons to carry the tea to the buying centres resulting in extra expenses.

It is therefore recommended that the KTDA in conjuction with local smallholders increase the number of buying centres as green leaf output builds up so as to decrease and minimize distances that have to be walked by smallholders in delivering their tea. This will be a considerable saving both in time and money now spent in delivering tea to the buying centres. This extra time could be used in plucking thus meaning that farmers can be able to deliver more tea to the buying centres.

(ii) Inadequacy of weighing-in time at the buying centres is another constraint to the collection of green leaf. Centres are open for only about 3 hours

on any delivery day. This does not give farmers enough time to pluck tea as they have to deliver the tea to the buying centres by early afternoon. Farmers would prefer that centres increase time for weighing-in at the buying centres so that they can be able to pluck their tea for longer periods to maximize output.

In addition to the increase in days when buying centres are open started by the KTDA, (centres now open six days a week as a result of a presidential directive), time when these centres are open should be increased to late evening (6.00 p.m.) to allow farmers to pluck their tea for most of the day before delivering to the buying centres. This would enable farmers to pluck all their tea in a lesser number of days than at present. It will thus allow a considerable decrease in labour inputs in terms of man-days per year that have to be put into a given tea plot and thus save on labour costs to the smallholder. In this way, more tea will be picked at less cost and thus increasing the incomes of the smallholders.

(iii)Wastage of leaf at the buying centres is caused not only because of transportation problems but also clerks who force farmers to throw away their green

leaf when it appears that it has not been plucked according to the recommended standards. Instead of throwing away leaf wholesale, farmers should be made to pick out the badly plucked tea which should be thrown away while the acceptable one should be bought by the KTDA.

To avoid such wastage, extension staff activities should concentrate on teaching farmers good plucking methods to avoid loss of green leaf and thus revenue to the smallholder.

(iv) Malpractices by leaf collecting clerks were identified as another problem that adversely affect the efficient operation of the buying centres. This was identified by farmers as one source of loss of revenue since some leaf collectors entered less weight in the receipts of the farmers than the tea brought in, thus accrediting the balance of green leaf under their names or under the names of friends.

Closer supervision by the KTDA over leaf collecting staff would decrease the incidence of such malpractices.

The alleviation of the above problems would improve the efficiency of the operations of the KTDA in leaf collection and aid the smallholders in getting maximum benefit out of their crop and thus

increase their incomes and well being and contribute to the development of the rural economy. The alternative spatial organizational model already outlined would ease some of the problems of green leaf marketing since intensive production will also necessitate construction of more buying centres and thus minimize the distances that have to be walked by farmers to the buying centres.

5.3 FACTORY LEVEL

Tea factories, being the only significant agro-based industries in the region can be seen as important both because of employment and income creation and the marketing linkages they posses. It has already been pointed out that though minimal in their contribution to the rural economy, the activities of the factories if taken together, are however significant in contributing to the regional and national economy. We shall proceed to discuss these two levels of linkage in turn to to determine at what levels they could be strengthened in order to be more benefitial to the regional and national economy.

5.3:1 EMPLOYMENT AND INCOMES

In a district with widespread land pressure because of population increase such as Kisii that is also predominantly agricultural in nature, the creation of off-farm employment is important to absorb labour that cannot find gainful employment in agriculture and create incomes. In this respect the tea factories provide employment for a sector of the population that would otherwise be unemployed for lack of alternative employment opportunities within the district.

Thus the activities of the factories have important implications for the development of the rural areas in several ways:

(i) Apart from providing employment, the incomes earned by factory operatives are often repartriated to their families in the region. Though minimal quantitatively because of the low salaries paid to the operatives, it is however significant in raising standards of living in rural areas and supplementing farm incomes.

In order to overcome this problem of the low effect on the regional economy, the raising of salaries paid to operatives would greatly help in raising the standard of living of the workers and

their families and dependents in the rural areas. In order to do this, the factories should use value of output and duties performed as criteria for basing wage levels rather than basing them solely on standards of education attained.

(ii) The level of technology used is predominantly capital intensive thus minimizing the employment creation potential of the factories. It also means a considerable expenditure in foreign exchange in installing the machinery and buying of spare parts. The Ministry of Industry through its various organs such as the I.S.P.C. should study and suggest ways of decreasing the capital intensity of these factories without adversely affecting quality of tea produced. This would increase the employment creation potential of the factories and save on scarce foreign exchange. Ways of using local materials in producing machine components should also be studied by the I.S.P.C. This would integrate various sectors of the national economy and aid in the overall development of the country.

5.3:2 MARKETING LINKAGES

The nature of a product from an industry and its marketing determines the nature and strength of forward linkages of that industry. With respect

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to the tea industry it can be said that:

(i) Forward marketing linkages are weak because the processing that takes place in the factories is final and does not allow any other form of advanced manufacture. Thus any linkages that might exist are related to the packaging and marketing of the processed product.

In order that the tea industry can contribute more positively to the national economy, it is necessary that inputs in packaging (for both the local and export markets) are derived from local materials and thus promote other sectors of the national economy. Some of these inputs such as wood for making wooden chests are already being derived from within the country and thus promotes the timber industry. Any importation of paper for packing tea for local consumption should be stopped and local paper manufacture encouraged to satisfy the industry's needs.

(ii) The marketing of tea locally is at present satisfactory since there are appointed distributors in each district. In order to develop wholesale and retail trade in the

country, it is necessary however, to ensure that a large number of people as possible participate. Thus further decentralization of wholesale activities from the district level to the divisional or locational level is necessary to ensure the entry of more businessmen into the wholesale business and thus distribute the benefits to a larger number of people than at present where one wholesaler has a monopoly of tea distribution business in the district.

5.4 SUMMARY OF RURAL DEVELOPMENT PROBLEMS AT LOCAL, REGIONAL AND NATIONAL LEVELS.

Rural development involves the raising of incomes and thus standards of living of the majority of the poor populations living in the rural areas of the country. Rural development will also involve not only increased incomes but also increased provision of services and infrastructure that contribute to the raising of the welfare of all. The tea industry can be said to contribute to this process by providing infrastructure and services in the form of 'tea roads', extension services and farm credit. It also provides incomes and employment and thus the raising of standards of

living in the rural areas. Thus an improvement in the operations of the KTDA will help the organisation to significantly contribute to rural development.

At the local level, rural development problems and constraints revolve round the problems of farm level operations such as extension services, scale of production and labour inputs. Added to these are those problems already identified in green leaf marketing and operations of the buying centres. It has already been recognised that the adoption of tea has usually started from the 'progressive farmers' in the rural areas. The tea development programme, in order to contribute to the development of the rural areas and benefit all residents of the rural tea growing areas must aim at incorporating those people regarded as the rural poor. In this way smallholders will use part of their pieces of land for production of a high value cash crop and thus maximize output and incomes from their land holdings. This necessitates the intensification of extension services and increased husbandry standards to earn more income and make best use of available land.

At the regional level, total incomes created by tea are significant. It has already been shown

that the district earned Kshs.70 million in 1979 from smallholder tea which is a significant contribution to the regional economy. The industry also creates employment in the factories, farms, and related marketing activities. Raising incomes at the various levels would be important in increasing standards of welfare in the region. The alleviation of rural development problems at the local levels would contribute to alleviating similar or related problems at the regional level. However increased incomes earned from the industry must be spent and invested in sectors such as rural industrialization, rural housing, and trade and commerce in order to create more employment and incomes in other sectors of the regional economy.

At the national level, policies that concentrate on high value export crops often result in the products grown often leaving the country with little trace or effect on the national economy. This is particularly true where the export crops are grown on plantations which are often foreign owned with resultant repartriation of profits overseas. The smallholder tea scheme in Kenya is a significant departure from this trend as it alters not only the income levels but also the level of infrastructural

facilties available in rural areas. Similar programmes for other cash crops in the country would considerably raise the incomes and standards of living of the rural populations in Kenya. One significant problem for the country is the instability and general decline of the world producer prices as compared to prices of oil and machinery imported.

It is important that the foreign exchange earned by the ccuntry be used for buying of farm inputs such as fertilizer, seed, and machinery, for use in the agricultural sector to further develop the agricultural sector which is the backbone of the country's economy and contribute to the process of rural development.

CHAPTER SIX

SUMMARY AND RECOMMENDATIONS

6.1 SUMMARY

Past approaches to rural development in Kenya have only succeeded in stratifying rural populations and benefitting a few. To this has been added the lag of rural areas behind urban areas because of skewed allocation of resources in favour of urban areas while rural areas still possess the majority of the population of the country.

Current regional development strategies focusing on urban areas and growth centres have not been able to integrate the spatial economy and reach the rural poor. This study examines the role of agro-based industries such as tea in the promotion of rural development and identifying linkages which could be strengthened for the benefit of the regional economy. It is assumed that the type and strength of linkages will to a large extent be determined by the nature of the product of an industry. This will influence the development process in the rural areas.

The study focused mainly on an examination of the linkages between the tea industry and the rural economy in Kisii district. It emphasized the identified backward and forward linkages of the tea factories to the rural economy. This involved

an analysis of activities at the various stages of the linkages structure, namely; the farm, buying centres and transportation (backward linkages); packaging, wholesale and retail trade, and sale for export (forward linkages). The tea industry was however identified as possessing a weak forward linkage structure with the regional economy because of the nature of the product which does not induce other forms of manufacturing activity. Backward linkages of the industry were however seen as being able to alter the structure of the regional economy by increased infrastructure, incomes and employment.

The study also analysed the development situation in the district and found that the problems of rural development revolve round the issues of the predominance of agriculture in a situation of increasing land scarcity because of increasing population. It is the author's belief that for future development of the district the aim must be to develop the agricultural potential of the district to the full so as to increase the carrying capacity of the district. This would enable the district to absorb more people and to increase incomes and employment. In the long run the aim must be to decrease population growth and to start small scale

industries so as to increase linkages between sectors and make the process of development both self-sustaining and self generating. In the medium term however, the aim must be to increase productivity of cash crop growing and the efficient organization of production and marketing. Tea being a major cash crop in the district could significantly contribute to the development of the district if the existing linkages could be strengthened and production more efficiently organized. Thus the study has suggested an alternative spatio-organizational model of production that would decrease organizational costs of the KTDA leaf collection machinery and thus make it possible for farmers to be paid more for their produce. This would raise incomes and contribute significantly to rural development.

6.2 RECOMMENDATIONS

The discussion in chapter five has highlighted the problems identified in the linkage structure of the tea industry in the district. It has also suggested solutions which should be considered to make the operations of the industry more efficient and contributory to the rural economy. We shall proceed to make recommendations depending on

priorities and, hopefully, a realistic assessment of implementing capacity. Short term recommendations are those that can be implemented in the present plan period (1979-83); and medium term changes are those that can be implemented in the next plan period (1984-88). Long term changes will involve a period of ten years or more.

SHORT TERM

Having noted that standards of crop husbandry in the district can be improved, it is suggested that extension officers concentrate on inculcating to the smallholders the need for better standards of crop husbandry. This will involve better care and application of fertilizers during the initial period of establishment of the crop and better plucking standards during the bearing period.

In view of the fact that past extension approaches have concentrated on 'progressive' farmers to the exclusion of the majority of smallholders, this study recommends that extension approaches be shifted to focus on the rural poor with a view of incorporating them in the market economy. This will spread the benefits of development to the largest segment of the rural population by raising incomes and employment.

Recognising the difficulties experienced in the transportation of green leaf to the tea factories because of the poor condition of tea roads particularly during the rainy season, it is recommended that the KTDA should purchase four-wheel-drive vehicles since murraming and bituminization cannot be done in the short run given the high costs of road construction.

Malpractices by leaf collection clerks in the buying centres have been noted as a problem that afflicts marketing of green leaf. Supervisory staff should be employed to decrease the incidence of such malpractices.

Conscious of the fact that the low wages in the factories decrease the amount of money that can be repatriated to the families of the operatives, it is recommended that the criteria for payments be changed from being based on level of formal education attained to productivity of operations performed.

MEDIUM TERM

The construction of good access and feeder roads is essential for the efficient marketing of farm products. The KTDA and the Ministry of Transport and Communications should improve tea roads

by murraming and, if possible, bituminization in difficult sections so that green leaf can be transported efficiently to factories.

With regard to the spatial organization of production, it is noted that increased competition from other high value cash crops poses a challenge to the future growth of the tea industry in the district. In order that tea remains attractive to farmers, the efficient organization of production and marketing is necessary. In order to be able to do this, not only must crop husbandry be increased, but also, location of buying centres should be convenient to farmers. The spatio-organizational model outlined in chapter five would ensure that leaf output in a particular area would be large enough to ensure a closer spatial spread of buying centres and thus greater attrativeness of tea relative to other crops, other factors remaining constant. The suggested model should also decrease leaf collection costs for the KTDA making it possible for decreased cess and increased payments to smallholders.

LONG TERM

In the long term, in order to achieve integrated rural development in the district, the aim should be

to diversify economic activities such that agriculture and industry complement each other. Incomes from the agricultural sector should be invested in cottage and handicraft industries and smallscale industries producing farm inputs so as to integrate the two sectors.

FUTURE RESEARCH RECOMMENDATIONS

It has been shown that agro-industrial enterprises if properly organized can contribute significantly to rural development. Thus future research should aim at:

- Identifying other agro-industrial establishments whose organization can be improved in order to contribute to rural development. This will involve the suggestion of an optimum spatial arrangement of production that uses available capacity and increases linkages with the rural economy.
- Research into ways of mobilizing the incomes earned from the agricultural sector into profitable small scale industries that would integrate the space economy and increase employment and incomes in rural areas.

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APPENDIX

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QUESTIONNAIRE ON TEA PRODUCTION.

Questionnaire Number .....

Location .....

1. Size of farm holding .....
2. Size of tea plot .....
3. Volume of output of green tea per month .....
   or per year ..... (in Kls.)
4. (a) Number of farm labourers employed .....
   (b) Wages per month per labourer .....
   (c) Where does each labourer come from (location)
   .....
   (d) Amount of family labour used in tea plot ....
   .....
5. How many tea pickings do you make per week .....
6. Are you able to get all the labour you need for your tea plot .....
   ....
7. What is the average income earned from tea per month ..... and per year .....
8. What is the income from other crops grown .....
   .....

9. What other crops do you grow .....
.....

10. How often are you visited by agricultural field extension officers .....

11. Do you have a loan for the promotion of your tea crop (e.g. fertilizer loan) .....

12. Do you want to grow more tea .....
If so, how much .....
If no, why .....
.....

13. Is there a conflict of interest between growing tea and other crops in terms of labour and land available .....

14. Which is the best paying crop .....

15. Which is the most demanding crop in terms of labour and attention needed .....

16. How do you transport your tea to the buying centre .....
.....

17. Is the buying centre conveniently located to serve you .....
.....

18. What problems do you experience in the marketing of your green leaf .....
.....

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19. What other problems do you experience in producing tea .....

.....

20. How do you think they could be solved?

.....

.....

.....