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THE KENYA SOCIAL AND INSTITUTIONAL PROFILE

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THE KENYA SOCIAL AND INSTITUTIONAL PROFILE

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SOCIAL AND INSTITUTIONAL PROFILE

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PREFACE

The SIP Concept

In 1975 the Agency for International Development began to require the preparation of Social Soundness Analyses as part of the project design process. The purpose was to help make projects more congruent with local-level socio-economic, political, and institutional circumstances, on the assumption that by so doing the effectiveness of many development activities could be increased. It was thought that the social analyst, by working on the project design team along with technical, economic, and other experts, would have an opportunity to inject awareness of local-level conditions into the discussion of design options and thereby improve the quality of the final product. In practice a number of difficulties became evident.

When first introduced, social analysis was seen as an additional element in a set of feasibility analyses[1] which were required as part of a fairly lengthy design process. In 1977, however, steps were taken to shorten the design process, with the result that social and other analyses were moved to the last step in project design--preparation of the Project Paper. This led to difficulties because, although formal commitments to projects or project elements are not allowed prior to the signing of the Project Paper, any number of informal understandings are in fact reached much earlier in the project development process. These mutual understandings (between the Agency, the host country, and perhaps other parties) grow inevitably out of day-to-day working relationships, and without them it would be difficult for any of the parties involved to commit themselves to the expensive process of formal project design. But the outcome is that many aspects of project design are in fact determined long before preparation of the Project Paper, and therefore long before the arrival of social or other analysts. Obviously there are many instances where the social analysis cannot contribute to project design because the design is nearly finalized. This is because as deadlines approach it can be very difficult to make even minor adjustments to projects, especially when the concurrence of many interested parties must be sought.

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1. Other project analyses focus on economic, financial, technical, institutional, and environmental issues.

As a response to these difficulties, and in recognition of the usefulness of the social perspective in project design, there has been a steady, if informal, progression of social analysis "upstream" in the project development cycle. Social analysts frequently participate in the preparation of Project Identification Documents, feasibility studies, and Country Development Strategy Statements, and many missions have thus found it possible to use social analytic skills in a productive and creative way.

It was with this experience in mind that AID social analysts in Washington and in the field began, in 1980, to explore seriously the possibility of institutionalizing the use of social analytic skills at an early point in the project development cycle. A number of mechanisms for accomplishing this were proposed, but for various reasons attention soon centered on the notion of a country-level Socio-Economic or Socio-Institutional Profile. It was thought that such profiles would, by analyzing national development issues from the special perspective of social analysis, provide a framework of criteria that could be used to assess the social soundness of program or project ideas at a very early stage; furthermore it seemed likely that such profiles would themselves generate useful program and project ideas.

Accordingly a pilot program to finance a half-dozen or so Socio-Institutional Profiles was initiated by AID/Washington in mid-1981. Simultaneously but independently, the Kenya Mission resolved to prepare a Profile. This document is the outcome of that decision.

A final word about the role of project level social analysis is in order. Even if the SIP fulfills its purpose of contributing to mission country programming, the need for project level analysis will not be diminished. This is because sociological, economic, and political patterns can vary drastically within provinces, within districts, and within communities. To achieve maximum (or sometimes any) impact, interventions must be tailored to respond to these variations. In addition, long-lasting developmental outcomes require the participation of local people and groups in the identification of needs and appropriate solutions. This must be done within the context of a specific project design effort. Finally, social analysis is most productive when the analyst can make his or her assessment with a clear understanding of the specific intervention proposed. The SIP obviously can address none of these concerns, since it is not possible to illuminate local-level processes to the extent required, and because few decisions have been made about the array of interventions that might be pursued during the next several years. Nevertheless,

the SIP should make project level analysis less burdensome. In the past, many project analysts have reviewed national-level processes to outline the socio-economic context of the proposed project. To a large extent, this can now be done by reference to the SIP, and much replication of analysis and waste of effort can be avoided. Moreover, if the project itself has been conceived in broad congruence with the criteria developed in the SIP, then the number of outstanding social issues will be minimal. In either case it should prove possible for the project analyst to focus his or her attention on issues that are in fact project issues rather than national issues; in this way the effectiveness of project social analysis will be improved and the design process expedited.

When the possibility of undertaking a SIP was first discussed in Kenya, several ground rules were adopted by all concerned. It was agreed that the primary analytic and writing tasks should be done by people with a firm grounding in social science, with East African local-level experience, and with considerable AID experience as well. The assumption, since shown to be correct, was that the relevant professional skills would be of little use unless they could be applied in conformity with AID's particular approach to development planning. In the event, much of the material assembled by participants without direct AID experience had to be reworked considerably before it could be fit into the document.

A further consideration was that, so far as possible, only people currently in Kenya would be involved. This was done to hold down costs incurred through foreign travel and to lessen the inevitable coordination and communication difficulties. Using locally-available people has, on the whole, worked out well, although in some cases this has meant not drawing on particular topical experts whose understanding of Kenya could have improved the quality of the analysis. A major disappointment has been our failure to engage eminent Kenyan social scientists more directly in the production of the document. There were substantial reasons why this was not done, related to the difficulty of arranging the required small contracts, timing, the fact that these people are largely over-extended in the first place, and the internal character of the document; but despite all this there is no question the effort would have benefitted from more Kenyan participation.

A third condition was that the document would draw only on secondary sources; that is, it was not intended that the SIP exercise would, through research, generate new data. This was done to hold down costs, and seemed particularly appropriate in the Kenyan context since country literature is relatively

abundant. But we have found some important topics to be poorly-understood: urbanization, the role of non-governmental institutions in development, and the impact of education on employment are some of these. To cover gaps some primary data have been collected, but constraints of time and money prevented full-scale research efforts. In some other areas, such as energy, education, and nutrition, we have been able to draw on the results of original research not yet available to the public. But on the whole the SIP is grounded on published and unpublished materials with which most Kenya experts will already be familiar. Inevitably, many readers will find little new in the data presented here, although the analysis and conclusions drawn are in some cases not congruent with previous assessments.

This brings us to a final consideration, which is the perspective adopted by the authors in reviewing the data and forming conclusions. As development anthropologists, our intent throughout has been to illuminate those aspects of social, institutional, and micro-economic processes in Kenya which, in the past, have influenced the impact of development assistance, and which therefore ought to be considered when future development assistance is being planned. But the focus here is not on a particular village, tribe, project, ministry, or other small unit of human endeavor; it is on the nation as a whole. Thus we have specifically foresworn the rigorous examination of all contingent variables in particular settings for a broader approach designed to elicit facts of relevance to national-level development planning. This approach is not without its costs. Books have been written on most of the issues discussed here, and so in some cases we have dealt shortly with topics that in fact are very complex. We make no excuses for this - the arguments presented, while at times incomplete, are meant to shed light on that particular range of social, institutional, and economic phenomena with which we are concerned. A more serious consideration is the extent to which we have abandoned the strengths of anthropology, which are most evident in particular, often closely-circumscribed settings. But we assert that the long-honored role of the anthropologist as an analyst of local-level processes must be surmounted if development anthropology is to come of age. Developmental outcomes which are unsatisfactory at the local level are rarely caused by events or processes that can be analyzed at the local level. Thus it seems necessary to adopt a broader perspective, one which can encompass not only the circumstances surrounding the final impact of development activities but also the circumstances surrounding their conception, design, and implementation - and to do so in a national setting which

allows us to evaluate the needs and capacities of various categories of people in proper proportion. If an analogy may be drawn, we suggest that the distinction made here is similar to that between micro- and macro-economic analysis. By attempting what may be called "macro-anthropological" analysis, development anthropologists might more consistently place themselves in positions to influence the macro-level decisions that in fact determine much of what happens in international development.

This current document, incomplete and imperfect, is meant as a step in that direction.

CHAPTER I: INTRODUCTION

The most important fact about Kenya is that population is growing at 4.0% per year. This is the highest national rate of growth in the world, and it may climb higher. Enormous strains are being placed on economic and social infrastructure, and rates of agricultural and industrial growth that would in other countries be admirable seem wholly inadequate. Since Kenya remains a largely agricultural country, the burden of high population growth falls most heavily on the agricultural sector.

Kenya is poor in good-quality agricultural land; only about 18% of the total land surface is thought to be of high or medium potential.[1] Population growth on this limited resource base has generated two trends that concern us here: increasingly high densities on good agricultural land, coupled with migration out of the high density areas into sparsely-populated places. In later chapters we document some of the social, economic, and agrarian impacts of these trends; here we sketch in the dimensions of the population movements involved. The first step is to look at population densities as these have changed during the period 1969-1979. To present an accurate picture of pressure on agricultural land, the index of density chosen is population per KM^2 of high and medium potential land. Table 1.1 presents these data for all provinces.

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1. See Chapter Four for a discussion of various land classifications. The three categories utilized here are those of the Ministry of Economic Planning:

   High Potential: annual rainfall over 857.5 mm except Coast Province (over 980 mm).

   Medium Potential: annual rainfall of 735-857.5 mm, except Coast (735-980 mm) and Eastern Province (612.5-857.5).

   Low Potential: annual rainfall of 612.5 mm or less.

   Obviously this scheme has little analytic power, but the picture it presents, of little high quality land, is accurate.

TABLE 1.1. POPULATION DENSITIES ON HIGH AND MEDIUM POTENTIAL LAND, 1969 - 1979 a/

Province	Area b/ (000KM^2)	(%)	Population (000) 1969	1979	(1979%)	Density d/ 1969	1979
Central	9.24	9.3	1676	2348	15.3	181	254
Coast	11.69	11.8	944	1339	8.7	81	115
Eastern	26.92	27.1	1907	2717	17.7	71	101
Nairobi	0.16	0.2	509	835	5.4	NA c/	NA
N.Eastern	0.0	0.0	246	373	2.4	NA	NA
Nyanza	12.52	12.6	2122	2634	17.2	170	210
Rift Valley	31.48	31.7	2210	3240	21.0	70	130
Western	7.41	7.5	1328	1836	12.0	179	248
Kenya	99.42	100.0 e/	10942	15322	100.0 e/	110	154

a/ Based on Ominde (1981:162-163).
b/ High and medium potential land only. From Statistical Abstract 1981:98.
c/ Not applicable.
d/ In persons per KM^2.
e/ Small divergencies are due to rounding errors.

The most densely populated provinces are Central and Western, where district-level densities climb as high as 318 persons/KM^2 (Kakamega) and 340 persons/KM^2 (Murang'a). Location and sub-location densities can exceed these figures greatly, however. Some sublocations in Kakamega, for instance, reached densities of "well over 1000 persons" per KM^2, while some Murang'a sublocations had densities of about 700 persons/KM^2 (Ominde 1981). At the same time many other areas had densities well under 100 persons/KM^2: Lamu, Tana River, Kitui, Narok, and Samburu. It is important here to recall that these densities are based on areas of high and medium potential land only, and so they reflect to a considerable extent over- and under-exploitation of Kenya's most valuable commodity. This can be seen most plainly in Narok District, which contains over 9% of the nation's good quality agricultural land, but only 1.4% of the population. Not surprisingly, the relatively under-utilized areas are often targets for migrants from other, densely-populated places. Nearly one-third (31.9%) of the population in sparsely-settled Nyandarua, for instance,

originated in more populated parts of Central Province; similar patterns are found in places as diverse as Narok and Lamu (Beskok 1981). Those places where good-quality agricultural land is relatively under-utilized are also places where population is growing most rapidly, due to the combined effects of high birth rates and high rates of in-migration. Average annual increases of over 5% were observed in both Tana River and Lamu Districts, as well as in six of the most fertile districts in Rift Valley Province.[1] Obviously these places are coming under a great deal of pressure as land-short farmers move there to gain access to cultivable land, land which in many cases belongs to relatively wealthy large-scale farmers. Much of this land may appear to migrants to be relatively unused, and indeed the large-scale mixed farms may often not make full use of the resources at their command. Table 1.2 shows, for those provinces where large farms are found, the percentage of land held by large farms which is cultivated.

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1. Trans-Nzoia (7.7%), Laikipia (7.2%), West Pokot (6.8%), Nakuru (6.0%), Kajiado (5.6%), and Narok (5.5%).

TABLE 1.2. LARGE FARM LAND UTILIZATION BY PROVINCE, 1977 - 1980 a/

Province	1977 HA (000)	1977 % Cult.	1978 HA (000)	1978 % Cult.	1979 HA (000)	1979 % Cult.	1980 b/ HA (000)	1980 b/ % Cult.
Central	314.9	29	312.6	30	305.3	29	339.0	19
Coast	83.0	63	80.7	64	87.2	54	94.6	67
Eastern	275.2	16	284.6	17	287.4	17	290.0	14
Nairobi	26.1	15	26.6	15	26.8	19	26.7	20
Nyanza	26.1	63	43.2	52	29.8	62	29.7	62
Rift Valley	1791.3	24	1779.1	24	1816.6	23	1766.6	19
Western	5.7	93	9.8	62	9.8	73	9.8	73
Kenya	2522.3	26	2535.6	26	2562.9	25	2556.4	21

a/ Based on Statistical Abstract 1981:106-113.
b/ Before 1980 unused land was described as "Uncultivated meadows and pastures." In 1980 the category was re-labeled "Natural grazing and other land."

Overall rates of cultivation in the large-farm areas thus run at about 25%, and may be declining. However, large farms also have substantial livestock holdings; in 1980, for instance, a total of 704,900 cattle and 306,200 sheep. Thus much of the uncultivated land is undoubtedly used for grazing. On the other hand, livestock holdings on large farms have been declining steadily over the period 1972-1980: by 10% in the case of dairy cattle, 12% for beef cattle, and 16% for sheep (Statistical Abstract 1981:114). But whatever the circumstances may be with regard to grazing, there is no question that much of the land involved is also suitable for arable cultivation, and therefore attractive to migrant and squatter farmers. Throughout the late 1970's and into the 1980's, local newspapers carried many accounts of conflict between land-owners and squatters in these areas. It is probably also significant that, while large-farm herd sizes and cultivated areas have been shrinking, expenditure on fencing has grown: by 747% from 1972 to 1980 (Statistical Abstract 1981:114), a larger percentage increase than is found in any other category of capital expenditure. A glance around the world toward Latin America and Asia (Ethiopia is an example close to home) will serve to remind the reader that situations of this sort carry with them the gravest implications for

continued social and political stability. The 1979-1983 Development Plan acknowledges that this problem requires "rapid action" (Vol. I:232), and spells out some of the issues involved, but matters such as these are by their very nature rarely amenable to rapid solution.

In this section we have reviewed some basic trends with regard to population growth, migration, and the utilization of good quality agricultural land. Although each of these areas will be examined more fully in later chapters, enough has been said here to show that land and land utilization will become increasingly at issue during the remainder of the century. As we focus our attention on the variety of conventional agricultural interventions that seem to make sense in rural Kenya, it should not be forgotten that these will address problems only among the landed rural population. For the landless and near-landless, who constitute a growing proportion of the population, only land redistribution and off-farm employment growth will lead to any substantial improvement in living conditions; and only initiatives of these types will hold promise of allowing these categories of the population to contribute fully to their nation's development.

The most important conclusion stems from the identification of Rift Valley Province as a major reserve of under-exploited high and medium potential agricultural land. This area, taken up for the most part by large farms owned by Kenya's bureaucratic-managerial elite, will be the scene of growing conflict during the next 20 years as land-poor migrants and squatters strive to gain access to a valuable and under-utilized resource. Far-sighted development planners will recognize the need to accommodate and legitimize this process, because the land issue like no other in Kenya has the power to stir emotion to the point of violence.

Population growth and land shortage are the basic parameters within which Kenyan development planning must proceed. But obviously many other aspects of Kenya's social, institutional, and economic fabric must also be considered. Thus, in Chapter Two, we take an analytic look at the social and economic characteristics of Kenya's population, and isolate the groups most important for development planning. Smallholders emerge as the single most important group, but there are variations according to location, income, and access to off-farm employment that have profound implications for development planning. Other important groups are pastoralists, migrant or squatter farmers, urban populations, and women (especially rural women). We describe the salient characteristics of each group, analyze on-going socio-economic processes that are in some cases transforming the character of the groups, and draw out the developmental implications.

Chapter Three anticipates the analysis of the topical sections (Chapters Four through Nine) by observing that the Kenyan institutions officially responsible for implementing development (ministries of agriculture, health, water, community development, and so forth) are saturated with development assistance, staggering beneath a burden of administrative inefficiency, and are themselves becoming obstacles to development. Although conventional analysis prescribes more manpower, more training, and more money to deal with these problems, we think it appropriate to explore alternative institutional mechanisms. Bilateral development assistance must always pass through government channels, of course, but there are a number of ways in which the deadening effect of government involvement can be minimized. We give particular attention to the role of local (as opposed to central) government, and to a variety of private organizations ranging from traditional cooperative work groups to major commercial banks. The chapter closes with a consideration of the extent to which these various institutional mechanisms have penetrated peripheral areas of the country. Predictably, those areas of the country which are most severely underdeveloped are also those in which non-governmental institutions are least in evidence. This has obvious implications for the effectiveness of private-sector interventions in these places, and simultaneously points up an appropriate role for government.

Chapter Four begins our consideration of topical, or sectoral, areas of concern by focusing on agriculture. The enormous diversity of peasant agriculture in Kenya is reflected in the range of issues covered. Many different technical or institutional interventions are possible, a variety of geographical emphases can be justified, and there are some basic disagreements about the nature of the underlying agrarian processes which generate poverty, inequality, and declining output. Our concern that Kenya follow a socially viable development trajectory is reflected in the weight we give to increased agricultural employment as a criterion of effective agricultural development. We feel that increased output alone will not generate a long-term development solution.

Off-farm employment is vastly important in Kenya, not only because it is through such employment that a productive life can be found for growing numbers of un- and underemployed people, but because historically off-farm employment has supported much agricultural innovation. Thus in Chapter Five we give special attention to the problem of stimulating Kenyan industrial development, this being an obvious mode of employment generation. The roles of direct foreign investment and government intervention are examined; neither is seen to hold much promise in purest form. A compromise strategy to promote indigenous small business through private sector interventions is suggested.

Chapter Six is a discussion of appropriate routes to energy development in Kenya. By good fortune we have had access to recent, high quality data, generated largely under the auspices of the Ministry of Energy, and this allows us to be much more concrete in our analysis and recommendations than would be possible in many other countries. The primary conclusion is that agroforestry holds the key to successful energy development in rural areas, where woodfuel will be the dominant energy source for the foreseeable future. A secondary conclusion is that rural energy development is a necessary complement to agricultural interventions, since patterns of biomass consumption are beginning in some areas to undermine rural production. But no government program is likely to achieve the level of effort, required, because manpower and investment requirements are enormous. Only by serving as a catalyst in support of the efforts of individual farmers, various voluntary organizations, and perhaps private seedling nurseries, can government and development planners expect to engage the resources needed.

Chapter Seven reviews the determinants of fertility in Kenya. The major conclusion is that fertility is not declining, rather it is growing, and the only practices limiting fertility are traditional ones: prolonged breast-feeding and polygynous marriage. Modern contraception plays almost no role in restraining fertility. Nevertheless, an examination of the socio-economic backgrounds of family planning acceptors points the way toward priority target groups and appropriate institutional mechanisms. Because children are so highly valued in Kenya, little can be accomplished directly by the simple provision of family planning materials; instead, major efforts are needed to foster the spread of socio-economic conditions and attitudes that encourage smaller family size. This suggests a major role for initiatives to generate employment (especially among women), programs to insure that young women receive full primary education, and further reductions in child mortality, since these seem to be the primary modern determinants of reduced fertility.

Chapter Eight is a review of the Kenya education sector, focussing on differential access, costs, benefits, and the roles played by a range of institutions involved in the educational process. We found education in Kenya to be important in many diverse ways: education is at the heart of emerging patterns of social stratification; education is a prime determinant of agricultural innovation; mother's education is the most important determinant of infant mortality; and it is only with full primary education that women begin to experience a decline in fertility. As all these matters became clearer, the need for a rather detailed analysis of the educational system became greater. Thus the education chapter buttresses some of the conclusions reached in Chapters Two, Four, Five, Seven, and Nine.

Chapter Nine focuses on selected aspects of health and nutrition in Kenya, primarily as these influence outcomes in other sectors such as agriculture and fertility. In the health sector, we find that education is at the center of child mortality patterns, with obvious implications for development planning. We also find that fully 50% of the health care provided in Kenya comes from the private sector, more specifically, from Protestant and Catholic churches. Even more important, the unit costs of private sector services are about one-half those of public facilities. Again, there are obvious planning implications.

The distribution of chronic protein-energy malnutrition in a nation can usefully be seen as a reflection of patterns of development and underdevelopment. Although nutrition among neonates and children under the age of 18 months or so can often be laid to problems with breastfeeding and weaning foods, sustained chronic PEM among children under five is caused by underlying economic and institutional processes that combine to reduce the amount or quality of food available to families and individuals. The role of disease is also important, but the dominance of economic factors is revealed when we find--as is often the case in Kenya--that there is great variation in malnutrition among households even in single communities, where all households face a similar disease environment, and where access to medical help is uniformly poor. From an analytic perspective, then, patterns of malnutrition across regions and within communities can shed light on the effectiveness of past development planning, and help inform plans for the future. These considerations made it important to review Kenyan nutritional circumstances in some detail.

Chapter Ten, Conclusions, is presented in two parts. The first is a review and assessment of the inter-sectoral linkages identified in the topical analysis. These are not merely of academic interest, because it is important to avoid initiating activities in one sector that have negative impacts in another. Furthermore, it is possible to increase the effectiveness of development assistance by designing interventions that have a positive influence in more than one area of concern. Important linkages are those between agriculture and energy, employment generation and industrial investments, and between education and a number of areas of activity.

Lastly we present three fundamental criteria according to which development planning might proceed. First, that all elements of the population must participate equally in development. Kenya cannot afford to ignore or through poor policy diminish the contribution of any productive group. Second, that approaches must be found that lessen or at least do not increase the dependence of farmers on over-burdened decision-makers in central government. There are in Kenya a

vast array of non-centralized and non-governmental development-linked institutions that could play a more forceful role in development with benefits to local people and the national economy alike. And last, that adequate attention be given to ameliorating the hardening patterns of social stratification, which will by generating landlessness and unemployment increasingly lessen the effectiveness of nearly all development strategies.

CHAPTER II: SIGNIFICANT GROUPS FOR DEVELOPMENT PLANNING

A. Introduction

Society and economy in Kenya are enormously diverse. Attempts to capture this diversity and reduce it to a form suitable for development planning have used a wide variety of categorizations. These include livelihood systems, income groups, class alignments, administrative units, and agro-ecological zones. Each such framework has been developed to suit a particular purpose; most overlap with others; all are determined by the availability of data; and no single framework can express all that is significant about Kenyan socio-economic patterns. Thus, the question is which minimal set of classifications to use which will in combination efficiently summarize the patterns most germane to development planning. Here we use a broad socio-economic classification to begin the discussion of significant groups in Kenya, and resort to special-purpose classifications to illuminate particular issues of significance.

The relative sizes and earnings of important socio-economic groups are illustrated by Table 2.1 in rough order of magnitude. The urban sector is small (about 10% of the population), but well-rewarded (earning 43% of national income). The largely agricultural rural sector accounts for about 85% of the population and slightly less than one-half of national income.[1] The urban-rural disparity is substantial but difficult to interpret because there are substantial flows of people and wealth between urban and rural areas (see pp. 30-31 below).

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1. About 5% of the population are landless, some of whom are found in rural and some in urban locations.

TABLE 2.1. SOCIO-ECONOMIC GROUPS AND INCOME DISTRIBUTION, 1974/5 a/

Category	Population(%)	Income(%)
Urban	(9.8)	(42.8)
Nairobi	4.9	23.9
Other	4.9	18.9
Rural	(85.6)	(49.0)
Smallholders	72.3	39.0
Pastoralists	5.1	1.0
Large Farm Squatters b/	4.2	2.2
Gap Farms c/	1.9	5.0
Migrant Farmers d/	1.4	0.4
Pastoralist Farmers e/	0.5	0.3
Large Farms	0.1	1.1
Landless f/	(4.6)	(8.2)
Poor occupations	2.9	1.7
Good occupations	1.7	6.5
TOTAL	100.0	100.0

Source: Based on Collier & Lal, Poverty and Growth in Kenya, IBRD 1980, as presented in Livingstone 1981:14.8.

a/ Many of the estimates appearing in this table are based on informed guesswork. The data on urban areas, smallholders, and large farms are most reliable.

b/ These are smallholders occupying land in the former "white highlands" under a variety of informal and insecure tenancy arrangements.

c/ So-called because they are in a size range (8-20 ha.) not covered in either the smallholder or large farm surveys.

d/ Farmers who have been squeezed out of their home areas, often in high-potential areas, and now live in semi-arid zones where agriculture is a marginal undertaking.

e/ Pastoralists who have taken up agriculture as an adjunct to herding, often an indication of poverty.

f/ The landless are found in both urban and rural areas.

In the following pages we discuss in some detail the more important categories listed in this table.

B. Socio-Economic Groups

1. Smallholders

The possibilities for smallholder development are significantly determined by the availability of high and medium potential agricultural land, which is both scarce (constituting about 18% of all land) and unequally distributed around the country. However, there is no simple correspondence between the availability of good agricultural land and achieved levels of economic development. Table 2.2 compares provinces with respect to the mean per-capita availability of high and medium potential land and with respect to the mean per-capita value of household consumption.

TABLE 2.2. PROVINCIAL VARIATION IN PER-CAPITA AVAILABILITY OF GOOD AGRICULTURAL LAND AND IN THE PER-CAPITA VALUE OF HOUSEHOLD CONSUMPTION, 1974/5

Province	Land Index a/	Consumption Index b/
Rift	495	92
Coast	217	79
Eastern	118	120
Nyanza	51	78
Central	42	130
Western	40	76
Kenya	100	100

a/ Larger numbers indicate greater availability than smaller numbers. The index is based on the smallholder population density per KM^2 of high and medium potential agricultural land. Smallholder population figures are taken from Republic of Kenya, IRS 1974/5:23; figures for the area of various categories of agricultural land are taken from the Republic of Kenya, Statistical Abstract 1980:98.

b/ Larger numbers indicate higher levels of consumption than smaller numbers. The index is derived from IRS 1974/5:53, with a correction for variation in mean household size across provinces.

Central Province, which is most wealthy, and the two poorest provinces (Western and Nyanza) are all alike in that they are composed primarily of land classified as high potential which is heavily populated. From the perspective of development planning, it would clearly be misleading to regard all high or medium potential land as having the same fundamental capacity for development, or to assume that a development initiative suited to one high potential area will be suited to all. Much the same may be said for areas of low potential. Thus, the classification of Kenya's smallholders into groups occupying high and medium potential land versus those occupying low potential land is probably too blunt to be of much utility in development planning. A more refined approach is the agro-ecological classification developed by the Kenya Ministry of Agriculture, which is based primarily on the suitability of different locations for the production of the major cash crops of tea, coffee, and cotton.[1] The table below shows the distribution of the smallholder population within these agro-ecological zones, and compares them with regard to the mean value of household consumption.

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1. Several alternative agro-ecological classifications have been developed for Kenya; however, the fact that national survey data have been collected and analyzed according to the Ministry of Agriculture categories gives them particular utility. Although some questions have been raised lately regarding the validity of the process by which sample clusters were placed in different zones, we are able to discern important regularities within the zonal framework, which are of some use for analytic purposes.

TABLE 2.3. SMALLHOLDER POPULATION AND MEAN VALUE OF HOUSEHOLD CONSUMPTION BY AGRO-ECOLOGICAL ZONE, 1974/5

Zone	% of Population a/	Consumption Index b/
Coffee		
East of Rift	22	117
West of Rift	20	100
Tea		
East of Rift	12	172
West of Rift	10	79
Cotton		
Lower Cotton E. of Rift	8	81
Upper Cotton W. of Rift	20	64
Coast Composite	6	98
High Altitude Grass	2	n/a
Kenya	100	100

a/ Based on Livingstone 1981:14.12. The figures are approximations only but provide a rough order of magnitude.

b/ Kenya = 100. Derived from Republic of Kenya IRS 1974/5:61. The value of consumption is preferred to the value of income as an indicator of general economic prosperity because it is relatively impervious to drastic short-term fluctuations caused by crop failure or cattle disease. The available data did not allow this index to be corrected for possible cross-zonal variation in mean household size.

In all major zones--coffee, tea, and cotton--smallholders east of rift are plainly better off than smallholders west of rift. This is true even when the western zone is composed of high potential and the eastern zone is composed of low potential land, as in the case of the cotton zone. To draw out the development implications of this divergence between east and west, we will take a look at the livelihood systems prevalent among smallholders living in the various agro-ecological zones. It is appropriate to begin with a look at the sources of smallholder income, which include farming, off-farm employment, and remittances.[1] Table 2.4 illustrates the composition of household income among households in various income categories, and compares this across agro-ecological zones.

1. Rural employment patterns in Kenya are very diverse, resulting in a welter of descriptive terminology and much definitional confusion. In this paper, "farming" means working on one's own smallholding; "off-farm employment" means working somewhere other than on one's own smallholding; "non-farm employment" is a subset of off-farm employment which excludes labor on farms owned by others; and "wage employment" means any circumstance in which work performed is remunerated on a daily or monthly basis.

TABLE 2.4. PERCENTAGE COMPOSITION OF HOUSEHOLD INCOME BY INCOME GROUP AND AGRO-ECOLOGICAL ZONE, 1974/5

Zone	Income Group a/ Lower	Middle	Upper
Coffee			
East of Rift			
Farm	40	55	55
Wage	19	19	22
Other	42	26	23
West of Rift			
Farm	46	74	87
Wage	8	11	6
Other	45	14	8
Tea			
East of Rift			
Farm	29	85	46
Wage	8	4	10
Other	62	11	45
West of Rift			
Farm	76	68	50
Wage	7	14	35
Other	17	18	16
Cotton			
Lower Cotton East of Rift			
Farm	9	39	15
Wage	23	9	21
Other	68	53	63
Upper Cotton West of Rift			
Farm	48	62	39
Wage	4	11	38
Other	49	28	23
Coast Composite			
Farm	16	31	49
Wage	7	12	26
Other	78	57	24

a/ Lower Group=0-499 KSh per adult-equivalent per annum. Middle Group=500-1499 KSh per adult-equivalent per annum. Upper Group=1500+KSh per adult-equivalent per annum. The use of adult-equivalents corrects for variation in the size and composition of households across agro-ecological zones. Derived from Livingstone 1981:14.12, 14.26. "Farm" means farming income; "Wage" means regular wage employment income; "Other" is all other off-farm income, including remittances.

The following facts stand out. In a zone-by-zone comparison of the coffee, tea, and cotton areas, smallholders in the eastern zones are significantly less dependent on farming than their counterparts in the western zones; and this relationship holds generally true for all income groups.[1]

It is plausible to suggest that there may be a link between this consistent east-west divergence in the composition of income, and the equally consistant divergence noted earlier with regard to the value of consumption. Greater economic well-being (as estimated by levels of consumption) seems to attend greater access to non-farm sources of income. Hyden (1980:195), reviewing West African materials, has suggested that this pattern, whereby income sources are diversified, allows peasants to defend themselves against some of the inequities associated with unfavorable rural-urban terms of trade. Certainly in the Kenya case such a strategy appears rewarding; it may even be said to be essential, especially among low-income smallholders. In six out of seven zones, low-income smallholders (who comprise 44% of the total smallholder population) depend upon informal sector employment for as much income as they receive from farming and often much more.[2] For purposes of development planning, it may thus be misleading to think of this large category of the Kenyan population as "farmers." Many of these people can more appropriately be considered a rural proletariat (cf. Leys 1975:183), functioning primarily as a source of labor for wealthier smallholders and various urban or rural enterprises. The farming they undertake is often done more as a supplement to other activities than the other way around, and is aimed primarily at producing small amounts of staple foods for home consumption to ease the drain on cash earnings. Obviously this influences their interest in or ability to respond to agricultural development initiatives, a topic to which we return in Chapter Four.

In five out of seven zones, middle-income smallholders (comprising a further 45% of the smallholder population) depend upon farming for most of their income. The two exceptional zones (Coast Composite and Lower Cotton East of Rift) consist mostly of low potential land where farming is a marginal enterprise under current circumstances. In most parts of Kenya, therefore, it is appropriate to think of middle-income

1. There is one exception, middle income smallholders in the tea zones.

2. The absolute amounts of income generated through off-farm employment among this group are very small; but because farm income is also very meager the contribution of off-farm income to total income is large in percentage terms..

smallholders as being substantially involved in farming, even though they may continue to rely on non-farm activities for a considerable part of their total income. The wealthier category of smallholders, who tend to have more diverse sources of income than the middle income category, nevertheless remain solidly enmeshed in farming as an income-earning activity.

In sum, we have identified three dimensions that seem useful in distinguishing various categories of smallholders. The first is a very broad geographical division--smallholders east of rift have much greater opportunity for off-farm employment than those west of rift, and this may influence overall levels of material well-being.[1] The second dimension is based on income and the composition of income. This dimension separates smallholders into a lower 44% for whom farming is, generally speaking, a very marginal undertaking, and an upper 54% who are more substantially involved in farming as a productive enterprise. The third dimension is based on agro-ecological variation, and is primarily important insofar as it segregates smallholders into groups that currently have access to rewarding cash crops (i.e., those in the coffee and tea zones), and those that currently do not (those in the cotton zones). The table below shows the distribution of the smallholder population according to this three-dimensional scheme.

TABLE 2.5. PERCENTAGE DISTRIBUTION OF SMALLHOLDER POPULATION BY LOCATION, INCOME GROUP, AND AGRO-ECOLOGICAL ZONE, 1974/5

	East Income Groups				West Income Groups				
Zone	Low	Mid	Upper	T	Low	Mid	Upper	T	GT
Coffee	7	11	4	22	10	7	3	20	42
Tea	4	7	1	12	5	4	1	10	22
Cotton	4	3	1	8	11	9	0	20	28
Coast a/	3	3	0	6	-	-	-	-	6
TOTALS	18	24	6	48	26	20	4	50	98 b/

Source: Derived from Livingstone 1981:14.12.

a/ Coast Composite zone is placed with the eastern group partly on the basis of geography and partly because the composition of income by income groups there is more akin to the eastern pattern than to the western.

b/ The High Altitude Grass Zone is not included in this table.

1. East of the Rift Valley, economic infrastructure is also more fully developed, and there is greater access to urban and industrial markets. These are results of the same historical patterns of development which have generated increased employment opportunities.

In terms of development planning, it seems useful to make the following very general observations. The low income smallholders (who comprise 37% of all small holders in the east and 52% of all smallholders in the west) are, on the whole, unlikely ever to develop into a category of independent, secure, commercialized producers--as foreseen, for instance, by the ILO (1972:160-162). This is not only because they are currently poor, or because they are currently heavily dependent on off-farm income, but because strong processes are at work (see pp. 19-21 below) which will tend to tighten, not loosen, the constraints upon their upward mobility in a purely agricultural setting. Hence, the low income group now and increasingly in the future will benefit more from greater employment opportunities than from improvements in the technology of smallholder agriculture. This is not to suggest that these people should be excluded from agricultural initiatives; on the contrary, improved crop technologies should be made available to them as to other categories of smallholders. However, a responsible overall development policy must recognize that these people, for the most part, are not now and will not become "yeoman farmers." It is much more likely that they will become a landless rural proletariat, and unless steps are taken now to provide them with substantial and growing non-farm employment opportunities, they will in future become a source of grave domestic social and economic difficulties.

Middle income smallholders (who comprise 50% of all smallholders in the east and 40% of all smallholders in the west) may be thought of as the prime "target group" for conventional agricultural development strategies. They are more dependent upon agriculture than either lower or upper income smallholders, which is reflected in a proportionately greater investment in purchased farm inputs and greater use of supplemental farm labor (cf. IRS 1974/5:73). Facts like these signal an underlying commitment to farming, and suggest that this category of smallholder may be quite responsive to properly conceived agricultural initiatives.[1] These people are also more heavily dependent upon government channels for marketing of surplus produce than other income groups (IRS 1974/5:70, Table 8.29), which gives public policy additional leverage over their patterns of production. Needless to say, this leverage can be a good thing or a bad thing, depending on the content of policy; but the important point is that middle-income smallholders, without whose participation successful agricultural development will not happen, are particularly likely to respond positively to improvements in the management and structure of government marketing channels.

1. Evaluation of the S.R.D.P. program in the mid-1970's showed that "the most promising results were obtained through focusing extension activities on average farmers (as opposed to the most or least progressive)" (Weisel 1976:3).

In this section we have defined significant sub-groups of the smallholder population, and pointed to some of the more obvious implications for development policy. In the next section we examine important processes affecting various categories of smallholders.

Significant Processes

Two on-going processes are working to change the structure of the smallholder sector. These are changes in the distribution of land, coupled with an emergent system of socio-economic stratification based on access to education and rewarding employment.

Data on changes in the distribution of land over time in Kenya are scarce and often unreliable. The best materials have been assembled by Collier and Lal, and pertain to Central and Nyanza Provinces. Table 2.6 shows how the distribution of landholdings has changed in these places from the early 1960s to the early 1970s.

TABLE 2.6. DISTRIBUTION OF LAND IN CENTRAL AND NYANZA PROVINCES: CHANGES TO 1974

	% of Population	% of Acreage 1961 a/	1974	% Change in Share
Central Province				
Smaller Landholders	40	26.3	18.3	-30.3
Middle Landholders	30	29.7	27.9	-6.2
Larger Landholders	30	44.0	53.8	+22.3
TOTAL	100	100.00	100.0	
Nyanza Province				
Smaller Landholders	40	15.6	12.9	-17.3
Middle Landholders	30	29.5	28.0	-5.1
Larger Landholders	30	54.9	59.1	+8.7
TOTAL	100	100.0	100.0	

Source: Livingstone 1981:14:33 (Based on Collier and Lal; cf. Collier and Lal 1980.

a/ For Nyanza Province the base date is 1963.

Both of these provinces are composed almost entirely of high potential land, although Central Province smallholders are, as we have seen, much better off on the average than those in Nyanza. But in both places the bottom 40% of the population is experiencing a massive decline in access to land. The trend is more pronounced in Central Province, perhaps because there, close to Nairobi, land has more value as a commercial or speculative investment.

In agro-ecological terms, Central Province smallholders live primarily in the Coffee and Tea East of Rift zones. Nyanza Province smallholders are concentrated in the Coffee and Tea West of Rift zones, with smaller numbers in Upper Cotton West of Rift. Thus, the trends illustrated here may apply very broadly to five of the seven agro-ecological zones discussed in the previous section. Other sources (Hunt 1975, Haugerud 1981d) suggest that similar patterns obtain in the Lower Cotton East of Rift zone. No comparable data are available for the Coast zones, but it seems unlikely that processes discerned in all other smallholder areas will be absent there.

This widespread, growing inequity with respect to the distribution of landholdings is mirrored by growing inequity with respect to income distribution; national surveys (IRS 1974/5:44) and community studies (cf. Haugerud 1981c, 1981d) both find a close correlation between size of landholdings and material wealth. Thus it is hard to avoid concluding that the bottom 40% of smallholders is being increasingly immiserated and separated from the means of production.[1] This may be the inevitable outcome of rapid population growth on a very limited resource base.[2] However, factors other than population growth play a role in determining who shall gain and who shall lose as land scarcity grows. Recent work by Collier and Lal (1980), Little (1980), Paterson (1980), and others suggests that the amount of income available from off-farm employment is an important determinant of ability to purchase or rent additional land, as well as of the propensity to innovate.[3]

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1. With existing data it is difficult to judge whether the bottom 40% are becoming <u>absolutely</u> poorer or becoming <u>relatively</u> poorer in terms of income shares. Some might think the latter situation is not particularly troublesome. But there is much reason to believe that it is relative deprivation, not absolute poverty, that generates invidious comparisons and discord in circumstances of social and economic change. Thus, even if the lower 40% are not absolutely worse off now than in the past, many social and political troubles can be expected to emerge if the gap between rich and poor continues to broaden.

2. Kenya's program of land reform, which is aimed at the consolidation of holdings under individual, private tenure, has contributed to and legitimized this process by introducing the power of the state and the rule of Western law into allocative procedures formerly regulated largely by local conceptions of kinship and affinity (Okoth-Ogendo 1976:176-179).

3. Here we are not talking about degree of dependence on off-farm income, which is often very great among low income smallholders. Rather, we are referring to the absolute amount of income earned off-farm. This is much larger for middle and high income smallholders than for poor smallholders.

If variation in off-farm income significantly determines land purchases and innovation, what then determines access to rewarding off-farm employment opportunities? Here again community studies and broad surveys reinforce each other in suggesting that

> ...it is the education status of smallholder household members willing and able to migrate to towns which is likely to be the most important determinant of...off-farm income (Collier and Lal 1980:38).

Thus there are historic links between education and off-farm employment, between off-farm employment and agricultural land accumulation, and between education and overall levels of material well-being among smallholders. The central role of education in Kenyan development is further explored in Chapter Eight.

Differential (and often fortuitous) access to education during the 1920's and 1930's played a large role in determining who was able to earn significant amounts of money in off-farm employment during the 1950's, 1960's, and 1970's. These are the people who were and are able to manipulate the land adjudication process to insure they receive legal title to large holdings (Brokensha and Njeru 1977, Haugerud 1981a), and who in any case can buy additional land if they wish. The likelihood that poor households today will be able to follow a similar path to success is very slim, because patterns of access to education and rewarding employment are becoming progressively more fixed. Those who received good schooling in the past are, by virtue of their improved income, able to afford better education for their children. These children will in turn find it easier to obtain rewarding employment, partly because educational qualifications are becoming constantly more rigorous, and partly because finding a job is often dependent on pre-existing links of kinship or friendship in the senior generation. As things stand now, these interlocking processes will inhibit significant economic advance among the bottom 40% or so of the smallholder population. The clear implication is that development planning in Kenya should give special attention to improving the access of the poorest smallholders to both education and off-farm employment, so that their contribution to national development can be maximized.

2. Pastoralists

The pastoral population consists of two major groupings: migratory pastoralists, living in the far north and northeast; and relatively sedentary pastoralists, who are clustered in the area north of Mt. Kenya and in southern parts of the Rift Valley and adjacent areas. In addition, there are herder communities in rangeland areas adjacent to various hill systems, as in the Taita plains or around Machakos. These latter communities are composed

primarily of poor agriculturalists who earn additional income by herding animals owned by wealthier farmers in nearby hills. The area given over to such herding has been declining in recent years with the encroachment of arable farming, a consequence of population growth in the more productive hill areas. No estimates of the numbers of people involved in this type of herding are available, but the total is not thought to constitute a significant proportion of the total pastoralist population (Von Kaufmann 1976:263). Table 2.7 presents basic information on the two major groups of pastoralists.

TABLE 2.7. MIGRATORY AND SEDENTARY PASTORALISTS IN KENYA

Type of Pastoralism	% of Pastoral Population a/	% of Rangeland b/
Sedentary	32	25
Migratory	68	70 c/

a/ Based on 1969 Census.
b/ Von Kaufmann 1976:256.
c/ 5% of all rangeland is utilized in non-pastoral ways.

In general, sedentary pastoralism is possible where rainfall is high enough to support year-round residence in one vicinity or where surface water and grazing are perennially available. Migratory pastoralism is found in drier range areas, or in zones with much water (for instance, along the banks of the Tana River) but where the supply of grazing is limited. In the sections below we summarize significant processes among these two categories of pastoralists.

Significant Processes: Sedentary Pastoralists

As in other Kenyan arenas, population growth and land scarcity are at the heart of important changes among sedentary pastoralists. In some areas growth of the pastoral population alone has generated herd sizes that may exceed the carrying capacity of the land (cf. Campbell 1979). As this happens herd structure changes in favor of sheep and goats, which utilize grazing more intensively than cattle, and which survive more readily under conditions of drought, but which may not so easily meet the needs of pastoralist households for milk and cash income. Poorer households turn to farming for the production of cereal crops, which are now a major and growing element in the diet of sedentary pastoralists; further sedentarization may also be encouraged through the development of piped domestic water supplies (Livingstone 1981:13.27). Farming pastoralists often utilize former dry season grazing, which further intensifies grazing shortages. In most places, however, such land is also under severe pressure from adjacent agricultural

communities. Only when the pastoralists are organized into an officially-sanctioned body such as a group ranch can they resist this type of encroachment, and even then not always with success.

The most successful adaptations to the twin problems of land shortage and land competition may eventually emerge where group ranches are able to rent their land to alternate (and possibly more productive) users, such as wheat farmers, but imposing adequate rents and retaining secure control over the land can be problematic (cf. Doherty 1979). Alternatively, ranch members can take up these activities themselves, but lack of education, financing, and management skills generally make this difficult. Moreover, the concensus needed to make such fundamental decisions regarding land use may be lacking; not all pastoral households are alike, and the extent of economic inequality may be as great or greater than in the farming areas. Large herd-owners, who often control the decision-making process in such ranches, are less willing to explore alternate or supplemental land use strategies than those with smaller herds. The vast gulf between larger and smaller herders is illustrated in Table 2.8 below, which shows the distribution of cattle holdings by size of holding on 13 group ranches in Maasailand.

TABLE 2.8. CATTLE DISTRIBUTION BY HOLDING SIZE IN MAASAILAND GROUP RANCHES, 1981

Size Category	% of Holdings	% of Cattle
Low (0-9 cattle)	50.9	8.1
Middle (10-49 cattle)	39.9	47.0
Upper (50-99 cattle)	6.3	23.2
Top (100 or more cattle)	2.9	21.6
	100.0	99.9

Source: Based on Livingstone 1981:13.13.

As in the smallholder areas, poorer pastoralists spend much of their time and earn much of their income in non-pastoral pursuits: in fact, it has been suggested more than once that income earned in agriculture or casual employment in urban and rural areas is used to subsidize a continued role, however minor, in the pastoral economy (Doherty 1979, Little 1981).

Another consequence of a shrinking resource base in these areas is the privatization of land holdings. This trend has perhaps gone furthest in the area around Lake Baringo, where enclosed holdings of 30-50 hectares have been parcelled out to individual ranchers (Von Kaufmann 1976:261, Little 1981), but privatization is discernible in less favored areas as well (Livingstone 1981:13.23). Some controversy surrounds the question of whether privatization of individual holdings in range areas can be a sound basis for further development, but the discussion is

perhaps a bit beside the point; the trend to private land is well-established and unlikely to reverse itself. Indeed, if the current occupants of the land do not regularize their rights to use it through the formal process of forming ranches and undertaking adjudication, then other persons desiring the land will likely do so. Thus the privatization of relatively small ranches in the rangeland areas is likely to continue in one way or the other, and this trend should be recognized in development planning. The need for productive fodder crops suited to low-rainfall areas will grow, as will the need for improved production systems that combine year-round grazing on a relatively limited pasture area with dryland farming. More generally, the sedentary pastoralist zones are in need of non-pastoral employment opportunities for those who are squeezed out the bottom of the pastoral economy as resources shrink. A generally low level of education and skills development in these places makes the task even more difficult than in smallholder areas.

Significant Processes: Migratory Pastoralism

In the mid-1960s and continuing into the 1970s, the pastoral economy of the migratory areas experienced severe disruptions--beginning with the Somali secession movement and ending with a major drought. The need to ensure political stability and to organize famine relief brought these areas to the attention of government, resulting in a series of development efforts aimed largely at integrating the nomads more fully with the national economy. Key to these efforts have been the block grazing systems, based on development of water points and calculated to expand and make more secure dry-season grazing. Access roads, veterinary facilities, and marketing infrastructure accompanied the schemes. Opinions differ on whether overall rates of off-take have been increased, although animal health has certainly improved (Von Kaufmann 1976:262). All observers agree, though, that a significant accompaniment to the development of water points has been localized trampling of grasses and overgrazing, often leading to substantial ecological damage (Livingstone 1981:13.29).

Another process set in motion by famine, war, and state intercession has been a growing economic linkage between migratory groups and newly formed agricultural communities along the Tana River. Many pastoralists work as agricultural laborers, sending back remittances which support purchases of food and stock. During the dry season food can be purchased in settlements or failing stock sold for cash; during the wet season surplus milk can be sold to townspeople (Merryman and Merryman 1980). For poorer nomads especially, activities in the agriculture sector can make a significant contribution to overall income and may, as in the sedentary areas, actually subsidize continued involvement in the pastoral economy. Those pastoralists who take up farming as a principal occupation apparently constitute the poorer strata in both pastoralist and agricultural communities.

No clear lessons can be drawn from what is known about on-going processes in the migratory areas, partly because considerable discussion surrounds the impact of official development efforts in this area, partly because many places continue to be politically unstable, and partly because the fund of knowledge on current socio-economic trends is not great. However, it is certainly true that neither block-grazing schemes nor efforts to sedentarize the nomadic population have been markedly successful. Government and donor goals have not been met, and there is no reason to believe that nomads have benefitted (cf. Devres 1979:25). Livingstone has argued that the government of Kenya rangeland development scheme is fundamentally sound, requiring only slight modifications, more resources, and perhaps better luck (1981:13.28-29). However, in view of the widespread failure of schemes like these in East and West Africa (cf. IDA 1981, Horowitz 1979), it is perhaps best to avoid further activity in these areas, admitting the possibility that we may not know how to guide the process of development among migratory pastoralists.

3. Landless, Squatters, and Migrant Farmers

Little is known with any certainty about these categories of Kenya's population. Even estimates of their numbers are founded largely on guesswork, and to some extent the categories are not mutually exclusive. This is because many so-called "landless" persons, who have no legal right to land and whose traditional rights may be weak or non-existent, nevertheless can gain access to land through the kindness of kin or friends, or through a variety of more-or-less formal rental and tenancy arrangements, or through simply migrating to areas of underutilized land. In many large farm areas, such as are found around Kitale, these immigrant households may be thought of as field hands; although they are allotted small parcels on which to grow food, heads of such households are expected to work in the fields of the land-owner on whose land they are "squatting." In semi-arid areas the "field-hand" situation is less common; immigrants here often encroach on forest reserves, unused and perhaps undemarcated ranch land, and so forth. However, none of these alternatives generate any but the weakest right to continued use of the land.

During the 1960's many of the potential political and social problems associated with landlessness and the development of squatter communities were averted through settlement schemes of various types (Leys 1975:217-227). Although some official resettlement efforts continue into the 1980's, the scale is not large--certainly not large enough to serve the needs of the landless/squatter population, which may be expanding at the rate of about 15,000 persons per year (Mbithi and Barnes 1975:127). Hence, official resettlement is dwarfed by informal resettlement as landless and near-landless households flow out of the high-density, high potential areas into places where farming is marginal. The major movements are out of Central and Western Province into the Rift Valley, and out of the high and medium

potential parts of Eastern Province into the coastal plains and adjacent areas. As previously noted, this process is squeezing resources in areas formerly devoted to sedentary pastoralism or hill-adjacent herding, and is increasingly associated with inter-ethnic strife. Wherever they settle, these people will be among the poorest, most insecure, and most poorly-served of all people in the vicinity. They possess small land-holdings, on ground that is relatively infertile, and must spend relatively large amounts of time in casual non-farm activity to supplement their agricultural incomes. Hence, from the perspective of development planning, it makes sense to think of these households as a sub-category of the low-income group of smallholders; and the comments made previously about development needs among this category of the population apply to the landless, squatter, and migrant populations with equal or greater force.

4. Urban Areas

In 1979 the urban population of Kenya was 1,909,400 persons, or about 12.5% of the total population. This represents both absolute and proportionate growth since 1969, when urban population stood at 8.7% of the total. The overall annual urban growth rate observed during the 1970's was 7.2%, the lowest rates occurring in Nairobi and Mombasa (5.0% and 3.3% respectively). The highest annual rates may have been in Busia (37.2%), Meru (31.7%), and in Machakos (29.4%) (Economic Survey 1981:34).[1] As in other developing countries, urbanization poses problems, insofar as the flow of migrants tends to outrun the supply of jobs, as well as government's ability to provide low-cost housing and other essential services. In Kenya's case, however, the fact that most migrants maintain a stake in rural society has so far prevented the growth of a large, destitute, and dispossessed stratum in urban places (Leys 1975:181); people in urban areas, apart from a small elite minority, do not generally regard themselves as fundamentally different from people in rural areas.[2] In the sections below we review further aspects of both variation and linkages between urban and rural areas.

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1. It is unclear how much of this growth is due to natural increase, immigration, or redefinition of urban boundaries.

2. The rate of rural-urban labor circulation may be declining now, which suggests that rural-urban divergences will grow and solidify. Thus the relatively benign character of Kenyan urbanization may change (Rempel 1981:89).

Urban-Rural Differences

The most fundamental urban-rural differences pertain to income and employment, education, nutrition, and fertility. Each of these topics is reviewed briefly below.

In 1972 the ILO estimated that earnings in Nairobi and Mombasa alone accounted for "...60% of the wages paid in the formal sector throughout the country, and probably a third of all personal income in Kenya" (1972:52). High urban earnings are based on access to wage employment, which even at minimum rates of pay compares well with earnings in agriculture. Table 2.9 shows that over 80% of men and over 50% of women in urban areas are wage employees, compared to 15% and under 3%, respectively, in rural areas.

TABLE 2.9. PERCENTAGE DISTRIBUTION OF URBAN AND RURAL LABOR FORCES BY EMPLOYMENT AND SEX, 1977/78.

Type of Employment	Urban		Rural	
	M	F	M	F
Private Employee	51.7	28.8	9.4	1.7
Public Employee	30.7	22.1	5.6	0.7
Self-Employed	12.9	18.0	4.2	1.2
Farming	3.1	27.4	80.4	96.1
Other	1.6	3.7	0.4	0.3
TOTAL	100.0	100.0	100.0	100.0

Source: Based on Republic of Kenya, Economic Survey 1981:70,73.

The question of how many urban dwellers are unemployed, under-employed, or "working poor" is important, but not easily answered, recent estimates varying widely. For instance, in 1972 the ILO suggested that urban unemployment ran at 10% for males and over 20% for females (1972:64), and the general view since has been that urban employment was a serious problem. However, the 1977/78 Labor Force Survey found that the urban unemployment rate was 6.7% and 6.4% for males and females respectively (Economic Survey 1981:74).[1]

Educational opportunities in urban areas are generally superior to those in rural areas. This is because relatively wealthy urban populations can afford to equip their schools with the very best facilities and to hire the very best teachers. This is reflected in children's school performance; for instance, the CPE scores of children from rural places are significantly lower than those of urban children.

1. Whether this unexpected but encouraging outcome is the result of definitional differences or real change in urban employment is unclear.

TABLE 2.10. MEAN STANDARD CPE SCORES OF BOYS AND GIRLS IN RURAL AND URBAN PLACES, 1976

Location	Boys	Girls
Rural	156.48	138.40
Urban	166.46	153.90

Source: Educational Trends 1973-1977 (CBS):Table 36.

The differences between urban and rural scores signal profound variation in the quality of education. However, there are also great differences in the quality of education dispensed by teachers to students of different sexes. It is worth noting that the sex bias in education more powerfully influences scoring than the urban-rural bias, rural boys being able to outperform urban girls by a small margin.

The picture regarding nutritional status of children in urban areas is not altogether clear. Table 2.11 presents illustrative data from the 1978/79 national nutrition survey.

TABLE 2.11. URBAN AND RURAL VARIATION IN VARIOUS NUTRITION INDICATORS, 1978/79.

Location	Percentage Distribution of Children by Nutrition State				
	Normal	Stunted	Wasted	Stunted + Wasted	Total[a]
Rural Places in:					
Central Province	65	33	2	0	100
Coast Province	47	44	7	2	100
Eastern Province	58	36	5	22	101
Nyanza Province	56	38	4	2	100
Rift Province	61	33	4	2	100
Western Province	63	34	2	1	100
Urban Places:					
Nairobi	74	20	5	0	99
Coast Province	65	26	6	3	100
Other Areas	68	27	3	3	101

Source: Republic of Kenya, 1978/79 Nutrition Survey:26, Table 3.
a/ Totals differ from 100 due to rounding errors.

"Normal" children are those who have achieved satisfactory height for their age and satisfactory weight for their height; "stunted" children have not achieved sufficient height for their age; "wasted" children have not achieved sufficient weight for their height; "stunted and wasted" children score unsatisfactorily on both indices.

Urban areas tend to have somewhat greater proportions of children in the normal category than do rural areas; and urban areas have considerably fewer stunted children. Stunting is an indication of long term nutritional deprivation, which we would expect to be rare in the relatively well-off and well-educated urban places. However, Nairobi and Coast urban areas have proportions of children in the wasted category that are equal to or greater than the proportions found in rural areas. Wasting measures shorter term deprivation, and is often seen, for instance, on a seasonal basis in rural areas when food is scarce. The frequency with which it is found in urban places in Kenya is a bit surprising. One implication may be that food supplies in cities are periodically deficient, and, although high income urban dwellers can obtain what they need to feed their children properly, low income households cannot. However, wasting can also follow a severe or prolonged illness; thus it could be suggested that medical services in cities are deficient, and that the same problem of skewed access exists. In any event these findings point to the existence of an extremely disadvantaged urban sub-group, concentrated in Nairobi and Mombasa, whose children are generally worse off than they would be in rural areas.

The 1977/78 Kenya Fertility Survey presented a coherent picture of fertility decline with increasing urbanization. In Table 2.12, "metropolitan" refers to Nairobi and Mombasa, and "urban" includes all other urban places.

TABLE 2.12. URBAN-RURAL DIFFERENTIALS IN FERTILITY AND FERTILITY-RELATED VARIABLES, 1977/78

Index		Rural	Urban	Metropolitan
Mean No. of Children Ever-Born to Women aged:	25-34	4.6	4.2	4.0
	35-44	7.2	6.9	6.0
	45+	8.0	---	5.7
Mean Age at First Marriage		19.8	19.9	20.3
Desired Family Size Among Women Under 25		6.6	5.8	5.5
% Contraception Among Women Aged 25-34		8.0	19.0	24.0
Duration of Breast-Feeding in Months, Women under 30		12.9	10.1	9.7

Source: Kenya Fertility Survey Vol.I: 74, 97, 118, 140, 156.

There is a large difference in the overall level of reproduction between urban and rural women, related possibly to the relative costs and benefits of rearing children in an urban environment. The effects of increasing contraception in the urban group, however, are partially offset by decreased duration of breastfeeding. The interpretation of these urban-rural differences is made difficult because the majority of women living in urban and metropolitan areas are migrants from rural areas, and many may eventually return there. Despite the substantial urban-rural fertility differential, however, the overall demographic impact cannot be great; more is said of this topic in Chapter Eight on fertility.

Urban-Rural Linkages

The primary linkages are through flows of people and flows of wealth. Both of these are substantial. In most smallholder areas it is rare to find an adult male who has not spent some years working away from home, often in Nairobi or Mombasa. Nearly all new immigrants depend on relatives for support in town upon arrival, although this pattern may vary according to whether the sending community is long-established or composed of recent settlers (Khasiani 1978:90). Urban residents are also found to spend much time in rural areas; one study that used matched urban and rural samples from the same rural place showed no difference between urban and rural residents with regard to the number of years spent in towns (Leys 1975:180-181). The circulation of personnel between rural and urban areas has undoubtedly done much to prevent the development of an urban proletariat, divorced from its rural origins.

Although urban residents may often receive food supplies from their homes in rural areas, this probably does not constitute a significant proportion of their subsistence needs, being limited to whatever small amounts can be carried back and forth when relatives and neighbors visit. Overall, food received as a gift in this way may account for less than 5% of all food acquired by urban households (Social Perspectives 3(1):2). More substantial flows of wealth go from urban to rural areas. It is thought that low and middle income migrants remit an average of about 21% of their wages back to rural areas, primarily for school fees, taxes, and farm development (ILO 1972:48). In the rural areas themselves, these remittances account for between 3% and 29% of all income, depending on location; the average is just under 9%, as illustrated by Table 2.13.

TABLE 2.13. PERCENTAGE CONTRIBUTION OF REMITTANCES TO HOUSEHOLD INCOME BY AGRO-ECOLOGICAL ZONE, 1974/5

Zone	%
Coffee	
East of Rift	9.6
West of Rift	7.8
Tea	
East of Rift	5.0
West of Rift	3.2
Cotton	
Low Cotton East of Rift	15.5
High Cotton West of Rift	9.8
Coast	
Rain less than 40"	28.7
Rain more than 40"	18.7
Kenya	8.9

Source: Republic of Kenya, IRS 1974/5:57, Tables 8.10 and 8.11

In an earlier section we showed that, controlling for agro-ecological zone, there were significant east-west divergences with regard to levels of household consumption and the importance of non-farm income, the eastern sub-zones scoring consistently higher on both counts. Here we see the pattern repeated with respect to remittances. Taking into account variation in income levels and number of holdings across agro-ecological zones, the three eastern zones account for 47% of the value of all remittances, against 38% for the three western zones, and on a per-household basis remittances in the east are 36% greater than in the west. Thus urban-rural linkages through income transfers of this type are considerably stronger in the east than in the west.

From the perspective of development planning, these findings reinforce those of earlier sections, suggesting that smallholders in the west have not been able to share equally in the employment benefits generated by the urban and industrial growth Kenya has experienced. Since distance is clearly a key factor here, the obvious conclusion from an equity point of view is that further urban and industrial development should be sited in western locations. Since off-farm employment also fuels agricultural development at the household level, such a policy would likely produce benefits in terms of increased agricultural output as well.

5. Women

Kenyan women contribute to society and economy primarily through their roles in smallholder farming and as managers of household domestic affairs. About 88% of all Kenyan women reside in rural areas, where they constitute about one-half of the total population. In these areas women are at the head of about one-quarter of all households. Women become heads of households for a variety of reasons—when the man is absent working, through divorce, separation, or widowhood, by remaining single but bearing children, and so forth. Thus, although male labor migration is often seen as the primary reason why women are left alone to manage holdings, there is no general correspondence between areas where male:female sex ratios are low and areas where female-headed households are relatively common. Table 2.14 illustrates.

TABLE 2.14. SEX RATIOS AND PERCENTAGE OF FEMALE-HEADED SMALLHOLDER HOUSEHOLDS BY PROVINCE, 1974/5

Province	Sex Ratio	Women-headed HH as % of all HH	Total #(000)	% of all Women-headed HH
Central	101	23	73.8	22
Coast	86	27	18.9	6
Eastern	92	23	81.2	24
Nyanza	96	25	96.6	28
Rift	100	22	19.8	6
Western	98	19	48.4	14
Kenya	97	24	340.7	100

Source: Republic of Kenya, IRS 1974/5:23, 33, 52.

Other estimates place the total number of rural households run by women somewhat higher than the 340,000 indicated here. IRS II generated a figure of 428,000 such households (Social Perspectives 3(4):[illegible]), and the total may be as high as 525,000 (ILO 1972:47). An important issue is whether these households are sufficiently different from smallholder households in general that development planners should approach them from a special perspective. Smock (1981:222), who re-analyzed IRS 1974/75 data in an effort to explore this question, concluded that

> As might be expected, female-headed households tended to have smaller holdings, lower incomes, fewer assets, and different patterns of earning and expenditure. Generally, however, the differentials were relatively small.

Among female-headed households, the total area of holdings averaged 2.57 hectares, compared to 2.96 hectares for male-headed households. Mean annual income in male-headed households was 4148/=, or 19% greater than the 3472/= observed in female-headed households.[1] This income divergence is substantial, being comparable to that observed across provinces or ecological zones (see IRS 1974/75:54,57). However, it is still not clear that any planning precision is to be gained by distinguishing female-headed households from poor households in general. Some indication whether socio-economic dynamics in such households are significantly different from those in jointly-managed households emerges when we consider these issues from the perspective of the nutritional status of young children.

In many ways, child nutrition may be thought of as a summary indicator of a variety of socio-economic processes based on differential income, education, family size, and farm production patterns. Good child nutrition indicates all these variables are interacting in ways that ensure the well-being of the next generation, which is not an inappropriate indicator of successful development. Is there a difference between female-headed households and other households with regard to child nutrition? The first CBS nutrition survey, carried out in 1977, showed that among farming households generally the rate of nutritional stunting was 10% higher among children in jointly managed households than among children in female-headed households (ROK 1979a:II. 1-17). These national-level results suggest that female-headed households might outperform rural households generally at least with regard to this critical indicator; likely this is due to the contribution of remittances to household income.

More detail emerges when we consider these matters at the level of the community. Preliminary results from nutrition assessments done in communities occupying contrasting ecological zones in Taita/Taveta district indicate that in the low-potential plains areas, there is no significant difference between the nutritional status of children in female-headed households and those in jointly-managed households. In high-potential,

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1. The reference cited does not indicate whether these figures are corrected for variation in household size. But female-headed households are larger than male-headed households everywhere except in Rift Valley Province, where they are equivalent in size, and in Central Province, where female-headed households are about 0.6% smaller. Thus if these figures are not corrected for variation in household size they likely understate the real income differential between male- and female-headed households (cf. IRS 1974/75:32).

high-density areas, on the other hand, there is a difference. Children from female-headed households are among either the best-nourished or the worst-nourished in the community, when compared to children in the community at large. The well-nourished children tend to come from households where the woman's absent husband is a wage-earning migrant; the poorly nourished children tend to come from households where there is no husband at all. These observations suggest that in low potential areas, basic limits set by the agro-ecological and economic context are more important determinants of nutritional status (and, by implication, overall household development) than variation in household structure. In high potential areas, by contrast, households headed by single females are distinctly disadvantaged, while those headed by a married woman whose husband is absent working are often better off. At the least, these findings suggest that the category "female-headed households" is too blunt to have utility for development planning in the high potential areas.

The role of women in agriculture is not limited to female-headed households, however. Even in households headed by men, women maintain major responsibility for the production of staple and supplementary food crops, often performing all work involved apart from some initial land clearance. Women also take a substantial role in the production of crops grown for cash. Where these are also food crops, as in the case of maize and beans, women may perform nearly all the needed work. In cotton areas women do almost all the weeding and help to harvest; in coffee areas they contribute importantly to the picking, sorting, and carrying of mature beans to factories or points of collection; and perform similar functions in the tea zones and elsewhere. Studies that have actually assessed the number of hours devoted by women to field agriculture in East African settings are few, but suggest that about one-third of women's working time is spent in the fields, which constitutes about 60% of all family labor given to field work (cf. Fleuret and Fleuret 1977; see also Smock 1981:221).

In the home, rural women are largely responsible for food preparation, cooking, house-cleaning, and child care, as well as the collection of fuelwood, water, and feed for domestic and stall-fed animals. These chores together account for about two-thirds of women's labor time; the most burdensome activities are undoubtedly fuelwood and water collection. However, there are important variations by income group in the extent to which rural women are burdened by farming and domestic labor. Wealthy women have their tasks considerably eased because they can hire others to undertake many chores; because they can purchase cooking fuel and water; and because they can finance communal working parties with greater frequency than is possible for women in poorer households.

The disproportionately large role played by women in farming is not matched by great access to any of the commodities essential to successful farming. Women have less access than men to land (Pala 1978), credit (Gutto 1976), extension advice, and agricultural instruction (Staudt 1977). Although women are quite active in small-scale retail trade in food commodities, they are often excluded from access to more formal, large-scale marketing channels. Special official efforts to aid the development of women are not particularly effective. The Women's Bureau in the Ministry of Culture and Social Services reaches about 11% of all eligible women; these tend to be the wealthiest women and their activities tend not to contribute to community development (Feldman et al. 1981). The Home Economics department of the Ministry of Agriculture also reaches a very small, generally wealthy clientele, and concentrates on cookery and home-making rather than agriculture.

The following concluding points seem relevant from the perspective of development planning. It is inadequate to be concerned in a general way with the problems of "women in development." It makes a difference when we consider variation by agro-ecological zone, by income group, and according to whether a woman is single, married with her husband absent, or married with her husband present. Probably the most at-risk subgroup consists of single women with children, who are likely to be socially as well as economically marginal. Case studies suggest that these may constitute 30-50% of all female-headed households (Fleuret nd, Haugerud 1981). Using figures from IRS I and IRS II to estimate the total number of female-headed households, we can conclude that a minimum of 100,000 and a maximum of 200,000 households fall into the at-risk category, that is, between 5% and 13% of all smallholder households may be headed by women with children but without husbands. These are substantial numbers, and it would be worthwhile to explore their potential contribution to national development by giving attention to their special requirements for development assistance. This could be done, for instance, with the resources of the Women's Bureau of the Ministry of Culture and Community Services, which currently reaches roughly the same number of clients through their women's groups. It would be necessary to reorient the program to reach those with few resources instead of those with many, and the content should be changed from a focus on capital-intensive "commercial" projects to a focus on development of labor-saving, cheap household technologies, cooperative day care centers, and other initiatives which would expand the amount of time these women could devote to directly productive endeavors.

6. Conclusion: Significant Groups for Development Planning

In this section we have attempted to reduce the diversity of society and economy in Kenya to a form suitable for development planning. The primary distinction is between the modern sector and the agricultural sector, with informal sector employment blurring the boundary. In taking a closer look at the agricultural sector we see three main groups: smallholders, pastoralists, and the landless/squatter/migrant farmer population. When analyzing these groupings more carefully, the aim has been to develop significant sub-groups not primarily on the basis of need, as through construction of a poverty index, but rather on the basis of variation in important socio-economic and agro-ecological patterns. This approach highlights constraints and opportunities for development among the various groups considered.

Among smallholders we thus identify a large category, the bottom 40-45%, who are not now and who probably will not ever be able to participate fully in agricultural development. Their potential as small scale producers is strictly limited by a series of processes that are simultaneously reducing their access to land, good education, and rewarding employment. The landless/squatter/migrant group may be considered a special, very needy sub-category of this group. The conclusion is not that these people should be ignored, but that development planning should recognize the large and growing need for non-farm employment, particularly in the west. On the other hand, conventional approaches to agricultural development will probably be more successful among the middle 45-50% of smallholders, who have the resources to make farming a success and who for the most part are committed to farming as an occupation.

Among pastoralists there are two significant groups: the one-third of all pastoralists who are relatively sedentary and whose relationship to the land and to the state is changing fast under pressure of population growth and agricultural encroachment; and the two-thirds of all pastoralists who are nomadic and about whom relatively little is known. Among the former category, planners should recognize and build upon the twin processes of land privatization and the development of sedentary dryland mixed farming systems. Our knowledge of important processes among the nomads is not sufficiently developed to allow responsible development planning.

Women smallholders in Kenya fall into two broad categories: those with husbands and those without. Among the former group, technical approaches to agricultural and economic development need not be greatly different than those suited to the smallholder population generally; however, women smallholders

have massive difficulty in gaining access to agricultural advice, education, credit, and other inputs. These deficiencies must be corrected if women are to fulfill their potential contribution to Kenyan development. The latter group, single women who head rural households, are a particularly disadvantaged group who should be specially assisted through the Ministry of Housing and Social Services.

Urbanization in Kenya is not a straightforward process and development implications are not entirely clear. There are distinct differences between Nairobi and Mombasa on the one hand, and all other urban areas on the other, with regard to patterns of child nutrition and fertility, which signals deeper underlying variations that are not well-understood. Also, the important linkages between urban and rural residents, and transfers of urban and rural residence over time, make it somewhat dangerous to speak of an "urban" population as a separate category. So far as can be seen, urbanization does not seem to have had any obviously inimical consequences; in fact rather the opposite might be said if we consider the historical role played by off-farm employment and remittances in determining overall levels of well-being in the east. This points to a policy of encouraging urbanization and industrialization in other parts of Kenya, but it must be emphasized that on the whole our knowledge of urban processes in Kenya is rather shallow.

CHAPTER III: SIGNIFICANT INSTITUTIONS FOR DEVELOPMENT PLANNING

A. Introduction

Foreign aid is transformed into concrete development activities through institutions; that is, through various public and private organizations which channel resources to individuals and groups so that they may raise their incomes or better their standards of living. Obvious examples in Kenya include central government line ministries (agriculture, health, and so forth), parastatals, cooperatives, banks and other financial institutions, private voluntary organizations (PVOs), and local self-help groups. Decisions about which institution, or configuration of institutions, to employ for the implementation of a particular development initiative are critical because the institutional mechanism can be either a link or a barrier between aid resources and the people who are to employ them. Although this problem is generally recognized effective approaches to ensuring institutional performance have been hard to come by. This is partly because institutional mechanisms usually emerge as a by-product of technical discussions and are chosen more to expedite the commitment of funds than to ensure their effective expenditure. Also, it is often not easy to specify before the fact which institution or set of institutions will perform a given task adequately. But perhaps the most difficult problem is identifying or designing an institutional framework that can deliver aid resources flexibly enough to meet the widely varying needs of people and groups around the country. AID experiences more problems in this area than some other assistance agencies because of constraints generated by internal procedures. A ponderous system of project design and approval, a rigid approach to financial accountability, and a need to work within legislative and executive guidelines combine to create an environment in which it can be nearly impossible to deliver the flexible, timely, and precisely-targeted response which legitimate development problems so often require. We say this to make it clear that any discussion of appropriate institutions for development assistance in Kenya must take full account of the institutional limitations of the Agency itself; many possible approaches cannot be considered not because they are unsuited to the development environment in Kenya, but because they are incompatible with Agency procedures.

With this as background, we can begin our discussion of significant institutions. There are five sections: first, a broad outline of the types of organizations to be found in Kenya, together with a discussion of their motivational structures; second, a discussion of the contribution of local participation to development in Kenya;

third, a series of short case studies to demonstrate the strengths and weaknesses of various organizational formats; fourth, some suggestions as to how AID can maximize the effectiveness of its Kenyan assistance, by recognizing consistent patterns of institutional performance and by building on the strengths of different institutional frameworks; and last, an assessment of the extent to which various institutions have penetrated to different parts of the country and to different strata of the population. The central idea here is that no single institution is likely to be both compatible with AID procedures and as effective as we would wish in stimulating development; but carefully chosen combinations of institutions might be.

B. Institutions in Kenya

There are five broad types of development-related institutions in Kenya, which may be distinguished on the basis of their internal reward structures. There are government institutions, in which employees are usually rewarded for being careful bureaucrats; there are private, profit-making institutions, in which employees are rewarded for contributing to organizational profit or turnover; there are mixed public/profit institutions, in which employee motivations may be similar to those in either government or the private sector; there are private, voluntary organizations, in which employees often reward themselves, that is, their moral commitment to the task at hand motivates them to perform well; and there is the institution of harambee self-help, a surprisingly complex mode of locally-led development in which harambee leaders are rewarded by gaining increased political power and harambee participants are rewarded by greater access to various resources.

We make no a priori assumptions about which reward structures are most likely to generate effective development, for there are advantages and disadvantages to all. Private, profit-making institutions are probably most effective at converting resources into concrete accomplishments, but will often not be able to support development among groups that are poor or geographically isolated. Government institutions can serve a valuable support function in areas (such as research and building of infrastructure) where immediate profits are minimal, but administrative inefficiency, bureaucratic competition, lack of a motivated workforce, and corruption can pose problems when

government agencies are asked to implement complex development activities. PVOs can help develop the potential of groups which have neither the monetary resources nor the political power required to extract a response from the private sector or from government, but these organizations have a tendency to equate program activity with program impact. Lack of technical expertise and inability to create self-sustaining structures often weaken the impact of PVO efforts. Harambee efforts can draw resources from any of the other types of institutions, and they can also mobilize local resources to accomplish development tasks that most local needs when other development institutions regard these as not worthwhile or not feasible. But, like PVOs, harambee activities are oriented more to one-time expenditures of resources than to long-term support. In Kenya, self-help enthusiasm wanes rapidly if not periodically reinforced by government assistance. Mixed public/profit institutions (often parastatal) can combine either all the strengths or all the weaknesses of both government and private sector organizations, depending on management style and the political-economic context.

In common with other donor agencies, but perhaps to a greater degree than most, AID attempts to compensate for the weaknesses inherent in various organizational formats by imposing rigorous systems of financial accountability, planning, and evaluation. This ordinarily will satisfy requirements imposed by legislation and executive orders, but does not necessarily improve the efficacy of the institutions involved or the activities they undertake. Sometimes small institutions of any type, effective within their own limited sphere, will be overwhelmed by the burdens imposed by AID assistance. Although there is not much to be done about this in any direct fashion, we will suggest that through careful selection of institutions, and through combining institutions of different types to carry out specific development interventions, it is possible for AID to build on the strengths of various institutional formats, neutralize their weaknesses, and do so without injecting masses of red tape which are a bother to all concerned.

C. Participation in Kenyan Development

Institutions can be distinguished according to the extent to which they permit, foster, or build upon local participation in development. By "participation we mean:

> the involvement of a significant number of persons in situations or actions which enhance their well-being, e.g. their income, security, or self-esteem (Cohen and Uphoff, 1980:214).

Why is participation to be encouraged? There is no space here to present the wide range of theoretical and empirical materials which underpin our belief that popular participation leads to successful and long-lasting development, although there is in fact a growing body of evidence to support the notion that local participation can make a substantial contribution to the success of individual projects in diverse sectors (Lele 1975; Lance and McKenna 1975; DAI 1976; Cohen and Uphoff 1977; Uphoff, Cohen and Goldsmith 1979). Despite the importance of participation, efforts to make it a part of AID-financed development have, on the whole, been minimal. This is partly because the concept itself is poorly understood. We can best draw out the planning implications of "participation" by focusing more closely on these aspects: what kinds of participation are there; who may participate; and what is the organizational context of participation.

1. Types of Participation[1]

There are four kinds of participation: participation in decision-making; in implementation; in benefits; and in evaluation. Most planners would probably consider their job done if the third type of participation, in benefits, takes place; but it is difficult to be sure that participation in benefits has happened without including intended beneficiaries in the evaluative process. Where this has been done, it has been found that considerable energies can be misdirected unless intended beneficiaries, that is, those who are expected to apply development resources, are included in the processes of decision-making and implementation.

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1 The following discussion draws heavily on materials generated by the AID/Cornell Rural Development Participation Project, especially Uphoff (1981), Uphoff, Cohen and Goldsmith (1979), and Cohen and Uphoff (1980).

At a very early point in the process of project design,[1] important decisions are made about priority problems and suitable solutions. These decisions guide the remainder of the process, and if wrongly taken can generate a wholly inappropriate development intervention. Thus it is important to seek the fullest possible understanding of local circumstances at the earliest possible point in project development, and it is self-defeating to suppose that this can be achieved through discussions with representatives of central ministries or by parachuting in teams of consultants for several days or several weeks. The best way to see that real problems are identified and that feasible solutions are proposed is to include intended beneficiaries in initial decision-making. We do not think that local views should always determine the content of interventions, but we do believe it is foolhardy to commit major resources without some understanding of how they are going to be received among local people who are supposed to utilize them. The development landscape is littered with projects that failed because they addressed problems that no one but the designers could see, or because they proposed solutions that no one but the designers could adopt.

Participation during project implementation can happen in three ways: by being enlisted in project activities; by taking part in administration and coordination; and by making resource contributions. The first of these is often equated with effective participation, and indeed it may in some cases be counted a considerable achievement simply to interest people in one's program. However, being enlisted in a program is not the same as benefitting from a program. In 1981, for instance, 70 farmers in a plains community in Taita/Taveta district were enlisted in an IADP cotton-growing project; of these, only about 15% earned enough money from the sale of cotton to repay the loans received.[2] Obviously enlistment is necessary, but not sufficient, to achieve meaningful participation.

Participation of local people in administration and coordination of project activities allows projects to respond to requirements of a varied and changing project environment. The necessary information about local conditions can be obtained very readily by including local people, selected in a strategic fashion as discussed below, as members of various project advisory or

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1. In AID, ordinarily before PIDs are prepared.

2. Fleuret and Fleuret, unpublished field notes 1981-82.

decision-making bodies.[1] In this way project management can receive relevant local-level data and guidance without time-consuming and costly data collection activities.

The last mode of participation in implementation is through resource contributions. These days it is generally accepted that substantial and long-lasting development cannot be accomplished unless local resources are engaged to magnify and sustain the efforts of government and foreign donors. But it is not generally seen that this is difficult to achieve unless the local people whose resources are desired have been allowed to join in decisions about what is to be done with them. Rural populations in East Africa may not often be able to influence the shape of interventions directed at them, but they can certainly influence the outcomes, simply by withholding their labor, their investment funds, their material resources, and their information about and understanding of local circumstances (cf. Hyden 1980). Rarely can these resources be obtained through coercion. Thus planners who wish their programs to benefit through the commitment of resources by local communities will do well to include these communities in early decision-making.

At this point the reader will see that participation in benefits is neither the only nor the most important aspect of participation in development. Rather, participation in benefits is ordinarily the outcome of a long sequence of participatory activities beginning quite early in the conceptualization of a development intervention. Of course, everyone can point to programs and projects that conferred substantial benefits without the slightest degree of popular participation in decision-making or administration; but in Kenya the list which falls readily to mind is rather short, and few care to remember the many programs and projects that benefitted none but the technical staff engaged to carry them out.

2. Types of Participants

We may distinguish five very general types of participants: local residents, local leaders, members of the

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1. Local people may also participate as hired employees. These people can transmit important signals to project management, and may also serve a reverse function, since they informally but effectively spread information about management's intentions among local populations.

business community, government personnel, and foreign personnel.[1] It is fair to say that in most development activities participation of any kind is most intense among expatriates and government personnel--and often a rather narrow range of the latter, representatives of central ministries being involved to a considerably greater extent than field staff. Occasionally, through copious efforts, local leaders can be engaged in significant aspects of development planning, as has happened in Kenya's Machakos Integrated Development Project, but very rarely indeed is participation sought or obtained from the vast majority of local residents, particularly with respect to early decision-making. Once in a while local people may be asked to respond to a survey questionnaire, but the questions included are often irrelevant; the results are rarely analyzed; and when analyzed they seldom influence the course of project development.

Thus participation among local residents, which is potentially very valuable, is difficult to achieve. However, local leaders are ordinarily accountable in one way or another to local people, and so by including them in development planning the likelihood that proposed interventions will respond to local conditions is increased.[2] Business people (shopkeepers, wholesalers, manufacturing entities) also tend to be accountable to local residents, insofar as failure to provide needed services at affordable prices is self-correcting, that is, business failure ensues. The business community will also ordinarily have substantial resources available. Local shopkeepers in particular will have a wealth of understanding of local economic patterns and requirements.

In contrast to local leaders and business people, government personnel are not often accountable to local communities at all. This is most evident in the case of ministry officials at the district level, whose careers are furthered by satisfying their superior officers, not the communities in which they serve. Sometimes the two sets of expectations will overlap, sometimes not.

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1. Members of the business community may often be local leaders in some sense of the word. But it is convenient, as will be seen in the case studies, to distinguish between leaders who serve a purely political or administrative function, and business people, who seek a profit through servicing community needs.

2. This is less true where local communities are intensely factionalized or strongly stratified. Central Province is such a place in Kenya, but there are also others, less obvious. This is therefore an issue that must be thoroughly explored at the project level (cf. Lamb 1977:171-182).

But, because government personnel at local levels can play important roles in promoting, controlling, or blocking project activities, it is important that they participate in planning and benefits, as well as implementation.

This is also true at the level of senior ministry officials, that is, the people with whom foreign personnel most often interact in designing projects. Men in these positions get there and stay there by developing strong sources of political support, and this is achieved by channeling resources to critical people and places to develop enduring bonds to a variety of client groups and individuals. Ordinarily maintenance of the power base will take precedence over meeting the needs of a broader constituency. We say this not in an invidious way, but because it is an important factor to consider in developing interventions. Just as it would be a mistake to neglect the needs and capabilities of people at the periphery, so it would be a mistake to fail to take into account circumstances at the center.

Thus we would argue that participation should be sought among all types of people whose help will be required to make an intervention successful, and this runs the gamut from powerful central figures to individual peasants. Each has a different contribution to make; each contribution is an essential link in reaching project goals; and each link must be securely set in place by seeing that all involved participate somehow in project benefits. Broad participation of this type can be nearly impossible to achieve within some institutional frameworks, but can happen almost automatically within others. In the next section we show, through a series of case studies, the institutional mechanisms which in Kenya seem to result in fairly broad participation and satisfactory project impact.

D. Case Studies

In the first section of this chapter we outlined five broad institutional types that play significant but distinct roles in Kenyan development: government agencies; profit-making organizations; mixed public/profit-making organizations, private voluntary organizations; and local self-help groups. Each type of institution has a particular motivational structure, which in turn generates particular strengths. But, as we saw, these strengths can also be weaknesses, for which AID as a funding agency must compensate by oversight and the imposition of controls. In the second part of the chapter we reviewed some aspects of development participation, and outlined a scheme according to which the pattern of participation in development interventions can be assessed. In this section we show, through short case studies, how institutional factors interact to influence the impact of various development initiatives. The development activities chosen, and the framework within which we will view them, are presented below in Table 3.1.

It should be emphasized that we are not attempting to make invidious distinctions among types of institutions, modes of participation, or particular interventions. Rather, we are trying to abstract from individual cases some general rules about institutional performance in Kenya.

TABLE 3.1. INTERVENTIONS, INSTITUTIONS, AND PARTICIPATION IN KENYA a/

Type of Institution	More Participatory	Less Participatory
Government	MIDP	IADP
Mixed	Hybrid Maize	Parastatals
Profit	Banks	Firms
Private Voluntary	CARE Water	ICA
Self-help	Primary Schools	Cattle Dips

a/ Abbreviations:

MIDP: Machakos Integrated Development Program
IADP: Integrated Agricultural Development Project
KTDA: Kenya Tea Development Authority
KCB: Kenya Commercial Bank
ICA: Institute of Cultural Affairs

1. Machakos Integrated Development Program (MIDP)[1]

The MIDP is a US $24 million, five-year area development project financed primarily by the European Development Fund of the European Economic Community. The project has eleven components, of which the most important are water development (37% of funding), crops development (14% of funds), and livestock development (7%). The focus on water development reflects local agro-ecological circumstances, in that Machakos is a semi-arid area where lack of water inhibits both social and economic development.

In common with most integrated area development efforts, the MIDP must link up with a large number of institutions

1. This treatment relies heavily on Meyers (1981).

to implement project activities. The project manager and Kenyan counterpart are responsible to the Ministry of Economic Planning, and so have no executive authority; this resides with various line ministries, of which there are 10 involved in the project at district level. The Office of the President is also involved through the District Commissioner and the District Development Officer. All these agencies interact at the district level through committees which coordinate implementation, and they link again at the national level through committees designed to coordinate policy. Special provision is made to improve communication between representatives of the same ministry at the two different levels. But in fact most coordination and implementation is done by 11 expatriate technical advisers whose functions parallel those of the line ministries. MIDP has a further advantage, in that AIE's (Authority to Incur Expenditure) are held by district heads rather than by provincial authorities, the usual practice. This speeds implementation.

Before undertaking on-the-ground activities, meetings are held in which local leaders (chiefs, councillors, elders, churchmen, MP's) express local priorities and are acquainted with project goals. In some cases (subcatchment soil/water conservation, sublocation credit allocation) local residents must meet and agree to various stipulations before action is taken. Table 3.2 summarizes organizational links and the structure of participation in this project.

TABLE 3.2. ORGANIZATIONAL LINKS AND PARTICIPATION IN MIDP

A. Organizational Links (4)

Donor

Government (National Level)

Government (Local Level)

Local Leaders

Local Residents

Table 3.2. (continued)

B. Participation

Type of Participation	Type of Participant a/					
	FP	GP(N)	GP(L)	PS(N)	PS(L)	LL
Decision-Making	X	X	X			X
Implementation						
Enlistment	X	X	X			X
Administration	X	X	X			X
Resources	X	X	X			X
Benefits	X	X	X			X
Evaluation	X	X	X			

a/ Abbreviations:

FP: Foreign Personnel
GP(N): Government Personnel (National)
GP(L): Government Personnel (Local)
PS(N): Private Sector (National)
PS(L): Private Sector (Local)
LL: Local Leaders
LR: Local Residents

This table reflects very imperfectly the real complexities of action undertaken in MIDP, but is suited to our present purpose, which is to identify some very basic patterns of institutional performance. Here we see that a considerable degree of participation has been achieved, and that the number of interorganizational links which must be realized before resources can reach local residents is low.[1]

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1. At this level of abstraction we are concerned only with links between organizations of different types or functioning at different levels. In a more detailed treatment one would look at links beteen institutions of the same type at the same level (for instance, district agricultural, forestry, and transport officers). But as Meyers (1981) makes clear, these links, even when unfullfilled, rarely prevent resources reaching local residents. It is when complementary and mutually dependent resources arrive from different institutions that failure to make links may lead to troubles, as in the case of IADP.

Problems encountered stem from two causes: the need to integrate project activities and the need for district officials to shoulder complex planning and budgetary duties. Very briefly, efforts to achieve integration of project activities were relaxed to concentrate on a few key areas, while expatriates took major responsibility for planning and budgeting.

Project impact has been variable. In one evaluation 73% of local residents not receiving project credit claimed not to have heard of MIDP, while fully 38% of those receiving credit made the same claim. At the least, this suggests that local people are poorly acquainted with the goals and resources of the project. Despite this, relatively large numbers of people have undertaken various erosion control measures: terraces (80-100%), cut-off drains (62-80%), crop rotation (57-96%), pasture re-seeding (30-80%), gully rehabilitation (14-26%), and destocking (6-10%). In general, farmers with important sources of cash crop income responded most readily to conservation measures, while middle-income farmers with significant off-farm earnings were most willing to accept credit and other agricultural innovations. Obviously socio-economic variation at the household level influenced the spread and intensity of project impact.

2. Integrated Agricultural Development Project (IADP)[1]

The IADP is a national-level (six provinces) effort financed largely by the World Bank. Phase I, from 1976/77 to 1980/81, was estimated to cost US $35.7 million. The project is aimed at increasing smallholder productivity in relatively disadvantaged areas by developing economically rewarding crop packages; by providing credit for purchase of inputs and hiring of labor; and through provision of training and extension. The primary organizations involved are the ministries for agriculture and cooperatives, district primary cooperative societies, the Cooperative Bank of Kenya (CBK), the National Cereals and Produce Board (NCPB), and the Cotton Lint and Seed Marketing Board (CB). District agricultural officers develop recommended crop enterprises and associated budgets, combining food and cash crops, and calculate the input (including labor) requirements of each. CBK dispenses funds for purchase of inputs to the Kenya National Federation of Cooperatives (KNFC), which in turn provides them to district primary societies.[2] The primary societies select farmers to participate in the program, whereupon district agricultural staff provide

1. Based on Garfield (1981) and World Bank (1976).

2. In practice KNFC is bypassed and cash is advanced to primary societies for purchase of inputs and/or on-lending to farmers.

specialized training and increased extension support. Produce (maize, beans, sunflower, cotton) is collected and sold by the appropriate marketing boards and revenues returned to primary societies for payment to farmers. Various district and national level coordinating bodies exist. Table 3.3 summarizes organizational links and levels of participation in this project.

TABLE 3.3. ORGANIZATIONAL LINKS AND PARTICIPATION IN IRDP

A. Organizational Links (9)

Donor

Government (National) Private Sector (Cooperatives, National Level)

Government (Local) Private Sector (Cooperatives, Local Level)

Local Residents Government (National Marketing Boards)

B. Participation

Type of Participation	Type of Participant a/					
	FP	GP(N)	GP(L)	PS(N)	PS(L)	LL
Decision-Making	X	X				
Implementation						
Enlistment	X	X	X	X	X	
Administration	X	X	X	X	X	
Resources	X	X	X	X	X	
Benefits	X	X		X	X(?)	
Evaluation	X	X				

a/ Abbreviations:
FP: Foreign Personnel
GP(N): Government Personnel (National)
GP(L): Government Personnel (Local)
PS(N): Private Sector (National)
PS(L): Private Sector (Local)
LL: Local Leaders
LR: Local Residents

Obviously this table constitutes a very summary indicator of patterns of activity in IADP, since thousands of individuals were involved at various levels in six different provinces. But is is clear than when compared, for example, to MIDP, levels of participation are lower--particularly with regard to initial decision-making--and the number of essential organizational linkages is large.

Problems encountered are many. Most district agricultural staff have neither the economic nor the technical data and skills needed to develop viable crop packages. Inputs and cash advances are delivered to farmers hopelessly late; the complete request/approval/delivery process is estimated to require six months even under the best of circumstances, and often requires 18 months. Causes of delays are poor management, confusion over responsibilities, corruption, and lack of accounting capacity within the cooperative system at both local and national levels. The marketing boards can or will not accept much produce, and payments to farmers after meeting costs and leakages in the boards and in primary societies are meager. MOA training to farmers is delivered well in some places but poorly in others, while the additional extension support has materialized almost nowhere.

Impact has been minimal. Although continuous four-year participation was sought as a means of improving productivity among farmers, most (about 70%) have dropped out after a single season. Increases in productivity have generally not been sufficient to recover the costs of inputs. Most farmers report little or no increase in output even in the seasons when they received credit, and no sustained increase is discernable. The project was also intended to support decentralized decision-making, but in cases where district officials wished to either withdraw from or modify the program, on grounds related to its poor performance, their decisions have been overridden. Further, district staff have been blamed by both central authorities and farmers for the problems encountered, and on the whole may have suffered (not benefitted) from their participation.

3. Hybrid Maize[1]

Maize breeding in Kenya goes back to the mid-1950's, when it was done under the auspices of the colonial government with

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1. Based on Johnson, et al. (1979), and Gerhart (1975).

Rockefeller Foundation support. The first hybrid was released in 1964, further releases following at intervals since. Much of the research took place under East African Community, as well as Kenyan, auspices from the early 1960's until the collapse of EAC in 1977; thereafter the breeding work has been undertaken solely by the Kenyan government. Financing came from government revenues and several donors, including AID.

Initially the focus was on developing long-maturing varieties for European large-scale farmers in the fertile highlands, but by the late 1960's early and medium-maturation hybrids and composites suited to areas of moderate potential had been released. But release of a new seed variety means little unless significant quantities of the improved planting material can be made available to farmers at low cost and in timely fashion. In this case, seed multiplication and distribution were undertaken by a dynamic private firm, the Kenya Seed Company.[1] KSC staff also developed educational materials for small shopkeepers and extension agents, and did many other things calculated to generate demand for their product. Thus, both public and private entities played important roles in the spread of hybrid maize. Table 3.4 summarizes organizational links and the pattern of participation generated.

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1. KSC premises are located very near to the breeding station at Kitale. The firm is now a 51% government-owned company, although day-to-day management is left to private individuals.

TABLE 3.4. ORGANIZATIONAL LINKS AND PARTICIPATION IN HYBRID MAIZE

A. Organizational Links (6)

Donor

Government (National Level)

Private Sector (National Level)

Government (Local Level) Private Sector (Local Level)

Local Residents

B. Participation

Type of Participation	Type of Participant a/						
	FP	GP(N)	GP(L)	PS(N)	PS(L)	LL	LR
Decision-Making	X	X					
Implementation							
Enlistment	X	X	X	X	X		X
Administration	X	X		X	X		
Resources	X	X		X	X		
Benefits	X	X		X	X		X
Evaluation	X	X					

a/ Abbreviations:

FP: Foreign Personnel
GP(N): Government Personnel (National)
GP(L): Government Personnel (Local)
PS(N): Private Sector (National)
PS(L): Private Sector (Local)
LL: Local Leaders
LR: Local Residents

The pattern of participation here is noteworthy on two accounts: the large role played by business people at both national and local levels, and the minor role played by local government personnel, local leaders, and local residents. The number of organizational links is small.

Problems encountered were relatively few, and stemmed mostly from outmoded government pricing and marketing policies that inhibited commercial maize production, particularly among smaller producers. Also, the cost of hybrid seed has been too high for many poor farmers, the plant is more prone to insect damage, especially in storage, than many local varieties, and in some recent years quality control has weakened. On the research station problems were encountered in retaining highly trained Kenyan counterparts, and in preserving the continuity of research while seeking funding from various sources. But the expatriate staff tended to stay for relatively long periods of time, thus enabling the research program to make cumulative gains.

Impact has been substantial. About half of all farmers grow the crop to some extent; provincial adoption rates range from 19% (Coast Province) to 92% (Rift Valley Province), reflecting in large measure the availability of varieties suited to varying ecological conditions. Among smallholders, hybrid constitutes 10-89% of all maize consumed from own production, depending on location, which indicates impact in the subsistence as well as the commercial sphere. At the national level, it is generally accepted that the yield increases achieved through the widespread adoption of hybrid varieties enabled Kenya to avoid until the mid-1970's the food shortages which plagued other East African countries much earlier.

4. Parastatals[1]

In common with many other African nations, Kenya maintains a well-developed parastatal marketing structure by means of which producer support services are provided (credit, extension), prices are regulated, and revenue is extracted for use by central government. For the most part these institutions had their origins during colonial times, when they were justified largely as means of protecting small peasant producers from the vagaries of world market fluctuations, although in Kenya some of these colonial-era institutions served rather to protect European settlers from peasant competition. In any event, parastatals usually maintain a fund that is supposed to expand during years of high prices, and be expended during years of low prices, thereby cushioning the impact of exogenous price changes. In practice the fund tends

1. This section draws primarily on Buch-Hansen and Marcussen (1981), Gray (1977), and Bates (1981).

to grow much larger than needed, and resources are diverted to other uses. The monopsonist position of most parastatals also removes pressures of competition, and so administrative inefficiencies and corruption tend to be unchecked. Despite obvious deficiencies, parastatal institutions have some advantages. They can implement government policy rapidly and with substantial effect, and they can provide smallholder producers with "wraparound" support services which, by virtue of being coordinated by a single agency, can be delivered much more efficiently than is possible through ordinary government channels or the private sector. In Kenya, parastatal performance in the realm of administrative efficiency has been variable, as illustrated in Table 3.5.

TABLE 3.5. PERFORMANCE OF SELECTED KENYA PARASTATALS a/

	Coffee	Cotton	Pyrethrum	Tea
A. Grower's annual net receipts as a percentage of parastatal sales volume:				
1970/71	93.1	82.1	75.2	68.8
1971/72	94.3	65.7	70.3	67.4
1972/73	95.9	N.A.	67.4	66.5
1973/74	96.7	N.A.	62.2	73.4
1974/75	96.6	N.A.	77.2	77.8
1975/76	97.4	48.0	65.5	78.7
B. Parastatal reserves as a percentage of grower's annual net receipts:				
1970/71	2.2	34.9	57.4	0.7
1971/72	1.9	48.2	50.0	1.1
1972/73	1.5	N.A.	68.9	1.6
1973/74	1.2	N.A.	59.9	1.9
1974/75	1.6	N.A.	66.4	1.9
1975/76	1.7	N.A.	79.5	7.3
C. Increase in parastatal unit administrative costs net of inflation:				
1971-76	+32%	+40%	-84%	-16%

a/ Aldington working paper cited in Gray (1977).

The parastatals responsible for coffee and tea appear to have delivered consistently good performances during the period, particularly with regard to the level of funds held in reserve. The Cotton Lint and Seed Marketing Board has a disastrous record, and we may form our own opinions about why the Board cannot provide the consistent annual data upon which these assessments are based. The Pyrethrum Board has accumulated massive excess reserves, which by keeping producer payout low probably depress both production and foreign exchange earnings. Throughout 1981 local newspapers carried many accounts of dissatisfaction among pyrethrum growers, so it seems the pattern illustrated here has not changed. Low administrative costs likely reflect the low level of services provided.

In a later chapter on agriculture we take a closer look at the Kenya Tea Development Authority (KTDA). Without repeating material presented there, we can say that KTDA confers substantial benefits on participating farmers, largely because the organization has achieved effective balance in allowing smallholders to undertake those productive tasks they are best equipped to perform, while providing comprehensive and effective support services.

The dominant donor response to parastatals has been criticism: every year new recommendations are brought forth to abolish, modify, or replace the parastatals with other institutions. But the parastatals have developed significant political power bases of their own, due to the resources which they control, and are more-or-less immune from pressures exerted by other ministries let alone the donor community. It therefore does not seem likely that frontal attacks will accomplish much. Moreover, the parastatal institution as such is not always a bad thing, as illustrated by the coffee and tea organizations. Thus it may be not so much organizational style as management style that influences outcomes in this sector.[1] This circumstance offers donors a possible solution to the problem. High-level technical assistance, perhaps not new expatriates but rather seconded personnel from successful parastatals, may help to provide the leverage with which better

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1. In neighboring Tanzania similar circumstances have been observed. Nationalization of major industries after 1967 did not seriously affect performance for several years until the promulgation of mwongozo, a TANU dictum that explicitly placed management on a political, rather than a productivity, footing (Hyden 1980).

institutional performance can be obtained.[1] But the major point is that parastatals can sometimes constitute a satisfactory link between central resources and peripheral producers, and ought therefore not be rejected out of hand as a mechanism by which donor resources can be delivered to local populations.

5. Private Sector Interventions

In a later chapter on employment in Kenya, we examine the small business/industrial sector in some detail, and review results of private and government investment programs. Very briefly, the conclusions reached are:

(a) Investment in Kenya's private sector is vitally important to meet the nation's need for substantially increased employment opportunities between now and the year 2000;

(b) Investment in single large industrial enterprises will often be associated with doubtful economic and employment benefits, and we may add here, will ordinarily have strongly political overtones;

(c) Government-managed programs of support to small business have an appalling record of inefficiency, corruption, and minimal impact; and

(d) A program of support to small business instituted through a profit-making financial intermediary might offer the best overall approach to stimulating employment in the private sector.

Our preference for a program of lending to small rather than large businesses is also based on criteria other than economic efficiency and employment. These are institutional criteria, and it is appropriate here to make them explicit. Some of the issues involved will become apparent if we ask the questions, who is responsible for assessing the viability of a loanee enterprise, and what is the likelihood that the assessment will be correct?

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1. A more radical solution would be to finance the purchase of parastatals by private companies through concessionary loans. But the performance of monopsonist private companies in Kenya's export sector parallels that of weak parastatals.

Donor agencies themselves will rarely have the time or the data to undertake a complete assessment of proposed enterprises; nor in many cases will the requisite skills be available. It is asking too much to expect donor staff to be aware of the manifold local and national level factors that ultimately determine the success or failure of particular business enterprises. Thus they ordinarily depend on appraisals undertaken by intermediary institutions, and there is also a considerable tendency to think that entrepreneurs or entrepreneurial consortia would not forward a project if the likelihood of success were not fairly high; and so appraisals may not be scrutinized as closely as they might be otherwise. Thus the question of enterprise appraisal becomes central.

Here is the main advantage of utilizing a profit making financial intermediary to make loans to various enterprises. With profitability on the line, such institutions have every reason to consider each loan very carefully. To illustrate the point, we may refer to the loan recovery records of two Kenyan agencies that have provided credit to small and medium size industrial and manufacturing enterprises: the government-run Industrial and Commercial Development Corporation (ICDC), and the profit-making Kenya Commercial Finance Company (KCFC).[1] In 1980 about 50% of the ICDC portfolio was judged unrecoverable (see employment chapter), while the KCFC usually fails to recover about 1% of the value of its lending each year. Thus in placing a profit-making financial institution between itself and loanees, a donor agency can expect the loan funds to make a positive contribution to Kenyan industrial development, without worrying too much about the financial viability of the individual enterprises supported. We see that a commercial financial institution can fullfill this role for small business; what institution can take up this function with regard to large enterprises?

In Kenya, large industrial projects come to the attention of donors primarily through a government agency, the Industrial Survey and Promotion Center of the Ministry of Commerce, although individual ministries of course may forward industrial projects of their own as well. Without casting aspersions on the technical competence of the government staff who appraise and recommend these enterprises, it is appropriate to observe that no enterprise will emerge from this process for review by donors without having passed through a number of political filters. Indeed, many such projects are doubtless fundamentally political in origin, since government loans and

1. A subsidiary of Kenya Commercial Bank (KCB 1982:4).

loan guarantees are well-established as the primary currency of political transactions in Kenya. Many large projects presented by government for financing by donors are probably financially viable and potentially of great economic value to the nation, even if politically motivated; but the responsibility for deciding which are and which are not must be taken up by the donor. Without going into embarassing detail, there is abundant evidence in Kenya to support the view that donors are not fully equipped to make such assessments.

An alternative is to employ independent outside consulting firms to make viability appraisals; but unfortunately in this imperfect world it is rare to find a consultant or consulting agency that will provide a firm "no" in circumstances of this sort. By the time a consultant agency is called in the atmosphere is not one in which "go-no-go" decisions are easy to make; rather, the tendency is to patch up obvious faults and find a way to proceed.

Therefore we conclude that in Kenya the institutional dynamics associated with the genesis and appraisal of many large industrial projects raise the risks of investing in such efforts above the levels due solely to ordinary problems of financial and economic soundness. Donors are ill-equipped to measure these additional sources of risk. Still, there are often considerable pressures originating both within Kenya and within donor organizations to support, or help government support, such ventures. We must also concede that large enterprise loans will often be easier to arrange than small business loan programs, and administrative costs will of course be relatively insignificant. Despite the evident dangers, then, we can expect donors to continue to be interested in large ventures. Apart from a detailed and disinterested appraisal of such proposals, what steps may be taken to ensure that these projects will in fact benefit the nation? We can find guidance here by looking at the relationship between industries and their markets, as is for instance done by House (cited in Gray 1977). Kenya industries are grouped into three categories: Group I, monopolies and concentrated oligopolies; Group II, unconcentrated oligopolies; and Group III, competitive industries. Table 3.6 shows which individual Kenyan industries fell into which categories in 1972.

TABLE 3.6. CATEGORIZATION OF KENYAN INDUSTRIES BY MARKET STRUCTURE, 1972. a/

Group I	Group II	Group III
aircraft repair	canned fruits & vegetables	non-metallic minerals
bakery products	clay and glass	electric machinery
cement	clothing	nonelectric machinery
chemicals	furniture and fixtures	paper and products
confectionery	grain mill products	textiles
cordage, rope, twine	metal products	wood: sawn lumber
dairy products	vehicle bodies	wood: other
footwear	vehicle repair (1967)	
meat products	printing & publishing	
paints	rubber products	
pyrethrum	ship building	
railway rolling stock	sugar milling	
soap		
soft drinks		
spirits, beer, malt		
tanning and leather		
tobacco		

a/ Gray 1977: 116-117. Donors wishing to proceed with large single investments would want to update these data.

Placement into categories is based on an index of industrial size and concentration derived from employment and sales data. We see that Kenya's industrial sector is largely monopolistic and oligopolistic; competitive industries are few. This is also reflected in patterns of employment and manufacturing value added, as shown in Table 3.7.

TABLE 3.7. MARKET STRUCTURE OF KENYA MANUFACTURING INDUSTRY 1963-1972 a/

	Groups I	II	III	Total b/
Number of Firms				
1963	144	98	442	684
1967	219	241	361	821
1972	180	623	254	1057
% of Total Manufacturing Employment				
1963	47.1%	15.1%	34.1%	96.3%
1967	48.1%	23.5%	22.5%	94.1%
1972	38.0%	31.4%	18.5%	87.9%
% of Total Manufacturing Value Added				
1963	54.8%	18.6%	23.8%	97.2%
1967	54.2%	26.2%	12.5%	92.9%
1972	42.9%	24.9%	15.7%	83.5%

a/ Gray 1977:118

b/ Totals do not equal 100% because "miscellaneous" industries in foods, chemicals, and manufacturing are not included. Clearly the market share of these diverse enterprises has been growing during the period.

Group II, nonconcentrated oligopolies, seems to have gained a greater share of the manufacturing market during the period surveyed, while industries in Groups I and III have suffered declines. From 1963 to 1967 a total of 10 industries became more concentrated, while four became less so; from 1967 to 1972 the dominant direction of change reversed itself--five industries became more concentrated, while eight became less so (Gray 1977). Apart from illustrating the volatility of Kenya's industrial sector, what can these figures tell us? From the perspective of potential donors, the following points seem relevant:

(a) It would probably be a mistake to support existing Group I industries, but new entrants to the field might serve a useful purpose in breaking up an uncompetitive industry, thereby increasing consumer surplus and perhaps overall economic development. On the other hand, new entrants might simply wish to share in monopolistic/oligopolistic profits.

(b) Before supporting Group II or III industries, care should be taken that the proposed enterprise is not on a scale that would change the market to a more concentrated structure, that is, shift an industry from Group III to Group II or from Group II to Group I. This has happened for instance, in the case of shoes, soap, vehicle tires, and radio batteries.

(c) Proposals emanating from Group III industries are probably relatively free from political influence, particularly if they contemplate a scale of operations that would not change the industrial structure. This is because quick, easy profits (apart from commission on equipment purchases) are not likely to be found here.

It is unwise to push analysis at this level too far, for nothing can substitute for a careful appraisal of proposed projects on a case-by-case basis. But it is as well to be aware of some of the investment issues that derive not from strictly financial or economic considerations, but rather from the broader social and institutional context within which investment takes place.

In this section we have attempted to outline some of the issues that donors might wish to consider in contemplating private sector investment in Kenya. Much good can be done in this way, but mistakes can be costly, not only for the donor

but for the nation. Decisions about intermediary financial institutions; about methods of project appraisal; about size of firm to be supported; and about industries in which to become active, are neither politically nor developmentally neutral. Obviously a careful assessment of market structure, institutional linkages, and political dimensions would not be out of place in any private sector program.

6. PVO: CARE Water Development[1]

CARE-Kenya first began small-scale water development in 1968. By mid-1976 organizational capacity and experience had been developed to substantial levels. At that time the program underwent an expansion with grant assistance from AID. Between this time and 1978 when the grant was discontinued 49 community water projects were undertaken. CARE continued the program with support from other donors and the government of Kenya.

The CARE program is explicitly meant to link up with and support community self-help efforts. Only when a community has made significant progress toward a water system on its own will CARE step in with limited capital and technical assistance. (This criterion biases the CARE program toward areas that are already better-off.) Other institutions involved are the Ministry for Culture and Social Services (MCSS) and the Ministry of Water Development (MWD). Field representatives of the MCSS[2] work with local community leaders to develop viable plans for the use of community resources (land, labor, commodities). MWD officers finalize technical details. Only when a project has been approved by both MCSS and MWD will CARE provide resources. Ordinarily these are limited to necessary, but expensive, imported materials, although a certain amount of technical assistance is provided when MWD resources are stretched too thin. Table 3.8 summarizes organizational links and patterns of participation.

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1. Based on CARE (1979?), CARE (1981?), Barclay and Tripp (1978), Dworkin (1980), and Krystal (n.d).

2. These Community Development Assistants are now responsible to the Ministry of Local Government.

TABLE 3.5. ORGANIZATIONAL LINKS AND PARTICIPATION IN CARE WATER DEVELOPMENT

A. Organizational Links (11)

Donor

CARE

MWD (National)

MWD (Field)

MCSS (National)

MCSS (Field)

Local Leaders

Local Residents

B. Participation

Type of Participation	Type of Participant a/						
	FP	GP(N)	GP(L)	PS(N)	PS(L)	LL	LR
Decision-Making	X	X	X			X	X
Implementation:							
Enlistment	X	X	X			X	X
Administration	X	X	X			X	
Resources	X	X	X			X	X
Benefits	X	X	X			X	X
Evaluation	X	X	X			X	X

a/ Abbreviations:
FP: Foreign Personnel
GP(N): Government Personnel (National)
GP(L): Government Personnel (Local)
PS(N): Private Sector (National)
PS(L): Private Sector (Local)
LL: Local Leaders
LR: Local Residents

The most interesting fact shown here is the penetration of CARE to all the entities involved in any particular water development project. Clearly coordination was eased as a result. Participation was also extensive. The large role played by communities in the program is revealed by the level of contributions provided; as Table 3.9 shows, community resources constituted a significant fraction of total resources committed to the program.

TABLE 3.9 CONTRIBUTIONS TO 21 WATER PROJECTS, FY 77 a/

Source of Contribution	Inputs Provided	000$	% of Total
USAID	Materials	139.9	16%
GOK	Materials/TA	388.5	46%
Communities	Land, Labor, Material	268.2	32%
CARE	Coordination/ Materials	52.8	6%
Total		849.4	100%

a/ CARE (1979?:39).

Although local communities made large contributions, thus signalling strong commitments to the various projects involved, problems in maintenance have resulted. In three Rift Valley locations, for instance,

> the harambee committees...were effective until all materials were installed then they were just not able to convince the consumers that they should pay for the water (CARE 1979?:41).

Overall, problems related to lack of post-installation management or maintenance capacity seem to have afflicted about 22% of projects assisted during the period. To some this may seem an encouraging figure, but it would be wise to re-assess the functioning schemes after a period of three or four years before forming firm conclusions. In a later section, we suggest that these findings with regard to community inability to finance recurrent costs, coupled with a generally greater ability to provide start-up costs, argue for greater donor involvement in recurrent cost support.

Impact of the CARE water program has been substantial in those cases where schemes have been made completely operational. Time devoted to water collection by women declines greatly, possibly by as much as two hours per day, which is given to productive tasks and community activities (Krystal, n.d.). There may also be health benefits. But many systems never function at all, while others work

intermittently or provide only small amounts of water. Thus overall impact is variable, depending on the congeries of local-level factors (community organization, wealth, and the soundness of system design) that determine whether an installed system will continue to function properly. It should be noted that government will never be able to shoulder more than a fraction of all recurrent costs of a national water system, while nearly all communities expect that if they wait long enough or complain loudly enough government will at least assist them. Until community expectations are lowered in this respect it is unlikely that any firm progress toward making individual communities responsible for water maintenance will be made, and of course similiar factors are operative in sectors other than water.

7. PVO: Institute for Cultural Affairs (ICA) [1]

ICA works primarily in Kawangware, a peri-urban area on the outskirts of Nairobi. The program began in 1975, and through 1978 had received some US $133,000 in funding. Activities include small business development and urban agriculture. Four industries are in operation (construction, metal fabrication, handicrafts, and sewing). The agriculture effort focuses on labor intensive irrigated production of French beans, which are grown year-round and sold in Nairobi for export. Several hundred local people have been or are currently involved with the project in one way or another, while ICA maintains a variable staff complement of 5-10 persons.

Although ICA activities are identified originally through consultations with local residents, decisions about activities and implementation are responsibilities of ICA staff, who maintain manage- ment and financial control over nearly all aspects of the project. Local people function more as paid employees than as participants. While some degree of agency control is always required, in this case ICA is apparently "...inhibiting the independence and potential self-reliance of the client enterprises" (Ashe et al. 1981:105). The activities themselves appear soundly-managed, and, in the case of the irrigated vegetable scheme, may even be innovative and potentially very promising; but the failure of ICA to engage the resources of the community to any significant extent casts doubt upon whether any of the enterprises will ever be self-sustaining.[2] Moreover, it is not clear that any of the activities would be financially viable without considerable support from ICA. Patterns of participation and organizational links are summarized in Table 3.10.

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1. Based on Ashe, et al. (1981) and Barclay and Tripp (1978).
2. Only one activity, the metal shop, existed in any form prior to the arrival of ICA.

TABLE 3.10 ICA ORGANIZATIONAL LINKS AND PARTICIPATION

A. Organizational Links (3)

Donor

ICA Nairobi Purchasers/Supplier (Local Private Sector)

Local Residents

B. Participation

Type of Participation	Type of Participants a/					
	FP	GP(N)	GP(N)	PS(L)	LL	LR
Decision-Making	X					
Implementation				X		X
Enlistment	X					
Administration	X					
Resources	X					
Benefits	X			X		X
Evaluation						

a/ Abbreviations

FP: Foreign Personnel
GP(N): Government Personnel (National)
GP(L): Government Personnel (Local)
PS(N): Private Sector (National)
PS(L): Private Sector (Local)
LL: Local Leaders
LR: Local Residents

This table clearly shows the nearly complete isolation of ICA from the socio-economic fabric of the community in which it is working. Only indispensable ties with purchasers and suppliers are maintained, and these largely by ICA staff rather than local individuals. While the lack of ties with local or government organizations eases coordination and implementation problems, the result is likely to be that little will remain when ICA leaves. The pattern of participation, which is meager, reinforces these judgements. While overt problems in implementation have been minor compared to other activities examined in this chapter, it seems probable that impact will be minimal.

g. Harambee Self-Help[1]

Between 1967 and 1973 harambee activities contributed 11.4% of the overall national development expenditure (Mbithi and Rasmusson 1977:14). In community development, health projects, and education, harambee contributions were close to or greater than government expenditures during the period. Thus, there is no question that self-help generates substantial development resources. There are many explanations for the strength of Kenya's self-help movement. Barkan et al. (1979) are probably correct in thinking that two elements are involved. First, harambee is in many ways a state initiative, undertaken just after Independence when expectations in rural areas were high but the finances and administrative capacity of the state were weak. President Kenyatta's call for harambee self-help placed the burden of community development on local entities, and freed central government to focus on national programs. At the same time a mechanism was instituted (government helps those who help themselves) which tended to preserve existing patterns of economic differentiation (and political support), while creating an ideology of self-reliance which made the inequitable outcomes difficult to criticise. But the relationship is not entirely one-sided. By undertaking harambee activities local communities can legitimize their requests for government assistance, thus extracting central resources that might otherwise never reach the rural areas. Harambee sentiment and action are so strong in rural places that delivery of resources has become the accepted measure of political success; local representatives must lead, contribute to, and draw in central resources for the support of self-help activities in their constituencies or risk being replaced by others.

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1. The literature on harambee in Kenya is large. This draws primarily on Barkan et al. (1979), Haugerud (1981a), Hill (1974), Mbithi and Rasmusson (1977), Slattery (1981), Thomas (1979), Winans and Haugerud (1977), Mutiso (1975), Holmquist (1979), Reynolds and Wallis (1976), and ROK (1974).

Given the importance of self-help at the local level in Kenya, and the ambivalent circumstances in which the movement first gained prominence, it should not be surprising that strongly divergent views are held with respect to whether and to what extent valid socio-economic goals are served. Four positive points are usually mentioned. First, harambee is thought to mobilize rural resources (labor, savings, commodities) that would otherwise not be committed to solving problems of national development. Second, harambee fills a definite gap in the range of development interventions undertaken, in that certain types of useful projects (school development, health centers) are unlikely for various reasons to be initiated by donors or central government. A related point is that harambee efforts are ordinarily small in scale, and thus more likely to be suited to the needs of rural life than the massive efforts favored by national and international development agencies. Third, harambee is considered to be relatively efficient at converting society's savings into outputs, since substantial activities can be undertaken without the need for a parasitic bureaucracy and extensive physical plant. Finally, harambee is thought to promote a capacity for locally-directed development, which is valued because it builds self-reliance and helps ensure that development interventions are suited to the needs and resources of local people.

On the negative side, three issues stand out. First, it is suggested that harambee channels both local and central resources into activities with questionable development impact. The favorite example is in the realm of education; people's rush to build primary and secondary educational facilities has resulted in a massive, expensive, and poorly-trained educational bureaucracy which some feel serves neither the state nor local interests.[1] Second, harambee may serve the needs of rural elites far more than the needs of the majority of rural residents. According to this view, harambee contributions constitute a regressive tax falling more heavily on the poor than the wealthy, and the effect is magnified when the object of the activity is to construct facilities that will not benefit all members of the community equally, such as cattle

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1. But see the chapter on education for a perspective on the real benefits that education may confer.

dips (see below). A related point arises because harambee activities are sometimes initiated by politicians to place themselves ahead of rivals. In such cases, where popular interest may be negligible, much effort can be expended in activities that are forgotten after the next election. It is also not unusual for harambee funds to go mysteriously missing, especially when the activity is complex and expensive, requiring contributions from people within large administrative groupings (districts, locations). In these cases the social control which inhibits such behavior at lower levels is absent. The final point is that, because of the extractive nature of harambee, it actually leads to an increase, rather than a diminution, of stratification in rural communities. The same point is made at the national level, that is, that those regions favored by patterns of development during colonial times benefit from harambee more than the disadvantaged places, both because local resources are greater and because government contributions to harambee-initiated activities reinforce existing patterns of inequality.

Both positive and negative evaluations of harambee can be justified empirically, and so we are left with the conclusion that the precise impact of a particular project is contingent upon a number of local level variables. The most important of these seem to be the following. First, the more specialized the service provided, the narrower the range of beneficiaries. Schooling provides a good example. Virtually all contributors to a primary school project will benefit, since most have or will have children of primary school age. But few in a community can expect to send their children to secondary school, so the percentage of contributors who ultimately benefit from such a facility will be smaller than in the case of primary schools. Second, economic projects benefit a narrower stratum of the population than social projects. Nearly everybody needs health care, for instance, so nearly all contributors to a dispensary can expect to benefit. But only people with livestock will benefit from cattle dips. Variable impacts of this type are often discounted by distant observers with little comprehension of the extent to which socio-economic differentiation has proceeded in rural East Africa. To illustrate the cattle dip question, some preliminary data from three contrasting communities in Taita/Taveta district are presented below.

TABLE 3.11 PERCENTAGE DISTRIBUTION OF LIVESTOCK UNITS AMONG TAITA HOUSEHOLDS a/

Type of Village	Household Categories b/ Top	Upper Middle	Lower Middle	Bottom	Total
Highlands Cash Cropping	66.0%	20.9%	10.2%	2.9%	100%
Highlands Subsistence	69.3%	22.2%	7.1%	1.4%	100%
Lowlands Subsistence	57.1%	26.5%	12.4%	4.0%	100%

a/ Source: Fleuret & Fleuret unpublished field notes 1981-82.
b/ 25% of village households are in each category.

The distorted pattern of livestock holdings shown here is not atypical. Clearly dips benefit the bottom half of the population much less than the top half. The harambee contributions of wealthier Taita households do tend to be about three to five times the size of contributions from poorer households, but the wealthiest 25% (in terms of livestock holdings) would have to pay 14-50 times more than the poorest 25% to bring contributions in line with benefits. Nothing of the sort takes place. Probably the strongly regressive nature of contributions to economic projects has been an important factor limiting their proliferation; it is much easier to interest most people in social services where the benefits are inevitably more evenly spread. Third, when factionalism is low and community leadership unified, projects tend to be completed "rapidly and successfully" (Thomas 1979:30). Political competition fragments both interests and resources, weakens community sentiment, and spreads distrust. In these circumstances it is very difficult to focus community energies on harambee projects, because any effort made will always benefit one group more than another. The outcome is either paralysis or a proliferation of redundant projects. Fourth, a powerful patron in some central government position leads to successful projects. When local men gain national prominence a flow of resources to the home areas is nearly guaranteed. This makes it possible for current projects to receive substantial assistance, and encourages people to initiate more projects in the future. Finally, the per-household cost of contributions is lower in densely-populated areas than in sparsely-populated areas for equivalent projects. Thomas (1979:30) makes this point, noting that costs of many facilities (a dip, a classroom, a dispensary) are more-or-less fixed. Since distance is a prime factor determining usage, the served area in a high density zone will have more households among which costs can be spread than is the case in lower density zones. Thus settlement patterns make it comparatively easier to undertake harambee projects in high density areas.

We have gone to some length in treating the complexities of community self-help in Kenya because there is a tendency among observers to be either "for" or "against" harambee. The reality will not support such simplistic reactions. There are circumstances in which harambee can make a major contribution to local and even national development, and circumstances in which the impact, if any, will be retrograde. Development planners need to be aware of the factors which condition one outcome or the other, so that they may take steps to build on harambee sentiment when this will make a positive contribution, and avoid becoming entangled in situations where difficulties seem likely to emerge. This said, an important question arises: how do donors link up with and support self-help groups? In Kenya, three institutional frameworks have been employed to achieve this: PVOs, area development projects, and the Rural Development Fund (RDF). The role of PVOs is discussed elsewhere in this chapter; below we examine very briefly the results of area development efforts and the RDF.

The Machakos Integrated Development Program (MIDP) provided assistance to local self-help groups to strengthen their capacity to carry out small scale labor intensive and income generating activities (Meyers 1981:27.[1] In addition, these groups were engaged to undertake soil conservation efforts. Although self-help groups were evidently easy to interest in "social service" activities (Meyers 1981:38), less success was found in the realm of conservation. Only about 51-67% of local households belonged to self-help groups, with the higher figure being observed among wealthier, more educated households receiving project credit. Of those belonging to self-help groups, about 45-74% used the groups to undertake erosion control measures on their farms. Again, the higher figure was for credit recipients. But whether this participation stemmed from any type of self-help sentiment or local interest in the conservation outcome is unclear; elsewhere (Meyers 1981:140) we see that MIDP project managers perceived the self-help groups simply as a source of hired labor. When utilizing the groups would have slowed implementation. management resorted to hiring of casual individual laborers. Serious questions remain whether the erosion control measures undertaken will be maintained when direct MIDP support is withdrawn. In short, MIDP may have assisted local self-help groups through payment of wages and delivery of training, but it would be stretching a point to say that the project has built upon the special qualities of self-help groups to support and extend donor and government resources.

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1. Apparently some 2% of project funds were set aside for this purpose--about one-half million dollars (Meyers 1981:9).

Rather different but equally negative results were obtained in Kenya's Special Rural Development Program (SRDP), which among other things was expected to guide self-help efforts into economic, rather than social, channels. Reynolds and Wallis compared SRDP areas with similar non-SRDP areas and concluded that the program probably depressed all types of self-help activity in one place, and elsewhere actually stimulated social development activities at the expense of economic efforts. The crucial factor seemed to be simply government intervention; local people perceived that with the arrival of SRDP their development needs (especially in productive sectors) would be taken care of by government, and so directed their resources elsewhere (1976:7-12). So far, then, area development projects have probably not been very effective institutional linkages between donor resources and self-help groups.

The Rural Development Fund (RDF) was established in 1975 by the Kenya government and a consortium of donors[1] as a "major instrument to ensure local participation in the development process through identification of projects, initial funding, and contribution of labor for their implementation" (RDF 1981:8). Funds administered by the Ministry of Economic Planning and Development (MEPD) are made available to District Development Committees (DDC's) for capital assistance to local self-help projects and for hiring of local labor in rural works programs. About 40-50% of expenditures have been in rural works, with a further substantial proportion going to water projects.

The system evolved for identification and approval of projects is complex. Projects are identified by location and sublocation development committees, that is, at the very lowest administrative levels. Preliminary assessments take place successively at divisional, district, and provincial levels. If approved at provincial level the project is returned to the DDO for final technical preparation. Then it is returned for further technical appraisal at the province, and then returned to the DDO for submission to the MEPD, where a final appraisal takes place. If a project passes this final scrutiny it is approved for implementation. The authority to incur expenditure (AIE) was held in the beginning by Provincial Planning Officers, but after 1979 AIE's were issued to District Commissioners. Projects take anywhere from two months to two years to pass through this system, the bulk requiring 6-12 months (RDF 1981:15).

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1. DANIDA, NORAD, SIDA.

Issuance of AIE's signals the official start of implementation. Often the AIE's will not cover costs, due to inflation, inadequate costing of materials, or because the MEPD has arbitrarily reduced the amount of funding without regard to implications for implementation. When projects are completed, inadequate provisions are made for recurrent expenses, thus "a large number of completed projects are not functioning properly or have been given up totally" (RDF 1981:20-21).

These difficulties emerge largely because the fund is administered by the MEPD at the national level, and by the Office of the President (DC's and DDO's) at the district level. Not only have these two institutions not erected a mechanism to regulate their joint responsibility, but neither of them has implementation power. This resides with the line ministries. District representatives are supposed to provide technical advice during project preparation, resources for implementation, and if possible, maintenance, but ordinarily cannot incur recurrent expenditure without approval from central offices in Nairobi. Thus massive coordination difficulties are unavoidable. Table 3.12 illustrates the organizational links involved and assesses the structure of participation.

TABLE 3.12 ORGANIZATIONAL LINKS AND PARTICIPATION IN RDF

A. Organizational Links (7)

Donor

Ministry of Economic Planning

Government (Provincial Level) | Government (District Level) | Government (National Level Line ministries)

Government (sub-district)

Local Leaders

Local Residents

B. Participation

Type of Participation	Type of Participant a/						
	FP	GP(N)	GP(L)	PS(N)	PS(L)	LL	LR
Decision-Making	X	X	X			X	X
Implementation:							
Enlistment		X	X			X	X
Administration		X	X			X	X
Resources		X	X			X	X
Benefits	X	X	X			X	X
Evaluation	X	X					

a/ Abreviations

FP: Foreign Personnel
GP(N): Government Personnel (National)
GP(L): Government Personnel (Local)
PS(N): Private Sector (National)
PS(L): Private Sector (Local)
LL: Local Leaders
LR: Local Residents

Participation is fairly extensive, particularly at local levels. The number of organizational links involved is fairly large, but most have to do with project approval rather than implementation.

Impact has probably been minimal due to lack of recurrent support. Moreover, the long period between problem identification and delivery of resources has generated a large backlog of uncommitted funds. Of KSh 7.6 million donated between 1974/75 and 1980/81, 89% has been allocated through issuance of RIF's, of which 60% has been spent. Thus total expenditure is about 54% of contributions (RDF 1981:8). The long delays have been disappointing to local participants, and in addition there is suspicion that political criteria have influenced the allocation of funds, some districts having received two or three times as much money as they were allocated, while others received small fractions.

The RDF began as an effort to support local level self-help development. There is no reason to think this goal has been subverted, but an unwieldy approval structure and a weak implementation structure have prevented the goal from being achieved to the degree intended. Thus the RDF, like area development programs, does not seem to be an effective model for linking donor resources with local level groups.

In this section we have reviewed some important aspects of self-help development in Kenya. The harambee movement itself is a complex phenomenon, which can accomplish much or little, depending on the local context in which action takes place. For donors, the question is how to effectively support harambee projects that seem likely to contribute toward local and national development goals. One part of this is supporting types of projects that seem most valuable, and is relatively easily done. Both MIDP and RDF successfully imposed their criteria on local entities, although SRDP did not. The second step is harder: designing an institutional mechanism which can deliver support to local efforts in such a way that impact is both quick and long-lasting. MIDP was able to keep gestation periods short, but RDF was not, and neither organization has solved the problem of recurrent expenditure and maintenance. We have seen elsewhere that PVO efforts suffer similarly. In the next section some suggestions about appropriate self-sustaining structures will be made.

D. Implications

In this section we try to identify general patterns in the case material examined. Only a limited number of case studies could be presented in the space available, and our conclusions must be correspondingly narrow. We see lessons to be learned in three general areas: performance of institutional types; linkages among institutions; and participation.

1. Performance of Institutional Types

The foremost lesson here is that no institutional type should be rejected out of hand on ideological or other grounds. Government, parastatals, profit-making institutions, private voluntary organizations, and self-help groups all have the potential to make a contribution to national development. On the other hand, it is possible to suggest areas where different institutional types might be expected to perform well, and areas where poor performances are likely.

Self-help groups, for instance, can be counted upon to mobilize labor, materials, and cash for one-time efforts aimed at concrete accomplishments such as roads, terraces, buildings, and water systems. Community resources mobilized in this way have made and can still make a massive contribution to Kenyan development. But it is pointless to expect the communal sentiment that drives these one-time efforts to be somehow extended in time to take care of long-term maintenance. No end will be served by lamenting the failure of communities to accept this responsibility, nor by trying again and again to make them do so. The resource extraction and authority structures that are at the heart of harambee are simply not adapted to long term efforts. How many American neighborhoods maintain their own roads, clinics, or water systems? We expect local government to perform these functions. In Kenya local authorities (county and municipal councils) did so until the late 1960's, at which time central government, for largely political reasons, emasculated their responsibilities and revenue collection powers. There is abundant evidence that central government cannot shoulder recurrent expenses at the local level,[1] nor is there any good reason why it should;

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1. The Ministry of Water Development is a characteristic and well-documented example (Haddow 1980).

and the same may be said of local communities at the opposite extreme. We conclude that the failure of harambee to provide a means of meeting recurrent expenditures reveals a weakness not in community organization, but in central government policy. Donors should pressure government to restore the functions and powers of local government, an act which would be entirely in accord with current rhetoric about decentralization.

It is difficult to generalize about private voluntary organizations. These can be extremely good or extremely bad at supporting local and national development goals. Likely the best course is to maintain a rigorous evaluation program to allow informed judgements about the strengths and weaknesses of particular PVOs. Documentation of this sort can also serve a useful purpose in counteracting political pressures to involve one PVO or another. Beyond this, however, we see through the CARE example that a PVO may have the capacity to speed implementation by "making connections" between a variety of different types of organizations functioning at different levels. Government of any kind is notoriously weak in this regard, while donors can do so but only with great effort, and at great expense (MIDP). Thus we suggest that at least some PVOs can be usefully employed in these intercalary administrative positions. But, as the ICA example shows, not all PVOs have an equal interest in meshing various disparate institutions in a way that magnifies the impact of all. Obviously careful thought must precede the choice of any particular PVO to undertake such critical tasks.[1]

Anyone with experience in rural Kenya can see that the private sector is strong and indispensable; it is a vital element in local socio-economic patterns and, through trade credit and the exploitation of profit-making opportunities, often functions to protect rural people from vagaries of weather and government policy. Even if this were not so, Kenya's need for growing employment would dictate support to private sector enterprises. Thus the question is really not whether, but how, to undertake a private sector initiative. In this chapter and in the employment chapter, we argue for a lending program to small businesses, using profit-making financial institutions as intermediaries. Such a program will meet financial, economic, and employment goals, and also stand a good chance of avoiding the political and other difficulties which we expect to accompany any involvement with large industrial enterprises.

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1. Ritchie (1980) offers a useful assessment of some British PVO's active in Kenya. Characteristics are similar to those seen in the American examples discussed here.

The parastatal sector shows most clearly the extent to which generalization about Kenyan institutions may impede understanding. Some parastatals work very well and others not at all. There should be no hesitation in supporting the strong ones, or in encouraging them to undertake specific development tasks in their areas of responsibility. We have suggested that donors wishing to strengthen or work through weak parastatals consider the secondment of high level management personnel from successful parastatals. Another strategy would be to place senior technical advisers in the financial institutions that provide loan and overdraft services to the weak parastatals; placed appropriately they could impose some degree of accountability. Alternatively, staff from the finance institutions could be seconded to the parastatals for direct control. Leonard (1981b:44) has stressed the power of secondment as a control linkage.

Despite the occasional attractiveness of alternative aid delivery strategies, bilateral donors will inevitably be associated with public entities to a substantial and probably dominating degree. This should not be seen as a problem, for there is much to be done in this sphere. We have already noted an urgent need for the revitalization of local government, which can do many useful things that single communities and central government are either unable or unwilling to do. It is senseless to attempt to force community or central entities into performing functions that have historically and appropriately been done by intermediate organizations, and donors may do much good by assisting government to recognize this reality.

With regard to central government itself, there is no question that under certain circumstances a very satisfactory performance can be expected. We see this in MIDP and in the hybrid maize program. At the same time there is a potential for failure of the most spectacular sort. The central fact is that with (often) poorly trained and motivated field staff, and a thorough-going lack of logistical resources, most line ministries can be expected to experience difficulty in implementing the programs for which they have responsibity. On the other hand, no matter what the weaknesses of central government might be, there is no question that many of the tasks undertaken do in fact require central direction. This suggests an obvious division of responsibility: central government should retain control of policy and strategy in development interventions, but might more often allow implementation to be undertaken by organizations with greater capacity for flexible response to difficult and changing

project environments. Such organizations would be either PVOs or private firms. The case studies of CARE water and hybrid maize show that implementation can proceed with extraordinary effect when the different, but complementary, capacities of public and private institutions are married in a single endeavor.[1]

However salutory it might be to push for initiatives of this type, the institutional inertias involved are such that a long time might pass before the emergence of on-the-ground activities. An alternative approach is offered by the MIDP. Massive doses of technical assistance, although expensive, can be used to bridge bureaucratic gulfs and ensure that implementation takes place. We see also the importance of placing AIE's with department heads close to the action, who can control the pace of implementation. One MIDP problem, of course, is that when expatriate advisers leave, the structure of coordinated planning which they have erected is likely to go as well. It is difficult to see what may be done about this, but in any event government implemented area development should be regarded as a second best and stop-gap alternative to the combined public/private interventions described earlier. At the same time MIDP seems to have had much more household-level impact than IADP. This might have been expected. As Leonard (1981a) points out, when a number of weak institutions are linked together in an implementation action, their weaknesses do not cancel but rather tend to magnify each other. IADP seems a good example of how <u>not</u> to work through central offices in implementing rural development. In MIDP a number of different ministries are involved at district level, but the number of types and levels of institution is rather small. In addition, heavy concentrations of expatriate assistance in strategic areas insure that coordination problems will be minimal.[2] One final comment on MIDP is in order. The relatively high level of district-level inter-ministerial coordination achieved here is at least potentially attainable everywhere in Kenya, provided that donors take care to work through (rather than avoid) the District Development Committees (DDC). These entities bring district-level officials of public agencies together with representatives of the local population to plan and assign priorities to various development activities. With support, the DDCs could play an important role in improving the efficacy of development assistance in Kenya.

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1. Maintenance troubles have marred CARE accomplishments but this does not detract from the implementation record.

2. This is not an argument for more technical assistance in donor projects, which we believe on the whole is usually excessive and often counter-productive. The role of expatriates in short-circuiting bureaucratic procedures has costs as well as benefits. Our intent here is simply to identify the structural factors which have eased implementation in MIDP.

2. Organizational Linkages

The clearest point to emerge in this area is that programs involving large numbers of responsible institutions are more prone to failure than those involving few. This is hardly a surprise, but the evident truth of this proposition has not prevented donors and government from erecting implementation structures that are so complex as to virtually ensure breakdown. We may contrast the performance of IADP and KTDA in this respect. Both are supposed to support smallholder development by providing technical services, inputs and credit, extension, training, and marketing assistance. In KTDA all these functions are directed by a single entity but in IADP by eight. On the other hand, some efforts which are totally self-contained, such as that of ICA, obtain implementational freedom at the expense of sustainable impact. The key here seems to be that KTDA expects to remain in place permanently, and so can justifiably develop a mode of operations which is largely independent of other institutions; but ICA expects (or should expect) to move on, and so failure to involve other entities is serious.

As a final point, we note again that both donors and PVOs can serve a useful purpose in linking institutions that otherwise find it difficult to communicate effectively. MIDP and CARE water provide examples. The outcome is better implementation. When working primarily with governmental institutions it will often be necessary in these ways to purposely provide a redundant management/communication structure. But the strategic involvement of profit-making organizations can often accomplish the same end with less need for top-down planning. This is because matters can be arranged so that it is in the interest of private organizations to make things happen efficiently.[1] This can be seen in the example of small business loans made by the Kenya Commercial Finance Corporation. We might also observe that had IADP placed input delivery in the hands of private stockists, rather than the cooperatives, delays of 6-18 months in providing them would have been unlikely. We can contrast the performance of IADP and the Kenya Seed Company in this regard. KSC shareholders and management stood to gain much from successful input distribution, but, for those responsible for input distribution

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1. Private sector involvement does not automatically generate good outcomes. Care must be taken that the reward structure encourages efficient rather than inefficient behaviour.

in IADP, it did not make much difference one way or another whether deliveries took place on time.[1]

3. Participation.

Perhaps the most important issue emerging here is the need to balance participation in implementation with participation in initial decision-making. That is, those who are expected through action or resource contributions to help during implementation should have an opportunity to inject their views during problem identification and project design. This not only makes it more likely that the individuals or institutions concerned will feel bound to do their best during implementation, but it also goes some way to ensure that the implementation roles assigned them will actually be feasible. We can see this principle operating most clearly in IADP. Although project rhetoric stressed the role of district level officers, in practice they have had little impact on the shape of the intervention. Not surprisingly, they are often either unable or unwilling to perform the tasks assigned them. MIDP, by contrast, has made explicit efforts to involve people at all levels in project decision-making. Although involvement has not been as thorough as was hoped, major failures in implementation have been avoided. Thus we see that in government-directed initiatives especially, it is important to give field staff the decision-making authority which their implemention roles make necessary. This need not, however, be done in the context of an integrated area development project; the finding is generally applicable to the operations of implementing agencies, whether working independently or in conjunction with others.

With regard to participation of local residents in development the picture is somewhat unclear. Obviously popular participation in decision-making and implementation has contributed to positive outcomes in MIDP and CARE water; equally obviously popular participation in hybrid maize was limited to benefits. The critical difference may have been the role played by profit-making entities. Market demand, mediated by private entities, can express popular preferences as completely as overt decision-making, and is much easier to arrange. The problem is that most government-led initiatives are more-or-less isolated from market forces; the guiding principles are more often derived from political or technical considerations. For instance, IADP in Taita/Taveta District

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1. In name Kenya's cooperatives are private entities; but government control is so thorough and the process of politicization so complete that few local members see the organizations as responsible to them; nor do cooperative employees often feel responsible to more than a minor fraction of the membership.

pushed cotton as a dryland cash crop, despite the fact that in over 50 years of experimentation no one has found a way to make rain-fed cotton pay off in this area. But cotton can be exported for foreign exchanges, whereas fairly profitable local crops (chillies, honey) at present cannot. Information about the poor performance of cotton and the good performance of other crops would have been available to IADP management had they either consulted local farmers or reviewed the history of crop sales in the area. But IADP as a government enterprise was not compelled to seek either market information or popular views.

Thus we may very tentatively conclude that overt popular participation in decision-making is essential in interventions that will require local contributions in implementation, or which are isolated from market information. This describes most government-directed activities. Interventions that include a private-sector component which can effectively channel market information to decision-makers may be able to rspond to local needs and capacities without overt local decision-making. But our data are too sparse to justify firm conclusions; further research in this area is indicated.[1]

4. Conclusion

In this section we have tried to extract some general institutional principles from the case study material reviewed. The data are sparse and our conclusions necessarily tentative. But enough has been presented to show that institutional factors can have an enormous impact on developmental outcomes. This argues for a more serious approach to institutional analysis than is ordinarily seen in AID project development. As we noted at the outset, institutional arrangements usually emerge haphazardly in the course of technical discussions and are aimed at speeding the commitment of funds rather than at ensuring effective implementation. Sometimes the same configuration of institutions may achieve both ends, but more often not. Thus inadequate institutional analysis is one of many other organizational ills stemming from the fact that within AID career advancement depends more on making sure that money is spent than in making sure it is spent well. AID of course is not alone in this regard.

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1. It would probably be worthwhile to consider expanding the AID/Cornell Rural Development Participation project to include the role of private entities in mediating popular views in developing countries.

Our final point is that no *a priori* judgements should be made regarding the suitability of one institutional type or another. Indeed, the material presented here suggests that a wide range of institutional types and combinations can accomplish sound development objectives in Kenya, depending on how well they are suited to the particular requirements of the intervention at hand. This again argues for careful attention at the project level to the configuration of institutions which will be used during implementation. Our treatment here has tried to avoid prescriptive statements; instead, we have tried to illustrate the wide range of issues involved. Hopefully these will provide a point of departure for the project-level analyses which are needed.

CHAPTER IV: AGRICULTURE

A. Introduction

Kenya's population has been growing at between 3.4% and 4.1% per annum,[1] a rate of increase that will cause total population to double before the end of the century. By contrast, the agricultural sector has been growing at just 2.4% per annum, while food production has been growing at less than 1% per annum (World Bank 1981:5). Tidrick has shown that even under optimistic assumptions about population growth and non-agricultural employment growth, "production must increase by 2.5 or more times and employment more than double by the turn of the century in order to prevent economic stagnation and social strain" (1979:55-61). These facts define the most pressing issue in Kenyan development today: how to increase agricultural production to feed a growing population, and to create a surplus for local industry and export, while providing productive employment to a fast-growing rural labor force.

Kenya's long-term problems of production and employment can be effectively dealt with only through a broad range of mutually-supporting policy and program initiatives (see for example Kenya 1979-1983 Development Plan; ILO 1972, Crawford and Thorbecke 1978; World Bank 1980, 1981; USAID/K 1980; Tidrick 1979). But the purpose of this chapter is not to review all the possible, or even all the desirable, responses to agricultural development needs in Kenya. The focus is much more limited: to identify those few approaches which are most likely to be effective, given current social and institutional processes in Kenya, and which can be carried out in the context of a bilateral program of development and economic assistance.

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1. The lower figure is based on growth observed between the 1969 and 1979 population censuses; the higher figure was generated by the 1977/78 Kenya Fertility Survey.

Four themes run through the discussion. First, smallholder agriculture offers the firmest and fairest foundation for achieving the needed increases in production and employment. There is a role to be played by smallholders in low potential zones as well as in high and medium potential zones. Second, agricultural research and extension should neglect neither food crops nor cash crops in the search for better production packages. There is a need for improved varieties of cereals, grain legumes, and roots and tubers, but there is also a need for new cash crops suited to dryland areas. This is partly because access to rewarding cash crops has, in the past, generally preceded investment in new food crop technology. Third, the private sector must be engaged to support, extend, and multiply the impact of initiatives undertaken by government. Budgetary and manpower constraints place strict limits on the capacity of government to implement policies and programs, limits which appear already to have been exceeded. Finally, off-farm employment has an important role to play in furthering rural development. This is not only because this sector can absorb surplus rural population, but rather because off-farm employment, often in rural areas, provides smallholder households with significant funds for investment and innovation in agriculture.

B. Why focus on smallholders?

The structure of agricultural production in Kenya is quite varied, although smallholder production predominates. Some relevant aspects are summarized in Table 4.1. Figures like these incorporate many assumptions made necessary by the paucity of data, but it seems safe to suggest that the smallholder sector is predominant in terms of land area, total employment, and intensity of employment (with some exceptions).[1] For many years the smallholder sector has also increased its share of marketed output, but that trend has recently faltered, as shown in Table 4.2.

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1. Tidrick (1979:36-7) calculates that large-scale plantations (tea, cotton, sisal, pineapples) are slightly more labor-intensive than smallholder agriculture.

TABLE 4.1. ASPECTS OF AGRICULTURAL PRODUCTION AND EMPLOYMENT IN KENYA, 1976.

Category	Land Area b/ (000 HA)	Labor Hours a/ (million/yr)	Labor Hours (%of total)	Value of Output d/ (million K L)	Value of Output (KL/HA)	Labor Hours (per HA)
Smallholders	3400.0	4837.0	74.6	1422.6	128.03	37.6
Food Crops		1734.9	26.8			
Industrial Crops		170.7	2.6			
Export Crops		534.0	8.2			
Livestock		1879.5	29.0			
General		517.9	8.0			
Large Farms	2660.1	694.8	10.7	261.2	122.1	45.9
Mixed Crops		89.1	1.4			
Livestock		56.7	0.9			
Industrial & Export Crops		309.0	4.7			
Squatters		240.0	3.7			
Other Farms f/	1000.0	160.0	2.5	160.0	na	
na						
Irrigation e/ Schemes	8.5	10.5	0.2	1235.3	2.7	317.6
Pastoralists	46000.0 c/	780.0	12.0	17.0	na	na
TOTAL	53068.6	6482.3	100.0	122.1	na	na

Notes:

a/ Republic of Kenya, Development Plan 1979-1983, Part I, p.230.
b/ Apart from the pastoral land figure, these data are from Crawford and Thorbecke 1978:III.27-29. The government labor estimates cited in a/ are clearly based on this source also.
c/ Von Kaufmann 1976:255.
d/ Statistical Abstract 1980:101,114.
e/ The figures for land area and value of output are averages of the entries for 1975/76 and 1976/77. See Statistical Abstract 1980:114.
f/ In Crawford and Thorbecke 1978:III.27-29 and Tidrick 1979:36-7 the figure of 160 million hours/year is assigned not to "other farms" but to gap farms. Our usage follows that of the Development Plan 1979-1983, part I, p. 230.

TABLE 4.2. SHARE OF SMALL FARM MARKETED OUTPUT

Year	%	Year	%
1964	40.7	1974	50.9
1966	47.5	1976	51.2
1968	51.0	1978	55.8
1970	51.7	1980	53.1
1972	52.5		

Sources: Rep. of Kenya, Economic Survey 1981:107; Sanga 1976:89.

However, these figures do not include the value of output devoted to consumption and re-investment in the farm, which can be considerable. Among smallholders generally, the value of output consumed is about 49% of the value of total farm production (that is, sales plus consumption plus investment), while investment accounts for about 6% of production (IRS 1974/75:66). Thus, figures based on marketed output may capture just 45% of the real value of smallholder production. Although the smallholder sector has perhaps lost the commercial drive it exhibited during the late 1960's, this is probably due less to weaknesses in the sector itself than to a combination of poor weather and poor policy (cf. World Bank 1981:49). Recent analyses by Sanga (1976) and Tidrick (1979) have established that the smallholder sector is able to produce at least as much output per unit land as larger farms; that small farms utilize productive resources at least as efficiently as larger farms; and that small farms generate more employment.[1] The fundamental strength of the sector is revealed in figures assembled by Tidrick:

> ...smallholdings account for about three-fourths of total agricultural output, two-thirds of the land area devoted to arable agriculture...over 85% of total agricultural employment, and about 70% of total employment in the economy (1979:35).

The numerical preponderance of the smallholder sector makes it attractive on equity grounds as well (ILO 1972:152), but even if this were not so the long-term need for political and social stability would dictate development policies that encourage broad employment growth in the rural areas. Although we conclude that an overall focus on small-farm development is desirable, there remain certain areas (e.g. seed multiplication) where support to large farms could have a significant impact on smallholder development. These issues are discussed further in Section F.

1/ Smallholders also compare well with irrigated agriculture in these respects. However, irrigated production is vastly more remunerative in terms of output per hectare than smallholder agriculture. This is because of crop mixes: the irrigation schemes focus on rice production, and to a lesser extent on seed cotton and vegetables. These crops command far higher prices than most food crops produced by smallholders.

C. A closer look at smallholder production.

The importance of the smallholder sector within Kenyan agriculture justifies a closer examination of the organization of production within smallholder enterprises; this will also lay the groundwork for an assessment, in Section D, of the viability of various approaches to increasing smallholder output.

1. Organization of Smallholder Production

The average size of landholdings per household is about two hectares, but more than one-half of all holdings are under one hectare in size, while three-fourths are less than two hectares. In some cases this small size is due to land scarcity; the very productive highland areas, for instance, are often over-populated, reaching densities as high as 1066 persons per KM^2 (Paterson 1980:5). In other cases the small size of holdings is based on labor constraints at time of planting, weeding, or harvesting, which lead households to cultivate smaller areas than they might otherwise wish (cf. Heyer and Waweru 1976:189). The range of farm sizes encountered among smallholders in Kenya is illustrated below.

TABLE 4.3. DISTRIBUTION OF SMALLHOLDINGS BY SIZE, 1976-77

Size of Holding (Ha)	No. of Holdings (000s)	%	Cumulative %
Below 0.5	508	30	30
0.5 - 0.9	405	24	54
1.0 - 1.9	362	21	75
2.0 - 2.9	156	9	84
3.0 - 3.9	88	5	89
4.0 - 4.9	59	4	93
5.0 - 7.9	67	4	97
8.0 plus	59	3	100
	1704	100	

Source: Casley and Marchant 1979:1.7.

With a total smallholder population of about 11 million persons in 1976-77, average household size is about 6.5 members; this includes 2 or 3 adults and 3 to 5 children. In nearly all smallholdings a wide range of crops are grown: several different food crops, and perhaps one or two crops

grown primarily to earn cash. Most households also maintain livestock, produce craft items, and engage in some kind of off-farm employment, at least seasonally. This dispersion of household resources enables the skills and capabilities of all productive household members to be fully utilized at various seasons of the year, and serves to smooth out the lumpy labor profile engendered by reliance on annual crops. Dispersion of effort among crops, livestock, and non-farm employment also serves importantly to manage the levels of risk of loss to which households are exposed. Risk of loss can be introduced by failure or poor timing of the rains; by an outbreak of crop disease or insect pests; and by a variety of other natural factors. As smallholder producers are drawn into the monetary economy,[1] risk of loss can increasingly be generated by the actions of government and by market fluctuations, which together or independently can cause prices to drop quickly and unpredictably; cause needed inputs to be delayed; or cause harvested crops to rot for lack of transport or buyers. From the perspective of the farming household, such sources of risk lead to unwillingness to adopt untried production schemes and generate a need to maintain several alternate sources of income.

Despite these general circumstances, it would be a mistake to think that rural producers constitute a homogeneous "poor majority" with uniform disadvantages and uniform development needs. As shown in Chapter Two, there are relatively great variations in income, holding size, material well-being, and access to non-farm sources of income across agro-ecological zones; such variations can also be perceived within very small units, such as sublocations (ILO 1978:II.4) and villages (Haugerud 1981d, Paterson 1980). It has been shown that these variations have implications for smallholder capacity to invest in purchased farm inputs (cf. Republic of Kenya, IRS 1974/5:72-5) and to adopt new behavior patterns associated with agricultural innovations. Off-farm income is seen as particularly important; in fact, it has been suggested that "the level of non-farm income...is a key element in determining the productivity and output of the farming enterprise" (L.D. Smith 1978:36). We explore this issue more fully in the next section.

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1. Casley and Marchant (1979:2.2) define as "subsistence farmers" those who market less than 10% of their production. By this measure 22% of Kenya's smallholders are subsistence producers.

2. Smallholder Innovation

The 1979-1983 Development Plan places great reliance on the capacity of Kenyan agriculture to create more production and employment "through land use intensification, and applying improved technologies" (Part I, p. 207). This policy goal implies that vast numbers of Kenya's smallholders must respond through increased use of inputs and adoption of new technologies. However, it should be recognized that innovative behavior on the scale required is unlikely to happen if the development initiatives forwarded meet only technical criteria of feasibility and macro-economic criteria of desirability. The options proposed must also seem feasible and desirable to the nation's small farmers, since, for the most part, it is they (not central ministries or donor agencies) who bear the risk of inn vation failure. For this reason, it seems appropriate to identify the factors which encourage smallholder innovation in Kenya.

Perhaps the most comprehensive local study of smallholder innovation is John Gerhart's examination of the diffusion of hybrid maize. He found that

> income from cash crops...was positively related to both earliness of adoption and to adoption per se (1975:48).

Moreover, cash crop income had the greatest impact on adoption rates in marginally suitable zones where farmers had also planted relatively larger amounts of risk-averting crops such as cassava. This suggests that the introduction of new food crop technology in dryland zones will be difficult unless farmers already have or can be provided with a remunerative cash crop. It seems plausible to think that cash crops encourage innovation in two ways: by providing cash for purchase of seed and other inputs, and by providing a financial cushion in the event of innovation failure.

Collier and Lal, in an analysis of IRS I data, give relatively greater weight to non-farm income, which is

> likely to be an important source of funds to break any...constraint on financing both innovation as well as purchased farm inputs (1980:19).

Tidrick (1979:46-7) has reached a similar conclusion, which is however disputed by Livingstone (1981:14.20). Very likely the relative roles played by cash crop income and off-farm income in allowing innovation to take place vary depending on location. In a comparative study of smallholder agriculture in the coffee and cotton zones of Embu, Haugerud concluded that cash crops

> are a more important agent of economic differentiation between eco-zones than they are within eco-zones...but non-agricultural income sources are the more important agent of economic differentiation among Embu peasant households [within eco-zones] (1981d:13).

Of course, many other considerations enter into the question of how agricultural change takes place in Kenya. Rural infrastructure, technical feasibility, pricing policies, and so forth all have an impact. However, these are all external to the farm household. When such external factors are held constant, it is cash income, derived from employment or commercial agriculture, which appears largely to determine the propensity of Kenyan smallholders to innovate, or which at any rate determines the success of innovatory behavior.[1]

D. Approaches to Increased Production and Employment.

In this section we review various methods of increasing production and employment in the smallholder sector, and suggestions are made regarding approaches that are likely to be rewarding in light of social and institutional circumstances.

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1. As shown in Chapter Two, a major determinant of access to cash income is access to good education. Thus formal education may encourage innovation in two ways: by fostering openness to new procedures (cf. Gerhart 1975:40), and by providing the resources with which to adopt new procedures. This suggests farmer education may be an important policy initiative, a point to which we return in Chapter Eight on education in Kenyan development.

In Kenya, there are three basic approaches to increasing agricultural production and employment. First, the effective supply of land can be expanded. Possible methods are irrigation, drainage, more dryland farming, and the increased use of labor-conserving (or extending) technologies. Second, the use of existing cropland can be intensified. Possible methods here include shifting to crops with greater value and labor input, developing new cropping technologies with greater yield potential and demand for labor (including multiple and intercropping), and encouraging more intensive use of land which is currently under-utilized. Each of these methods is reviewed below.

1. Expanding the Effective Supply of Land.

a. Irrigation. Irrigation potential in Kenya has been estimated at 200,000 to 500,000 hectares (cf. Tidrick 1979). About 20,000 hectares have been developed, of which about 8700 hectares are in large-scale schemes administered by the National Irrigation Board; about 10,000 hectares are on private estates and farms; and about 2400 hectares are irrigated under various small schemes, mostly located in arid and semi-arid zones (Carruthers and Weir 1976:302). Although the production and employment benefits of irrigation are potentially very great, the issue should be approached with caution. First, the large-scale schemes are very expensive, development costs ranging from $7000 to $25000 per hectare (Tidrick 1979:64-5). Second, such schemes may displace families in the areas scheduled for development. For instance, in a Kano Plains irrigation scheme, 400 farming families previously occupying the site were displaced to make room for 500 settler families; the net number of households making use of the land was only increased by 100, adding considerably to the net cost per beneficiary (ILO 1972:415). Third, irrigation schemes are generally associated with increased incidence of malnutrition and diseases spread by water-borne vectors (cf. King-Meyers 1979). Fourth, the large-scale schemes may simply not pay their way. The World Bank has pronounced Perkerra "a disaster," while the Bura scheme appears to have an unrewarding economic rate of return of about 9% (Tidrick 1979:66).[1] And finally, the large-scale schemes as implemented by government have been no more employment-intensive than ordinary smallholder agriculture (Livingstone 1981:10.36).

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1. Irea (1979) found that government-planned crop planting schedules at Perkerra were unsuited to the needs of settler farmers and generated income far below the maximum obtainable with the available resources.

These comments may apply less forcefully to small-scale irrigation schemes, which are often initiated by private landholders or community self-help groups. These can be very important locally as a source of employment, and can produce both food and cash crops, as well as fodder crops for livestock (Carruthers and Weir 1976:302; Little 1980,1981). Where local authorities and local communities retain control of irrigation, development costs can be borne by them to a large extent, thus easing budgetary and administrative burdens on central government. Under such circumstances the approaches taken will likely be more labor intensive as well: in Taita-Taveta District, for instance, community-led irrigation efforts rely on stonework, sand-bags, and improvised gabions for diversionary structures, rather than reinforced concrete. The purpose of irrigation at these local levels is only seldom to obtain an extra growing season. Much more often the object is to extend an existing growing season so that longer-maturing crops may be planted, or to provide insurance water in the event the rains end early.

The disease problems associated with any standing body of water still need to be addressed in small-scale irrigation,[1] but since these efforts are usually supplementary to other food sources in local areas malnutrition may not be an issue. Other problems can arise in preventing thirsty cattle from breaking down the embankments, in obtaining rights-of-way across farm plots for the construction of waterways, and in regulating the timing and amount of water usage among households. Issues of this sort, however, are best resolved within local communities at the level of the assistant chief or below. Little is known about the profitability of these small schemes in Kenya, but the multiplicity of very small, local efforts, using gravity flow and capital-saving technology, suggests that user communities must find them rewarding.

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1. Often the canals are only utilized during a 6-8 week period at the end of the rainy season. Water moves swiftly through them and does not stand in the fields, so disease problems would ordinarily be minimal.

From the perspective of development programming, it is important to suggest how development inputs may be most efficiently and effectively delivered to communities willing to undertake small scale irrigation. A model may exist in the on-going Peace Corps domestic water program. PCVs stationed at the district level provide technical assistance, and, occasionally, very moderate capital assistance, to communities that have already identified a need and prepared rudimentary plans. What is important here is that communities are not flooded with capital assistance; plans are prepared and implemented locally, and minimal reliance is placed on central ministries for support. These conditions both ease the strain on central agencies and increase the likelihood that the program will meet community goals.[1]

b. Drainage. Drainage and valley bottom development may possibly generate up to 1 million hectares of additional land, most of it in western Kenya (Tidrick 1979:58). The financial costs and production and employment benefits are probably lower than in the case of irrigation, but little can be said about the overall utility of this approach because it has not been explored in Kenya. Tidrick cautions that drainage development requires "coordinated action, typically through the exercise of government authority," and foresees problems associated with rising land values and conflict among smallholders. This may overrate the case. Smallholders in both highlands and lowlands of Kenya have been engaged in small-scale drainage development for decades if not centuries. These efforts may involve single households or large communities, with coordination provided by community elders and administration chiefs. In cases where adjudication has taken place, waterlogged land may be handed over to a county council or similar organization, rather than to smallholders; when such land is developed it is leased to those desiring supplementary land.

Although there are undeniable problems associated with large-scale government intervention in this arena, there is no reason why small-scale private endeavours, building on local investment funds and local labor, may not be supported. These activities, much like small-scale irrigation, can generate small but significant employment and production growth in local areas at low cost to government.

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1. An FAO mission to Kenya has recently endorsed the concept of aiding local, low technology irrigation initiatives. See FAO/UNDP 1981:174,229.

c. Dryland Farming. About 80% of Kenya's land is classified as arid or semi-arid, supporting about 25% of the population. In former times the area was devoted almost entirely to pastoralism, but population growth in the high and medium potential zones has furnished a steady flow of migrants to the less favorable places where arable agriculture is a marginal enterprise. The migrants apply unsuitable farming techniques, causing environmental degradation; by settling in the more well-watered locations they reduce the access of pastoralists to dry-season grazing; and they become a burden on government when crops fail and famine relief is needed (Mbithi and Barnes 1976). The issue is made more acute because, until recently, little interest was shown by government or donors in developing the low, hot, dry zones (cf. Heyer and Wasera 1976:197) and so relatively little is known about what technologies or what forms of productive enterprise might improve output in such areas. However it is possible, based on experience to date, to suggest possible areas for research and pilot programs. Needed most is basic research to develop improved varieties of cassava, sorghum, millet, cowpeas, and pigeon peas, which are drought resistant crops, but which suffer from a variety of yield, palatability, pest, and disease problems. But research is not enough; the facilities for producing and distributing to farmers improved planting materials for these minor crops are very poorly developed. Finally, the basic plant research should be supplemented with an applied program to integrate the improved varieties into combined cropping-grazing systems suited to the needs and capacities of small farmers, and conserving of scarce water and soil resources. Here researchers might usefully examine the combined systems already developed by small farmers on their own, which are in evidence in places as diverse as Kajiado (Campbell 1979) South Baringo (Little 1981), and Machakos (Livingstone 1981:13.40).

This last point can be expanded. Agricultural research teams--even so-called "farming system" researchers--work in an environment far removed from the peasant farming household. It has so far not been possible for even the most complex experimental designs or computer models to reflect accurately more than a small number of the variables which may influence farm-level decision-making. Due to institutional inflexibilities, two major dimensions are usually overlooked entirely--the role of livestock and the role of off-farm employment in household livelihood systems. An obvious way to assess the real-world interplay of such variables is to examine the strategies evolved by peasant households themselves. By evaluating the outcomes of various strategies (e.g. in terms of income or nutritional status) it is possible to separate out proven rewarding strategies, which may then become the basis of improved "technical packages." This approach avoids the all-too-frequent circumstance whereby wholly inappropriate technical packages are evolved in central ministries or on research stations, with little or no attempt

to assess their performance within the complex agro-economic and social environment to which small farmers must respond.

d. Labor-extending Technology. In many parts of Kenya, especially the drier, less densely-populated areas, labor constitutes a major constraint to smallholder development. Areas cropped remain small because hoe cultivation is the only technology available; early planting is not feasible because, prior to the onset of the rains, the ground is too hard to be opened by either hoe or, in some places, ox-plough; and other constraints may emerge at time of weeding or harvest. Oxen are already used extensively in Machakos, parts of Embu and Meru, South Nyanza, and elsewhere in western Kenya.[1] Tractors are used less often, usually only for initial land preparation, while herbicides are in general use only on estates.

Despite a general perception that approaches such as these are too capital-intensive for smallholder development in areas of moderate potential, the possibility suggests itself that previous lack of success has been due not to any weakness in the technologies themselves, but rather in the scale or organizational framework within which they have been presented to smallholders.[2] In Taita/Taveta district, for instance, a government-financed tractor hire service is expensive, inefficient, and underemployed; but tractors leased by the county council and private individuals are in constant use for land preparation and transport. In similar fashion, Kamba immigrants from Machakos make much use of animal traction in ground preparation for cereal crops, followed by a planting so dense that weed growth on the larger area is not a problem. The costs of maintaining traction animals are minimized by using local animals that have no special requirements, and by spreading the responsibility for maintaining a team among several households.[3]

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1. Rukandema (1977:113-114) found in Kakamega that use of ox-ploughs instead of hoes generated substantially higher maize yields due to the earlier seedbed preparation and earlier sowing which this technology makes possible.

2. The FAO has suggested that government encourage the expansion of private sector tractor hire services (FAO/UNDP 1981:60). Similarly, the use of small walking tractors has been incompletely explored.

3. In Western Kenya introduction of ox-ploughs has sometimes generated intense land struggles as formerly uncultivable areas suddenly become valuable (Mulaa 1980:62).

The point illustrated here is that labor-saving technologies have a role to play in smallholder development, and that the best way to encourage their adoption may be to look at what local authorities and farmers are doing on their own, and seek ways to support and expand these initiatives.

2. Intensification of land use.

a. A shift to higher value, higher labor crops. There is much variation in the production and employment potential of different Kenyan crops. In general, commercial crops are more labor-intensive than staple food crops. Some relevant details are presented below.

TABLE 4.4. EMPLOYMENT AND VALUE-ADDED OF SELECTED CROPS, 1974/5

Crop	Employment (hours/ha.)	Value-Added (KSh/ha.)
Maize	800	1205
Coffee-Banana-Maize	2100	-
Coffee	2500	5742
Pyrethrum	2800	2353
Tea	3200	2171

Source: Crawford and Thorbecke 1978:III.27; Tidrick 1979:75.

Collier and Lal (1979:108) estimated that the expansion of coffee, tea, and hybrid maize in Central Province from 1963-1974 allowed employment to grow at 2.3% per annum. However, such rewarding substitutions in land use cannot always be made, due to variations in land quality, limitations of demand, high transport costs, inadequate extension services, and so forth. Successful changes in cropping patterns thus require appropriate policies and considerable institutional support, which has been achieved for some crops in Kenya (e.g., tea; sugar cane), and it is important to understand how.

Buch-Hansen and Marcussen have recently reviewed some aspects of agro-industry and contract farming in Kenya, concluding that

> a qualified estimate would be that in 1981 about 12% of Kenyan smallholdings will produce cash crops on contract to agro-industries, amounting to some 30% of total marketed output from smallholdings or about 1/6 of total marketed output of agriculture in Kenya (1981:23).

The most familiar example of contract farming is the tea industry. Farmers buy planting material from the Kenya Tea Development Authority (KTDA), and agree to follow the instructions of KTDA's specialized extension corps. KTDA must purchase the plucked leaf when it is delivered, and farmers are paid twice: a fixed sum upon delivery and a final variable sum after the tea has been sold on the international market. Government has supported the industry with road development and investment funds, with substantial results.[1]

TABLE 4.5. SMALLHOLDER TEA PRODUCTION, 1975/76 - 1979/80

Year	No. of Growers	Average Holding (Ha)	Production (tonnes)
75/76	105949	.38	19442
76/77	115648	.38	27720
77/78	122348	.38	31867
78/79	126169	.39	36196
79/80	129912	.40	31018

Source: Republic of Kenya, Economic Survey 1981:115.

Recent drought has reduced total output, but has not discouraged smallholders from wishing to become contract growers. Moreover, tea production has encouraged other developments.

> There was a clear tendency for the income from the tea production to be spent on... fertilizer, graded cows, hybrid maize, ox ploughs, and even tractors and small trucks (Buch-Hansen and Marcussen 1981:36).

A more recent example of contract production stems from the growth of contract sugar farming in western Kenya. Mumias is the most well-known effort. Here farmers sign a contract which requires them to clear the land, plant the crop, and apply fertilizer; the factory does the ploughing and harrowing, supplies planting materials, and arranges the harvest. The scheme is financed jointly by donors, international corporations, and government, which has supplied both investment funds and rural infrastructure (J.A. Smith 1978:16). The results, again, have been substantial, as suggested by the tea industry figures presented below.

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1. The effectiveness of the KTDA approach to stimulating farmer innovation through tightly integrated rural development has been remarked by many observers beginning some years back. See for instance Roling et al. 1973:3.

TABLE 4.6. SUGAR CANE PRODUCTION, 1977-1980

Type of Grower	1977 (000 tonnes)	1978 (000 tonnes)	1979 (000 tonnes)	1980 (000 tonnes)
Factory Estates	584.2 (31%)	626.5 (27%)	920.6 (29%)	940.4 (24%
Large Farms	239.6 (13%)	282.3 (12%)	379.6 (12%)	556.6 (14%
Smallholders	630.4 (33%)	846.9 (36%)	1228.9 (39%)	1772.5 (44%
Cooperatives	278.3 (15%)	351.1 (15%)	231.7 (7%)	309.7 (8%
Settlement Schemes	155.5 (8%)	242.5 (10%)	386.8 (12%)	408.3 (10%
TOTAL	1888.1 (100%)	2349.2 (100%)	3147.6 (100%)	3987.4 (100%

Source: Republic of Kenya, Economic Survey 1981:116. Some columns may not add due to rounding errors.

Smallholders have consistently outproduced other organizational forms in terms of total output, although nucleus estates may achieve somewhat higher yields on a unit area basis. In the areas concerned farmers compete for sugar contracts, which suggests these are perceived as rewarding, but problems have emerged because insufficient attention is given to food crop production.

The principles at work here are fairly obvious. First, a crop must be chosen for which either domestic or international demand is high (preferably both). Second, government shares both investment and management burdens with private enterprise. Third, a system of "wraparound" smallholder support services is developed, supplying advice, inputs, credit, transport, and so forth in a tightly managed package.[1] It is important to note that linkages with external organizations are kept to a minimum; where this was not done problems ensued.[2]

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1. While very effective at accomplishing immediate production goals, this same approach can stifle the spontaneous development of indigenous enterprises peripheral to the primary production/processing scheme (Mulaa 1980:91).

2. When transport of harvested cane to mills was left to private lorry-owners, for instance, the cane was often delayed waiting for collection and quality suffered; in other cases it was never collected. Similar coordination difficulties have emerged with respect to provision of inputs and extension advice.

Despite the apparent attractiveness of contract farming as a method of linking smallholder producers to sources of capital and management advice, some caution is indicated. In Latin America, arrangements such as these have often resulted in expropriation of land and proletarianization of the farmer population. Whether peasant farmers are victimized by such relationships is probably determined more by state policy than by the imperatives of capital accumulation. Nevertheless, it is clear that this issue requires special attention. Before considering activity in this sector, studies should be undertaken to assess the land consolidation and expropriation effects of past contract production in Kenya, with particular attention given to the terms of contracts signed by smallholders.[1]

An equally serious issue relates to the nutrition impact of such schemes. Data collected during the 1977 CBS rural nutrition survey suggest very strongly that children of smallholders growing sugar, and, in some places, tea, are suffering from long-term nutritional deficits reflected in relatively lower height for age (Republic of Kenya 1979a: II.3.7). There are many ways in which agricultural change can achieve negative nutritional impacts (Fleuret and Fleuret 1980), and large scale efforts of the contract-grower type which lessen the control of smallholders over their productive resources are particularly apt to do so. Hence the potential nutrition impacts of contract grower schemes must be assessed at the same time that technical and other assessments are carried out.

Finally, most contract growing schemes are designed in such a way as to place all production and marketing risks squarely on the shoulders of smallholders. At Mumias, for instance, farmers are not compensated for lost crops when the factory processing machinery is broken (Obiero 1980:246). More generally, pricing policies in such industries often transfer wealth from producers to processors or to government (Bates 1981:24).[2]

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1. Barclay (1977:136,336) has shown that development of the Mumias sugar industry was associated with accelerated land sales; in particular, the rate of sales to outsiders were than doubled after the industry was established. Presumably this outside interest was fueled by the increased value of the land.

2. During the first three months of 1982 government efforts to raise the costs of services delivered to contract rice farmers in the Kano and Mwea-Tabere schemes caused farmers to strike in protest (cf. Daily Nation April 2, 1982). Similar problems are emerging in the sugar areas. It is very easy in these circumstances for government to make farmers pay the costs of official ineptitude and corruption, or to extract surplus for investment in other sectors.

We may conclude that contract farming can effectively generate increased production and employment in Kenya, and may be more effective in this respect than conventional government-run extension and marketing systems. As a form of organization suited to the dissemination of new crop technology, contract farming is attractive. But within this form of organization there are few means of insuring that real income benefits are conferred on farmers. That this should happen is desirable not only from an equity point of view, but also because sustained economic development in Kenya will not happen unless rural demand for products and services increases. This rural demand will plainly not emerge unless the conditions of production and marketing are such that producers are able to retain a significant proportion of the surplus generated by their land and labor.

With regard to land-use substitutions, then, it seems fair to conclude that it is possible to foster the adoption of rewarding crops and crop technology in Kenya, but the form of organization within which new crop technology is offered to smallholders is at least as important as the technology itself.

We turn now to a discussion of the role of yield improvements in intensifying land use.

b. Yield Improvement. There are three main technical approaches to yield improvements: generating improved planting materials for use by farmers; developing and encouraging the spread of better crop management practices; and increasing the use of purchased inputs such as improved seeds, fertilizers, and insecticides. Since the first two of these depend on effective breeding and agronomic research, it is appropriate to assess Kenyan investment in agricultural research.

TABLE 4.7. SUPPORT FOR AGRICULTURAL RESEARCH

Year	GDP (KL million)		Agricultural Research (KL 000)	
	Amount	Index	Amount	Index
1977	1640.65	100	2564.79	100
1978	1788.41	109	3856.00	150
1979	1979.62	120	4366.33	170

Source: Republic of Kenya, Economic Survey 1981:21; Jamieson 1978:Table III.

Overall, support for research appears to be increasing at a substantial rate, but there remains a basic imbalance (not revealed in this table) between support to food crop and livestock research and support to cash crops (cf. Kyugi 1981:2; Jamieson 1978).

Reference has already been made to the need for further research on dryland cereals, grain legumes, and root crops such as cassava, but a comprehensive program to support smallholder development would include other crops as well. Even maize, which has received disproportionate attention over the past 15 years, requires further work to identify sources of drought and streak resistance. Other crops deserving attention are Irish potatoes, where blight and wilt are major problems, sweet potatoes (which have much potential as a human food/cattle fodder crop in zero-grazing systems), and horticultural crops. Of major value to smallholders would be research to improve the storage performance of major grains, especially maize, supplemented by efforts to provide improved storage facilities on farm. In some places smallholders grow only as much hybrid as can be consumed within a period of 60-90 days, because insect damage becomes excessive after this time and because insecticides for use in storage are scarce, expensive, and difficult to apply correctly.

In general, cropping technologies that are based on improved plant characteristics such as yield, insect and disease resistance, and ability to withstand moisture stress, will be more accessible to smallholders than technologies that rely on purchased inputs and dramatic changes in management practices. There are two reasons for this. First, effective improved management practices must be developed in a farming systems context that allows plant scientists, social scientists, and farmers to work together in designing husbandry recommendations that mesh well with and support on-going farming patterns. These are based on multiple and intercropping strategies that maximize total crop production while preserving soil fertility and reducing the risk of crop failure. This complex equation is difficult to model in even very sophisticated research settings; only recently has agro-economic work of any sort been incorporated into some aspects of agricultural research in Kenya, and much remains to be done. The second reason is that improved seed incorporating better plant characteristics can be delivered to smallholders independently of the extension system, whereas improved management practices cannot.[1] Kenya's general crop extension

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1. Many observers believe that the success of hybrid maize in Western Kenya is due largely to the fact that the plant will usually outperform indigenous varieties when used alone without complementary inputs or better husbandry. Thus the pay-off to adopters is not dependent upon the problematic confluence of input supply and advisory services.

service remains weak despite years of study and support, although further manpower adjustments, changes in supervisory practices, and innovative group extension efforts may yet improve matters (Leonard 1972, 1981).

In Kenya, the most important purchased inputs are improved seeds and fertilizers. The table below summarizes some relevant data, which demonstrate discouraging trends.

TABLE 4.8. QUANTUM INDEX OF USE OF SELECTED PURCHASED INPUTS (1976=100)

Input	1977	1978	1979	1980
Fertilizers	143.6	155.6	101.0	109.9
Seeds	135.9	94.9	83.9	82.6

Source: Republic of Kenya, Economic Survey 1981:108.

The smallholder share of total fertilizer consumption is thought to be about one-third (Biddick 1979:84); the evidence is not clear whether generally low usage rates observed in the sector relate to lack of demand, poorly developed distribution networks, or inappropriate controlled prices, although a combination of all these is likely to be the case.

The smallholder share of total purchased seed is not known, but there have been many complaints recently about shortages of improved maize seed, suggesting that the supply is insufficient.[1] Clean sorghum, millet, and phaseolus seed is virtually unavailable. There is also a lack of certified seed potatoes (Ngugi 1981:13), related to outmoded regulatory procedures, while nearly all vegetable seed is imported and very expensive. These facts suggest that the Kenyan seed multiplication industry is not performing well enough to support or even keep pace with smallholder development. Government has a role to play in certification of seed, but much could be done here by private companies and large landholders, provided that prices for certified seed are set high enough to retrace land from alternate uses and appropriate investment incentives are offered.

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1. Usage of improved seeds was growing at over 15% per year through 1976, after which the precipitous decline illustrated in Table 4.9 began (Republic of Kenya, Economic Survey 1977:85).

An effective distribution system is critical to achieving yield increases through use of fertilizers and improved seed. Both these inputs must be available in the right parts of the country, in the right quantities and at the right time, in order to support smallholder development. It is fair to say that the current distribution system, relying largely on KFA and GOK resources, has not been able to respond to the logistical complexities involved. Here again there is an important role for government in regulating product quality and monitoring prices, availability, and demand; but to achieve equitable distribution of these inputs it should be possible to build on Kenya's vast network of private stockists, which reaches into the smallest and most remote villages of the country. Credit may be required to allow smaller stockists to surmount the cash-flow problems generated by the highly seasonal nature of input distribution and consumption, but this is not an impossible task. During the mid-1970's the Kenya Commercial Bank was involved in a successful donor-financed stockist credit scheme, and it should be possible to build on this and other experiences (Geenaert 1975:13-14). In South Nyanza district, for instance, an experimental S.R.D.P. scheme to encourage local stockists to carry hybrid seeds was able to withdraw support very quickly; once assisted to make the initial investment in stock the operators were able and willing to continue on their own (IDS 1975:2.2).

c. Smallholder Credit. It is appropriate to consider here the role of smallholder credit. A decade ago, it was hoped that experience gained under the S.R.D.P. program would allow the development of a credit delivery system that would reach small farmers while keeping administrative costs and delinquency rates low, but this has not happened. The service agencies are smothered in an administrative overload (Leonard 1981), while the massive IADP program is experiencing delinquency and dropout rates of about 80% (IBRD discussion paper 1981).[1] Still, credit is seen as an indispensable component of successful agricultural development:

> The introduction of improved crop production techniques will require more efficient and widespread distribution of credit. The major problem seems to be the limited access of smallholders to credit, especially those who do not have title to their land or are not participating in crop-specific production programs (World Bank 1981:65-66).

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1. It has proven extraordinarily difficult to specify before the fact which farmers constitute good credit risks and which do not. After the fact investigations show that the characteristics of farmers who repay the loan vary considerably depending on location and other factors (cf. Gachanja 1979:67,80).

But is the case for credit this strong? Von Pischke (1976:14) has pointed out, for instance, that many Kenyan smallholders adopted tea, coffee, and pyrethrum quickly, with little or no credit, after statutory limits were removed. Gerhart (1975:12) has shown that farmer credit played no role in the diffusion of hybrid maize, while Moock (1973) showed that farmers receiving credit "were invariably richer and better farmers than average and that credit per se was not essential to the operations of those who received it" (quoted in Gerhart 1975:18). Many other observers have remarked that credit recipients are usually already well-endowed, and so it may be appropriate to question the role that credit in general can play in supporting agricultural change in Kenya.

In taking a closer look at agricultural credit, two issues seem relevant: the form in which it is made available to farmers, and the associated interest rate.[1] To reduce misuse of credit funds, the GOK has resorted to a system of aid credit by which farmers exchange government vouchers for inputs. Leonard (1981:2-3) has recently reviewed the institutional difficulties associated with this approach, and concluded that the system likely generates more problems than it solves. Von Pischke (1977:330-379) has analyzed for Kenya the impact of subsidized credit offered by specialized government lending institutions. He suggests that the returns will necessarily be low or even negative; that the poorest, neediest borrowers will remain unserved; that such programs stifle rural savings by diminishing the utility of deposits; and that poor loan discipline with associated decapitalization of the lending institution is a nearly inevitable outcome. This view, which some may think excessively bleak, has been largely supported by the comments of other observers (cf. Beyer and Waweru 1976:209-211). In sum, subsidized credit does not seem to meet either equity or production goals in Kenya, and therefore is probably not an appropriate target for direct development assistance. Greater good would result from government decisions to allow timely and adequate payments for

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1. In Kenya there is a special problem because farmers often perceive credit as a gift of the government, that is, as a grant rather than a loan. This perception grows out of a long experience with government loan programs, in which defaulters have rarely been punished or even prohibited from receiving further loan funds. Under these circumstances many "loans" are indeed grants.

crops, to permit interest rates to reflect the real costs of lending, and to encourage commercial banks to enter this field.[1]

e. Land Redistribution. As noted in the Introductory chapter, a good deal of Kenya's best farmland remains underutilized in the hands of a relatively small number of large farm owners. Not only will this land come under increasing pressure from landless and near-landless migrant or squatter farmers, but failure to utilize the land as intensively as it might be costs Kenya considerably in terms of foregone food and export crop production. Land redistribution to more intensive users, by which we mean land-short smallholder farmers, would almost certainly increase the intensity of land use on this area and help meet the needs of both the nation and a particularly disadvantaged and socially tractable portion of the population. Obviously this will be an area of great political sensitivity, and it is unlikely that donors will be able to accomplish much until current Kenyan attitudes have changed substantially.

E. The Role of Livestock

About one-half of Kenya's cattle and sheep, and about three-fourths of the goats, are found in the dryland range areas, cared for under a wide variety of extensive grazing systems (Von Kaufmann 1976). As noted in Chapter Two, there seems to be little that development assistance can accomplish in these areas apart from the delivery of basic veterinary services for disease control. There are no indications that grazing schemes or market development have delivered benefits to the herders or the nation commensurate with the costs incurred, nor does it seem that problems identified during the implementation of past programs are currently amenable to solution. For this reason it seems appropriate to direct development resources to other sectors where greater impact may be expected.[2] One such sector may be livestock in the high and medium potential areas. Some relevant data are summarized in Table 4.9.

1. David A Wyeth (1978a:18) have shown that 33% of all Kenya Commercial Bank loans to farmers are to farmers with 2.27 ha. of land or less. This is a surprisingly large percentage of loans to relatively small farmers, and suggests that commercial entities may not be as unresponsive to the needs of small farmers as is often assumed. They may do more if government abandons its own share of the market.

2. This could seem like callous disregard for the needs of a particularly impoverished portion of the population. But there are many reasons to think that rangeland development to date has improved the lot of very few herders while endangering the livelihoods of many (cf. Horowitz 1979, Teitelbaum 1980).

TABLE 4.9. AGRICULTURAL OUTPUT IN SELECTED AGRO-ECOLOGICAL ZONES, 1974/75

Zone	Total Output (million SHS)	Output/ Holding (000 SHS)	Food Crops (%)	Export Crops (%)	Livestock & Milk (%)
Coffee					
East of Rift	994.3	2.9	58.0	12.5	29.5
West of Rift	896.7	3.6	74.4	1.1	24.4
Tea					
East of Rift	622.2	3.7	51.0	16.5	32.5
West of Rift	429.6	3.1	34.2	14.6	51.2
Cotton					
Lower Cotton East of Rift	153.1	1.1	95.8	0.8	3.4
Upper Cotton West of Rift	541.9	1.6	51.6	2.1	46.3
Coast Composite	83.7	1.2	65.2	016	34.2

Source: L.D. Smith 1979:11.

In every zone but one, livestock and milk account for one-quarter or more of the value of smallholder production. Although an estimated 60% of smallholders possess one or more dairy cows, marketing patterns are more highly skewed; under 20% of producers account for about 80% of the value of sales (L.D. Smith 1978:24,71). In general, ownership of dairy cattle is associated with greater income and larger landholdings, but there are indications that the government program of dip development and low-cost artificial insemination has extended the benefits of owning grade animals rather broadly among smallholders. Livestock produce nutrients inefficiently when compared to food grains, but if they are incorporated into peasant farming systems in a manner that makes use of otherwise underutilized resources, livestock can contribute to the intensification of land use. This takes place, for instance, when animals are fed largely on crop residues or grazed on land that is too steep for sensible cultivation of annual crops. We have spoken here mostly of improved cattle, but many of the same comments pertain to small ruminants (sheep and goats), a substantial national resource that has been neglected in Kenya as elsewhere. Even smaller stock (poultry, pigeons, rabbits, guinea pigs) provide useful income and food supplements to

Kenyan smallholders, and should not be neglected as part of an integrated approach to agricultural intensification.

F. Implications for development assistance.

In this section we review and summarize the major points developed in the previous discussion.

1. Smallholders

The smallholder sector holds most promise for meeting Kenya's requirements for increased production and employment. This is partly because smallholders are generally more efficient at converting resources to output than other forms of productive organization, but also because other possible approaches (large farms, plantations) are accompanied by social and political questions of the most profound character. However, large farms and estates have a role to play in those areas (coffee, seed multiplication) where they have performed well in the past. Seed multiplication in particular is an area where development assistance could build on the strengths of the private large farm sector to speed development among smallholders.

2. Research

Broad support for basic plant research is indicated, focusing particularly on food crops of importance in the drylands areas and on crops (horticultural crops, sweet potatoes) that can speed intensification in the high and medium potential areas. Special effort is needed to develop cash crops for dryland areas, not only to ease the current inequities engendered by the absence of these (Heyer and Waweru 1976:197), but also because a shift to new food crop technology is unlikely unless smallholders have access to a source of cash. The results of this research, in the form of improved planting materials, need not rely on extension to be made available to farmers if a sound system of seed multiplication and distribution is created, preferably based on commercial retail outlets.

Applied farming systems research is needed to develop improved production techniques for all agro-ecological zones. These efforts should recognize, build on, and supplement the approaches already being developed among private smallholders. Here we see combined cash crop, food crop, and livestock production, aimed at balancing the household labor profile across seasons while maximizing access to both cash and food. This type of research will depend on a viable extension system, since there is no other way small farmers can gain access to the management recommendations developed. Hence there are grounds for supporting an up-graded extension service, consisting of individuals with the ability and the commitment to adapt the findings of central research bodies to the local

conditions in which they work. Emphasis should be placed not on expanding the present system, but on up-grading the skills of the field staff and creating the conditions (better pay, better promotion, longer duration of postings) that will allow them to perform their tasks better.

The development of new cropping technologies (or improvement of existing technologies) will depend heavily on the quality of Kenya's national agricultural research system. While many of the physical facilities are in existence, there remains a crippling shortage of qualified research personnel. Government and donors alike should recognize that adequately trained and supported scientists are key to successful agricultural research. These scientists must be trained to the PhD level and be supported by capable laboratory and field technicians. Current national training programs produce neither the scientists nor the technicians required. An enhanced national agricultural training program, supported where necessary by off-shore training for higher degrees, is absolutely essential to successful development of new and improved agricultural technologies in Kenya.

3. Contract Farming

Increased productivity of Kenya's smallholders will clearly require increased access to investment funds (not only or necessarily seasonal credit) and management advice. However, government capacity to deliver these services is already strained. In addition, there are many non-production linkages that must be established, for example in processing and marketing, if intensification is to be achieved. Contract farming along lines developed in the tea and sugar industries represents a potential organizational model for achieving the needed linkages with both smallholders and markets, provided that such developments are undertaken under conditions that reduce the risk of land expropriation or nutritional decline. One possibility is a livestock feed industry, in which smallholders produce sorghum, millet, and edible oils as the raw materials. These crops can be grown in drylands where cash crops are lacking, they can be consumed on the farm if markets should fail, and such an industry is needed to support intensification in the livestock sector.

4. Organizational Approaches to the Private Sector

In previous pages we have assessed the potential for increasing agricultural production in Kenya by expanding the supply of land, by intensifying land use, and by encouraging off-farm employment. For the most part, these are technical approaches to addressing production problems, and depend for their effectiveness on support at the policy and institutional levels, as well as on the extent to which they conflict with or reinforce community-level socio-economic processes. Policy issues are largely outside the scope of this paper, and are in any event well-summarized elsewhere (World Bank 1981).

In reviewing a wide range of social, economic, and institutional considerations which impinge on the process of agricultural development, we have repeatedly suggested that the organizational framework within which development resources are made available to farmers is as important a determinant of success as the character of the resources themselves. In particular, we have suggested that forms of organization based on or linking with private initiatives or private organizations can be more effective than organizational approaches dominated by public entities.

This suggests that the institutional and administrative analysis done by donors in the course of project preparation should be done with more care than is currently the case. Such analyses are frequently no more than descriptions of whatever administrative framework has emerged haphazardly in the course of technical discussions, and contribute little—and may often detract from—the overall viability of projects. Obviously, one particular area that future institutional analyses should explore is the careful combination of government and private institutions. This will likely be easier to achieve in project implementation if it is begun during project design. Thus, it is appropriate to suggest that donors rely to a larger extent on commercial banks for credit assessments; on commercial audit firms for financial planning and review; on local engineering firms for plan preparation on local management consultants for administrative planning and assistance; and so forth. The point is that the exclusion of the private sector from official development efforts may have as much to do with donor procedures as with government predelictions. In any event, a useful way to develop the role of the private sector in donor-financed development would be in the context of pre-implementation activities.

CHAPTER V: NON-FARM EMPLOYMENT

A. Introduction

Previous pages have shown that off-farm employment is an important determinant of innovative behavior and a significant source of funds for investment in smallholder agriculture. It seems plausible to think that the development fostered by these private endeavors exceeds that generated by government credit programs, which are supposed to perform such functions (see especially Collier and Lal 1980:19-22). The issue then emerges, how may government and donor agencies stimulate off-farm employment in a way that generates further agricultural growth? This is not a simple question, because there is abundant evidence from the 1950's and 1960's that indiscriminate investment in private industry cannot be expected to generate the rural growth which is needed. These days it is conventional to suggest that a focus on "rural growth centers" and labor-intensive industries will accomplish the task, and this may be largely true, but it is also true that much depends on the specific social, economic, and institutional context within which policies to encourage off-farm employment will be implemented. It would not be very efficient, for instance, to support light industrial development if in fact most off-farm income is generated by small retail businesses or government employment; and there will always be a danger of donors proceeding in ways that generate more government bureaucracy than productive employment. But in reviewing past programs and current trends, some guiding principles upon which further action might be based can be seen to emerge. These principles have to do with the role of government; the cost of credit and the size of loans; the geographical focus of a lending program; and the types of industry to be supported. Each of these questions is discussed below.

B. The Role of Government

The government of Kenya has attempted to stimulate the growth of non-agricultural employment by industrial development on two levels: first, there is very broad encouragement of foreign capital investment, which has been greeted with "massive loan and equity capital, quantitative restrictions, [favored] access to foreign exchange...[and] political intervention to break bureaucratic bottlenecks" (Kilby 1982:1-3). Second, there have been several lending schemes associated with an industrial estate program, aimed at supporting the development of purely local manufacturing capacity (Livingstone 1981:7.1-7.35). The level of resources provided the local program is far less than what has been offered foreign investors. The employment and income implications of both approaches are reviewed briefly below.

1. Foreign Investment

Colin Leys (1975:136-146) has incorporated an analysis of the role of foreign capital into his study of Kenyan underdevelopment. Much of the subsequent literature consists of reactions to or elaborations of Leys's presentation. Since his theses have so largely guided discussion in this area, we summarize the most important of them here:

- foreign enterprise is much more profitable than indigenous enterprise, because it is protected from and stifles local competition;

- foreign enterprise generates substantial capital flows out of Kenya, leading to less of local investment capacity; and

- foreign enterprise generates relatively little employment because it is capital-intensive.

The capital-intensivity question has subsequently been examined by many, including Maitha and Mamundu (1981), Kaplinsky (1978b), Hazlewood (1979), and Pack (1981). The most salient point to emerge in these discussions is that foreign firms are no more capital-intensive than local firms, and may even be less so, when comparisons are made within, rather than across, product lines. This may be largely due to the well-developed supervisory skills present in such firms, which allows them to accomplish, with semi-skilled manpower, production tasks that must be done by machines in firms where the quality of supervision is lower. But critics have extended the argument by suggesting that the product lines of foreign firms are in themselves inappropriate to Kenya's needs, being aimed at the wealthiest segment of the market and derived from the well-developed consumerism of Western Europe and North America. Hazlewood (1979:63), however, has pointed out that much foreign investment is in essential sectors (oil refining, chemical manufacture, sugar refining), where it is also hard to see a major role for labor intensive operations. In other sectors where foreign investment is substantial, such as soap, textiles, and cosmetics, there may indeed be scope for consumers's tastes to be affected by advertisement and exposure; but whether this is a good or a bad thing is difficult to state.[1]

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1. Personal viewpoints enter strongly into discussions of this point. Leys (1975) and Hazlewood (1979:) offer contrasting statements.

With regard to Leys's second point, it does not, on balance, seem true that foreign investment causes capital to flow out of Kenya. There is no question that profits (in some cases very high profits) do leave the country (Raplinsky 1978a:8); but there are apparently rather few cases in which foreign investment has actually caused a diminution of national wealth.[1] This question is closely related to the issue of industrial protection, to which we turn below.

Most observers would probably agree that the Kenyan economy has suffered from past protectionist policies (cf. Eglin 1978; Hazlewood 1979:77-85), but this does not necessarily mean that either industrial protection or foreign investment is a bad thing. Rather, there seems to be considerable room for improvement in policies that determine the incidence of protection across industries, the effective rates of protection, and the type of instrument (tariff, quantitative restriction, import licensing) by which the protection is established.

On the other hand, major foreign companies have been adept at obtaining favorable interpretations of policy which have perhaps not always been in the best interests of the nation. Langdon (1977:143-153, 1978:189-198) has, by closely examining the records of shareholdings and directorships of large companies financed by foreign capital, shown how these circumstances arise. Baldly stated, many politicians and senior civil servants, both active and retired from public life, derive substantial personal gain from being associated with these enterprises. The enterprises gain, too. Among those foreign companies with large local shareholdings, 80% have "relatively unconstrained" access to their chosen market; of those without local shareholdings, only 56% can claim such access.[2]

Although the companies themselves and the Kenyan political-managerial elite profit through such relationships, the nation as a whole often may not. In two particular cases (laundry soap manufacture and shoe manufacture) it has been possible to document the decline of local industries consequent to the entrance of foreign capital (Langdon 1977:307-382); most probably many other such events have gone unnoticed by all but

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1. Vehicle assembly and fertilizer manufacture have been cited as examples of this.

2. "Relatively unconstrained" access is defined as controlling 60% or more of the market and/or having a formal price agreement with the competition (Langdon 1977:112).

the local entrepreneurs whose livelihoods were undermined.[1] We conclude that continued foreign investment along the lines followed in the past will contribute less than it should to Kenya's development in the 1980's. This does not however mean that such investment should be discouraged. After discussion of Kenyan government attempts to foster local industrial development, we will, in a concluding section, be able to indicate areas where investment need not have the socially negative consequences characteristic of past experience.[2]

2. Government Programs

Comprehensive reviews of government support for small industry have been prepared recently by Livingstone (1981) and Kilby (1982). While differing in detail, these two analyses offer similar assessments, which are summarized below.

Since the mid-1960's several different industrial support programs have been offered under the umbrella of Kenya Industrial Estates (KIE) Ltd., which after 1967 was a subsidiary of the Industrial and Commercial Development Corporation (ICDC). Four types of assistance have been provided: subsidized loans, skills training, extension services, and the provision of subsidized, centralized infrastructure. This assistance has been channeled to two distinct types of program: the KIE effort itself, which has pursued a relatively capital-intensive approach to industrial development, and the Rural Industrial Development Programme (RIDP). This latter effort was originally conceived as an industrial analogue to the agriculture-oriented S.R.D.P., and has accordingly developed a somewhat less capital-intensive mode of operation. Table 5.1 summarizes relevant aspects of these two programs.

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1. Some will observe that these local industries would not have declined had they been able to service demand as well or better than the new foreign firms, and thus it was appropriate that they were replaced. From the perspective of immediate economic efficiency this may well be true; but, as shown elsewhere in these pages, there are from the developmental point of view some advantages to local multi-firm labor-intensive industrial development, and some disadvantages to capital-intensive single-firm foreign investment. These circumstances suggest that long-term national development may in some instances be placed on a sounder footing by supporting local private efforts even when the initial result is somewhat inefficient.

2. Kilby (1982:49-50) has demonstrated that large-scale capital-intensive industry has grown at the expense of small scale firms continuously during the period 1966-1978. This trend runs directly counter to Kenya's urgent need for employment growth.

TABLE 5.1. KIE AND RIDC ACCOMPLISHMENTS, 1978-80

A. Facilities Completed as of 1980 a/

	KIE	RIDC
Estates/Centers Established:	5	11
Factory Units Completed:	140	90
Factory Units Occupied:	110	82

B. Investment and Job Creation, as of 1978/79 b/

	KIE	RIDC	TOTAL
Number of Projects	104	123	227
Value of Approved Loans (mil.KSH)	79.0	12.9	91.9
(%)	(86.0)	(14.0)	(100.0)
Number of Jobs Created	2075	1301	3376
(%)	(61.5)	(38.5)	(100.0)
Investment per Worker (KSH)	38,100	9,900	27,600

a/ Kilby 1982:54
b/ Livingstone 1981:7.17. The figures are cumulative over the period 1975/76 - 1978/79.

Since these programs were justified at least partly as means of creating employment, it is appropriate to compare the investment per job created with the investment requirements of other approaches. As Table 5.2 shows, the KIE approach seems rather expensive, the RIDC less so.

TABLE 5.2. COSTS OF JOB CREATION

Activity	Investment per Job Directly[d] Created (KSH)
Roller Maize Mill a/	41,667
KIE b/	38,100
Conventional Gravel Road Construction c/	24,640
RIDC b/	9,900
Hammer Maize Mill a/	8,333
Vibrating Concrete Block Maker a/	1,783
Rural Access Roads c/	1,550
Hand-Operated Concrete Block Maker a/	347

a/ Stewart 1979:56,69.
b/ Table 5.1.
c/ Ghai 1980:373. Costs of wages are subtracted from Ghai's figures to make them comparable with other data in this table.
d/ These figures do not account for multiplier effects.

Kenya's industrial support program has, on the whole, not been particularly effective at generating employment; not only have the results been relatively expensive, they have been meager in an absolute sense. Livingstone (1981:7.13) calculates that this effort accounted for about 0.4% of all employment in 1978. Other deficiencies have also been observed. In common with most other government enterprises, the programs were overstaffed and ineffective when compared to similar private sector enterprises (Kilby 1982:56:66); the extension effort was wrongly conceived and impossible to fund on a recurrent basis (Livingstone 1981:7.6-7.9); and, after an initial settling-in period, the loans were not made to middle-level entrepreneurs but largely to

> senior government officials sometimes in association with naturalised Asian and European citizens of substantial capital, bank chairmen and senior executives, ICDC directors and senior officials, Ministers and Members of Parliament...(Wanjohi 1980:370-371).

Of 288 loans outstanding in 1980, 269 were over three months in arrears and 133 were thought to be uncollectable under any circumstances; the uncollectable loans accounted for over one-half of the loan portfolio (Kilby 1982:71).

On the positive side, the ICDC/KIE effort seems to have been effective at helping bona fide small businessmen deal with the maze of local and national regulatory agencies (Kilby 1982:74). Similarly, the provision of simple industrial shelter at low rents, as in the RIDC program, appears to yield employment benefits in much the same way as low-cost housing: there is a substantial direct employment impact due to the labor-intensive character of the building trades, a further indirect impact because most of the materials used are locally-manufactured, and tertiary impacts from the activities of the small industries themselves once established in the new facilities (cf. Ghai 1980:378).[1]

On the whole, however, we must conclude that official attempts to sponsor local industrial development have had disappointing results. Further, it does not seem likely that the problems encountered, which are characteristic products of political and economic processes in Kenya, will prove amenable to the sort of program "fine-tuning" recommended, for instance, by

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1. Probably even the RIDC program provided facilities too elaborate and capital-using for the purpose intended. Further efforts here might use more local materials, more local tradesmen, and thus generate more employment and reduce the size of rents required.

Livingstone (1981:7.42-43). On the contrary, we should admit that the program has largely not fulfilled its promise and explore other methods of achieving the same ends. Thus, while it makes sense to continue the provision of low-cost industrial shelter, and while there may be a role for government to play in helping small businessman find their way through the (government-created) regulatory maze, the ICDC/KIE industrial loan program should probably not be continued.

We do not conclude, however, that loans to small industry are unneeded. There is consistent evidence that lack of capital is an important constraint facing this sector, although whether the need is for establishment capital, expansion capital, or working capital is somewhat unclear (Child 1973:32, Kahangabe 1978:85-86, King 1977:130). The issue then is how to deliver loan funds without resorting to a government agency; Von Pischke (1977), Child (1973) and Kilby (1982), among others, have proposed the use of commercial banks for the purpose. The advantages of using commercial banks as conduits for development assistance can be stated simply. As deposit-taking institutions these banks are in close touch with rural economic patterns generally and with the financial reliability of potential credit recipients in particular. As privately-owned enterprises, the banks tend to operate at lower overheads than government agencies, are relatively free from the administrative overload which afflicts public institutions, and are somewhat less susceptible to political pressure. Finally, those who request bank loans are probably more able and more willing to repay them than are the clientele of government programs.

These circumstances suggest that loan programs administered on a commercial basis will achieve greater impact than public programs. However, there are other issues to consider. Left to themselves the commercial banks will tend to minimize investment risks; minimize transaction costs; and maximize the return on their investments. These are sound financial principles but may not necessarily be equally sound in development terms. This is because development needs at the national level (for greater employment and a less skewed income distribution) may not coincide with the most profitable course of action at the level of the firm (or bank).[1] This topic is explored briefly below.

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1. There is evidence that commercial lenders prefer to concentrate on trading establishments, where the loan is used to build up inventories (David and Wyeth 1978a:4). The employment impact of loans to trading establishments is not known. However, the same survey showed (p.10) that 53% of all multi-business loanees consisted of combinations of trading enterprises with transport, food processing, vehicle repair, and manufacturing enterprises. There is thus a possibility that investment in these multi-function establishments would generate employment in several sectors of activity known to be employment intensive.

C. The cost of credit and the size of loans.

As a general principle, credit should be made available at market rates to avoid the social and institutional penalties that inevitably attend credit rationing (Von Pischke 1977:352-367). But there are aspects of credit other than the interest rate that affect its utility for potential borrowers. In Kenyan small industry particularly, it may be advisable to grant grace periods and extended repayment schedules to borrowers. This would delay but not greatly reduce the returns to lending institutions, while allowing entrepreneurs to fully incorporate the borrowed resources into their operations and thus generate a larger stream of income before being required to assume the full debt burden.

The issue of collateral is a difficult one. Commercial banks require large securities for the loans they make, which would tend to exclude lending to the very small, often informal firms where the greatest employment gains are to be made.[1] Kilby (1982:92-96) has suggested that a commercial lending program be mounted with loan guarantees financed by donors, so that the banks will be encouraged to make non-secured loans. While administratively more complex, such an effort should be made on a trial basis to assess whether loans can profitably be made to that lower segment of Kenyan industry where employment growth is likely to be maximized.

An associated question is size of loans. To minimize transaction costs banks will tend to make small numbers of relatively large loans. However, at the bottom end of the industrial sector, the size of loan needed is not likely to be very large. A study of capital requirements in 27 small industries in Central Province (Norcliffe et al. 1980, cited in Livingstone 1981:7.11) revealed that in only two cases did total capital exceed 65,000 KSh,[2] and Livingstone estimates that start-up investments would be about one-half this size. By constrast, the average ICDC small industry loan was for 87,000 KSh.[3] It is not possible to suggest a specific employment-linked

1. The proposition that smaller firms are more labor-intensive than larger firms is well-established in the Kenya literature. See Maitha and Manundu (1981) and House (1981) for recent treatments.

2. Over one-half the industries required less than 8,000 KSh.

3. Probably over-lending has weakened many borrower firms. The large amount of money borrowed cannot be put to work profitably, and so the stream of income generated by the investment is not sufficient to provide an income, meet costs, and service the large debt. Smaller loans would place lesser burdens on these small industries and perhaps lower default rates. A 1978 survey of a commercial bank loan program (David and Wyeth 1978a:2) showed that over one-half of all loans were for less than 10,000 KSh.

loan ceiling, which would depend on geographical location and the technology of the enterprise being funded, but it is plain that without such a ceiling the employment goals of a commercial lending program could be easily compromised.

D. Geographical Focus.

It is government policy to encourage the development of formal industry in rural Kenya (GOK 1979: Part 1, p.333), so as to spread the benefits of industrial development more broadly among the population. The record of achievement is weak (Wanosor 1981:354). Despite a decade or more of incentives for rural dispersion of industry, most growth continues to be centered in Nairobi and Mombasa. Even the ICDC small industry loan program, aimed largely at encouraging rural growth, directed 40% of the value of all loans to the two major industrial centers of Nairobi and Mombasa (Livingstone 1981:7.16). Rural industrial growth has been difficult to stimulate because input and output markets are concentrated in the urban centers; because complementary industries are similarly located; and because the supply of labor is largest and most varied there. Even informal sector industries, thought by many to be more "rural" in orientation than mainstream enterprises, depend on major urban centers for supplies of raw materials and consumers (King 1977:58-59).[1] These are also the places where facilities and licensing are easiest to obtain and avoid, respectively. Thus Kilby (1981:38) concludes that "... the informal sector is dependent in both its size and location upon the formal sector." This suggests a strategy seeking to increase employment through widely dispersed rural industrial development (formal or informal) is likely to be self-defeating. On the other hand there is a clear need, demonstrated in Chapter Two, for the western parts of Kenya in particular to have greater access to the benefits of industrial development. We conclude that only one or two western growth centers, perhaps Kisumu and Eldoret, should be the focus of major industrial investments such as canneries or other large enterprises in the manufacturing sector.[2] In this way the benefits of concentration could be gained, while delivering industrial support to a region where employment generation is most urgently required.

1. Informal sector service enterprises by contrast are much more widely dispersed in rural areas, but offer little leverage for economic development per se, being dependent on levels of rural demand.

2. A large commercial lending program would obviously need to move beyond this narrow focus. However, the principle of concentration should be adhered to as far as possible, and could be applied in non-western settings as well, e.g. at Voi or Kitui in the coastal and eastern areas. Small loans to traders, maize mill operators, and the like would obviously not be subject to the concentration criterion, since in these cases locational and financial decisions would be made by local people in close touch with relevant economic parameters.

E. Types of Industry to be Supported.

We have already suggested that small firms have more to offer in terms of increased employment per unit investment than large firms. By "small" in Kenya most writers mean less than 50 employees, a category which included about 87% of all manufacturing firms in 1967 and about 79% of all such firms in 1979.[1] Even (or especially) the smallest firms (1-4 employees) deserve attention, because employment and income impact will be greatest here and because over time these small firms can be expected to evolve into larger, more stable enterprises (Livingstone 1981:7.23).

Kilby (1992:18) has proposed criteria for assessing the likely employment impact of investment in different types of small firms. Based on having a low wage bill per employee and a low non-wage value-added per employee, his analysis suggests that for Kenya the following types of enterprises contribute most to levels of employment : wood and cork products, transport equipment, sugar and confectionaries, textiles, furniture and fixtures, clothing, leather products, and footwear.

Choice of technology can have a further impact on employment generation. Other things being equal, the industries listed above will generate more employment when the industrial enterprises use multiple shifts, older machinery, manual labor instead of conveyors or forklifts, and hand tools instead of power tools where this is consistent with satisfying consumer preference for quality.[2]

F. Conclusion : Small Industry.

In this section we have reviewed the role of government in fostering small industry, together with other considerations such as appropriate financial procedures, geographical focus, and the sorts of industries and technologies most suitable for support. The primary conclusion is that non-governmental institutions should be utilized in a small industry support strategy. Commercial banks can be considered sound delivery mechanisms, provided that their risk-minimizing and profit-making tendencies are tempered with sufficient concern for the development impact of the loan program. Accordingly, a series of appropriate non-financial lending criteria have been proposed. These criteria, which should be refined in the

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1. Statistical Abstract 1968:67; 1980:9. The 1978 David and Wyeth survey cited earlier revealed that 85% of all commercial bank loans were made to firms employing less than 10 persons (p.12).

2. In some enterprises, such as furniture-making, power equipment in the form of table saws and planers dramatically increases the quality of the finished product.

course of program development, ought not to be perceived as onerous by donor agencies, although they might entail small additional administrative costs for which the lending institutions could be compensated. We return to the proposition with which this section began: indiscriminate investment in industrial development is unlikely to generate the employment and income growth needed to ensure livelihoods for Kenya's growing population. The assistance resources which are available, small in absolute terms, must be strategically concentrated on firms, industries, technologies, and in locations where the maximum employment return can be expected. The administrative costs of accomplishing this will be minor compared to the social, economic, and political troubles which can be avoided through the mitigation of Kenya's currently distorted industrial development pattern.

CHAPTER VI: ENERGY

A. Introduction

As with other oil-importing developing countries, Kenya has had to face rapidly rising petroleum prices since the mid-1970's. The effect of this can be seen in figures assembled below. During the period 1976-1980, petroleum consumption increased by 44% while expenditure increased by 274%. In general, domestic petroleum has become a larger proportion of imports, and has demanded a growing amount of foreign exchange (earned largely through exports).

TABLE 6.1. NET PETROLEUM IMPORTS COMPARED TO VARIOUS ECONOMIC INDICATORS, 1976-1980. a/

	1976	1977	1978	1979	1980
a) Net Petroleum Imports (000 KL) b/	34,154	33,949	48,793	70,106	127,73
b) Net Petroleum Imports (Value Index)	100	99	143	205	374
c) Net Petroleum Imports (Quantum Index)	100	113	1217	152	144
d) Net Petroleum Imports As % of All Imports	8.4	6.4	7.4	11.3	13.6
e) Net Petroleum Imports As % of Imports Minus Re-Exported Petroleum c/	10.1	7.6	8.2	12.9	16.3
f) Net Petroleum Imports As % of All Exports	10.2	7.1	13.2	18.2	26.3
g) Net Petroleum Imports As % of Non-Petroleum Exports c/	12.9	8.6	16.2	22.7	39.4

a/ Derived from Economic Survey 1981:94,96,139.
b/ These figures and all computations involving them use current Kenya pounds.
c/ Kenya re-exports considerable quantities of imported oil products. For some purposes it is therefore important to examine import and export figures net of the value of re-exported products. Refinery inefficiencies and value-added are additional complexities not dealt with here.

However the figures are arranged they seem to show that imported petroleum is a growing burden on Kenya's economy. In 1980 net petroleum imports demanded as much as 26-40% of the value of foreign exchange earned through exports. During the period 1976-80 the value of net petroleum imports as a percentage of all imports increased by 62%; during the same period the only other import category to increase its share was transport equipment (which grew by 1%), and all other import categories lost value proportionately. The largest declines were in the categories of food and beverages and non-industrial consumer goods, which fell by 22% and 30% respectively (Economic Survey 1981:94), despite large food imports in 1980 especially. One possible interpretation to place on these trends is that petroleum consumption is being financed at least partly through stiff cuts in various consumer-oriented imports.

At the same time that Kenya is facing difficulties in the conventional energy sector, there are emerging problems in the traditional or woodfuel[1] sector. According to research undertaken by the Beijer Institute (1982:124-131), woodfuel is currently being consumed at a rate greater than that at which replacement supplies can be generated by Kenya's forests and open woodlands. Existing standing stocks of wood are therefore being depleted, with the result that Kenya's future capacity to generate woodfuel is being steadily undermined. Computer projections indicate that sustainable yields from standing stocks entered a decline in 1980-81. Although total consumption will continue to increase until about 1995 as stocks are drawn down, the total supply of woodfuel will decline precipitously after that date.

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1. By convention the terms "fireweed" and "fuelwood" are used to describe wood burned as such to generate energy. The term "woodfuel" encompasses both fuelwood and charcoal, the latter being a major source of domestic and informal sector energy in Kenya.

By the year 2000 the total shortfall will amount to about 30 million tonnes of wood.[1]

Kenya's dual energy crisis has major implications for growth in the agricultural and industrial sectors, and for the quality of life in rural as well as in poor urban places. To draw out these implications we turn to a more detailed discussion of demand and supply trends in both rural and urban areas.

B. Rural Consumption Patterns

In this section the structure of rural energy consumption in Kenya is reviewed. Thereafter several important consumption trends are examined; these relate to the changing use of firewood and charcoal in rural households and to implications for agriculture and employment. We close with a short consideration of the woodfuel supply situation and implications for development planning.

In rural areas generally, fuelwood accounts for over 87% of all energy consumed. Charcoal provides another 4.5% or so, paraffin a further 2.5%, and the remainder of rural energy needs

1. These projections incorporate estimates of consumption derived from national domestic energy surveys. Survey methodology becomes important here. To assess fuelwood consumption, enumerators asked respondents to display amounts of wood equivalent to those used for morning tea, the afternoon meal, and evening cooking and heating. Each bunch or piece of wood displayed was then weighed. This generated an overall national figure of 4355 kg/annum/household. However, this technique has been shown in a South African study (Best 1979:76) to overestimate consumption by a substantial margin. Preliminary investigations in Taita/Taveta district in 1982 used a different methodology. Here, all wood in respondents's households was weighed at the start of a one-week survey period. Thereafter all wood brought to the household was weighed as it arrived. At the end of the week all wood remaining in the household was again weighed. Then the difference between initial and final weighings was added to the amount of wood brought to the house during the week to generate total weekly consumption. The household consumption figure derived was 2600 kg/annum. This cannot be directly compared with the overall national survey figure of 4355 kg/annum, because it is based on assessments done in a densely-populated community suffering moderate shortages. However, the lowest provincial consumption figure obtained in the national survey was 2866 kg, for middle-income smallholders in Western Province. It seems clear that the national survey has overestimated fuelwood consumption, although by how much it is impossible to say.

is supplied through crop wastes and dung. But there are important variations in these consumption patterns by region and by income group. These are illustrated below.

TABLE 6.2. ANNUAL RURAL ENERGY CONSUMPTION BY SOURCE OF ENERGY, PROVINCE, AND INCOME GROUP, 1981. a/

	Wood (kg)	Charcoal (kg)	Paraffin (lt)	Crop Waste (kg)	Dung (kg)
Province					
Central					
Low b/	6140	48	38	800	0
Middle	4656	86	50	504	0
Upper	4906	145	58	684	0
Coast					
Low	4515	0	46	0	0
Middle	4945	36	75	0	0
Upper	4788	124	94	0	0
Eastern					
Low	6975	0	17	0	0
Middle	6815	92	42	0	0
Upper	4799	452	79	0	0
Nyanza					
Low	4898	15	44	112	0
Middle	4948	32	42	54	135
Upper	3451	96	51	415	166
Rift Valley					
Low	3263	25	41	221	0
Middle	2755	239	52	317	0
Upper	1906	371	62	520	0
Western					
Low	2969	8	31	354	243
Middle	2866	33	34	258	1074
Upper	3024	193	48	117	13
Total					
Low	4507	15	46	262	61
Middle	4482	97	51	266	24
Upper	3983	224	64	387	25

a/ Derived from Hosier 1982. Of the 572 sample households, 3 used electricity or LP gas, data not included here. In several cases the averages presented (for all sample households) are based on small (under 10) numbers of user households. The figures are on a per-household basis.

b/ The low income group is comprised of households earning less than 2000 KSh/annum. The middle income group includes households earning 2000-8000 KSh/annum. The high income group includes those households earning over 8000 KSh/annum.

We shall pay particular attention to patterns emerging in Central Province, a high potential area where the population is dense and relatively well-off; in Western Province, a high potential area where the population is dense but relatively poor; and in Eastern Province, which is relatively sparsely settled and where many farmers (particularly in the semi-arid zones) are relatively poor. These contrasts, together with the income contrasts also presented, are roughly congruent with the typology of smallholder groups offered in Chapter Two, and allow us to relate this material on rural energy to the earlier analyses of socio-economic groups and processes. A further section discusses domestic energy trends among pastoralists, who were not sampled in the national energy survey.

1. Central Province

Here, use of fuelwood tends to decline with increasing income, although the rate of decline is not very great. Both charcoal and paraffin are more convenient fuels than wood; predictably, their usage rises with income, although absolute amounts consumed are not very large in comparison with fuelwood.[1] The large contribution of crop wastes may be overstated here, since the survey took place at a time of year when these were maximally available. Use of crop wastes is often interpreted as an indication of fuelwood scarcity, but that this may not be a universally valid assumption is suggested by the simultaneously high rates of fuelwood consumption observed in this province. In fact, crop wastes may often be preferred to fuelwood. They are conveniently available at certain times of the year, thus reducing the labor time needed to provision the household with fuel. Further, various crop wastes possess particular burning qualities that make them attractive to women. Maize and millet stalks, for example, provide a quick-burning, intense heat source that is useful in starting a morning fire to boil water quickly for tea. Shelled maize cobs, on the other hand, are valued for the long-lasting quality of the heat generated, in which regard they are similar to charcoal but of course at far less cost to the household (Oleche 1982:9). Use of crop wastes for fuel, however, leads to a reduction in the amount of

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1. On a dry-weight basis, the energy content of charcoal is about twice that of fuelwood, although there is much variation by species. Thus the contribution of charcoal to domestic rural energy budgets is greater than Table 6.2 suggests, but it still does not constitute a major fraction.

vegetable matter returned to the soil or made available to livestock in the form of stubble and fodder. Relatively high rates of crop waste consumption among low income smallholders in Central Province may be related to smaller livestock holdings observed among this group (see L.D. Smith 1978:42)[1]; that is, there are fewer alternative uses for the materials. These patterns may however constrain the intensification of production in such places, since many of the required technologies (mulching, trash lines, dairy production) mobilize the same organic materials.

2. Western Province

The very low rates of fuelwood use here undoubtedly reflect actual scarcity; and the lack of variation across income groups suggests that poorer households, which would ordinarily use somewhat greater amounts of fuelwood than wealthy households, are simply unable to find the material. Shortfalls in fuelwood are compensated by increased use of charcoal among the wealthier smallholders, and by increased use of dung and crop wastes among poorer smallholders. The apparently very high consumption of dung for fuel among middle income smallholders here probably reflects the fact that, like high income smallholders, they own relatively large numbers of livestock (L.D. Smith 1978:42), but, unlike the wealthier farmers, the middle income group cannot afford charcoal. The consistently negative correlation between income and consumption of crop wastes for fuel is probably also related to livestock ownership, in that wealthier smallholders own more cattle and thus have an important income-generating use for stubble and residue. For them, crop wastes are too valuable to burn; for poor farmers, there is probably no alternative.[2] The use of dung in Western Province is far more common than anywhere else in Kenya, a clear indication of growing fuelwood scarcity. This has implications for schemes to intensify agricultural production. Most such thinking these days assumes a major role for manure in maintaining soil fertility, since chemical fertilizers are both expensive and in short supply. In Western Province the middle-income smallholders, who ought to be the primary target of

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1. The Smith treatment is by agro-ecological zones; Central Province is comprised almost wholly of the Coffee and Tea East of Rift zones.

2. In nearby Kisumu district, smallholders without sufficient residues on their own farms may collect these in the fields of neighbors (Oleche 1982:5). This perception of crop wastes as a communal good will probably change as scarcity grows; wood is already viewed as private property in many places (cf, Barnes 1982:14, Brokensha and Riley 1979).

intensification schemes, are most dependent on dung as an energy source. Since cooking will always take precedence over other possible uses, it is plain that agricultural intensification here will have to include some effort to develop alternative or supplemental fuel sources.

3. Eastern Province

Here patterns of energy consumption are more-or-less unremarkable. Fuelwood consumption declines with income, while consumption of charcoal and paraffin rises. The generally high rates of fuelwood consumption probably indicate areas which is as yet relatively unimpeded. This view is supported by data collected in the 1978 CBS energy survey, which showed that over 65% of all households in Eastern Province are less than one kilometer from their source of fuelwood.[1] The range of charcoal consumption across income categories is substantially greater in Eastern Province than anywhere else in the country.[2] The greater availability of fuelwood in the semi-arid zones typical of Eastern Province is undoubtedly also responsible for the observed absence of use of crop wastes for domestic energy. This suggests that the fuelwood issue, at any rate, poses few constraints for soil enrichment or improved livestock programs in these places.

4. Energy Consumption Among Pastoralists

Two recent case studies have shed light on interesting changes in patterns of energy consumption among pastoralists.

Perlov (1982), in an investigation of domestic energy use among the highland Samburu, showed that increasing sedentarization leads to greater consumption of fuelwood. In a largely pastoral setting consumption was estimated at 85 kg/week/household; in a largely agricultural setting consumption was estimated at 138 kg/week/household; and in an intermediate community consumption was

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1. ROK 1980d:16. Only in Central Province was a larger percentage of households within the one kilometer distance category (71%); as we have seen, fuelwood consumption there is also very high.

2. In the 1978 survey Eastern Province scored far below all other provinces in average household consumption of charcoal (ROK 1980d:18, 23). Thus the circumstances there are unclear. A possible explanation may be found in the circumstance that the plains areas of this province supply much of the charcoal used in Nairobi. Low income households in particular engage in charcoal production, and so it may be that in Eastern Province low income categories have easy access to charcoal because they produce it regularly. But climate and ease of availability of firewood would tend to keep charcoal consumption rates low.

thought to be about 105 kg/week/household.[1] In large part these variations are due to associated changes in the Samburu diet. The plant foods (especially maize) consumed in sedentary households require more cooking than traditional pastoral foods, particularly milk, which requires little or no energy input depending on the form in which it is consumed.

Ensminger reached similar conclusions in her study among the Galole Orma of Tana River district.

> Nomadic households depend upon milk for a far higher percentage of their calorie intake than do sedentary households. [In sedentary communities] cattle can no longer range the bush grazing because they are restricted to...about a 12 kilometer radius of the fixed compound. Alternatively, cattle are sent...far away and in terms of milk production are of no use to the settled villagers.
>
> The lost calories are made up largely in the form of maize meal...and large quantities of sugar consumed in tea (1982:6).

Both maize and tea require more cooking than milk and thus domestic energy use rises.

The labor time needed to gather fuelwood also rises among the more sedentary of pastoral households. Ensminger (1982:10) shows that nomadic households require only 1.5 hours per month per household to collect the needed fuel, but settled households in the same vicinity require 20 hours. This is partly due to the increased quantity of fuel needed to cook foods consumed in sedentary households, and partly to the tendency for available fuelwood stocks in the vicinity of sedentary communities to be consumed rapidly. The low-yielding rangeland biomass cannot support intensive fuel harvesting, and it soon becomes necessary to travel great distances to obtain the needed wood.

In general, pastoral households use insignificant amounts of charcoal or paraffin, because these fuels are costly and often not required in the pastoral setting. Fuelwood is freely available, and the special advantages of charcoal for slow, even cooking, and of paraffin for light at night, have little attraction.

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1. The methodology used to assess quantities consumed in this study casts doubt on the absolute values of the consumption figures generated, but the trend to increased consumption with sedentarization is probably genuine.

Although Perlov (1982:7) did not observe any use of dung for energy, Enssinger (1982:10) found otherwise in her study. Each night a large dung fire is lit in the cattle compound, to provide smoke and heat all night long. This practice

> is said to warm the cattle, keep them tightly focused all night...in the absence of any corral...send away the large numbers of disease-carrying mosquitoes and flies that the cattle bring back from the lush grazing areas, kill pests and bacteria that breed in the dung, and deter wild animals.

The manifold uses to which dung is put here suggest that development initiatives envisaging alternative uses for dung might meet with resistance. For instance, it is generally thought that in the areas where sedentarization is taking place, it will become increasingly necessary to incorporate cattle (and manure) into sustained-yield mixed farming systems. It seems plain that alternative low-cost approaches to accomplishing the purposes currently served by dung (especially disease control) will need to be introduced simultaneously.

C. Urban Consumption Patterns.

Patterns of domestic energy use in urban areas differ markedly from those seen in rural places. Firewood is more seldom used because it is inconvenient, smokey, low in status, and, in larger places, difficult to obtain. Charcoal and paraffin are most widely used. Table 6.3 offers further detail.

TABLE 6.3. Average Annual Domestic Energy Use in Urban Areas a/

Income Category b/	Levels of Consumption c/ Charcoal (kg)	Paraffin (lt)	Gas (kg)	Electricity (kwt)
Low	304	36	9	48
Low-Middle	618	47	0	223
Middle	786	144	9	165
Upper-Middle	756	131	50	987
Upper	449	45	87	5014

a/ Based on Mosier (1982:14). The urban areas surveyed were Meru, Isiolo, Machakos, Kisumu, and Mombasa.

b/ Low = 0-258 KSh/Month; Lower-Middle= 259-759 KSh/Month; Middle = 760- 1518 KSh/Month; Upper-Middle = 1519-4554 KSh/Month; Upper = 4555 KSh/Month and above.

c/ Unfortunately the survey which generated these data made no attempt to assess levels of firewood consumption. There is no question that this fuel is relatively uncommon in urban places, but it would be useful to establish the precise level of usage.

These data show that consumption of charcoal and paraffin is heaviest among middle income urban dwellers. We can assume that lower income groups are using substantial quantities of firewood instead of charcoal or paraffin. People with high incomes turn increasingly to the use of gas and electricity. The latter energy sources, although expensive, are convenient, clean, and confer high status on users. In Table 6.4 we outline the relative costs of various domestic energy sources used by urban dwellers in Kenya. Charcoal is plainly the most attractive.

TABLE 6.4. Domestic Energy Costs in Urban Places, 1981 a/

Fuel	Cost (US$/Gigajoule) b/
Firewood (improved stove)	$ 4.72
Firewood (traditional stove)	$ 9.44
Charcoal (jiko)	$ 8.31
Paraffin	$16.62
LP Gas	$22.30
Electricity	$29.30

a/ Source: Prasad 1981:70.
b/ These figures do not include corrections for the cost and depreciation of appliances required to make use of the fuels. These costs are negligible in the case of firewood stoves but substantial in the case of gas or electricity, and would thus tend to increase the variation in costs shown here.

There are also variations in consumption patterns in different urban places. Households in the very largest areas--Nairobi, Mombasa, and Kisumu--have more limited access to firewood than do households in smaller urban places, and so their consumption patterns focus on more readily-available fuels such as charcoal, gas, and electricity. In smaller urban places, greater access to firewood and the more limited availability of electricity and gas cause greater reliance on paraffin and woodfuel. In the very smallest urban centers woodfuel is the dominant energy source, and thus consumption patterns in such places are not greatly different from those seen in the rural areas (Hosier 1982).

By contrast with some rural places, such as Western Province, there do not seem to be particular urban areas where domestic energy is a troublesome issue. However, complaints emerge from time to time with respect to the cost and availability of charcoal, paraffin, bottled gas, and electricity. To assess whether the cost of domestic energy is becoming a serious issue among urban dwellers, we have assembled some data which shed light on the relationship between expenditure on domestic energy and urban household income. As shown in Table 6.5, energy absorbs a substantial amount of income among lower income categories, but is a minor cost for wealthier groups.

TABLE 6.5. URBAN ENERGY EXPENDITURE AND LEVELS OF HOUSEHOLD INCOME, 1981

Income Group	Annual Income (KSH) a/	Energy Expenditure (KSH) b/	Energy Expenditure As % of Income
Lower	0- 3096	578	18.7% or more
Lower-Middle	3097- 9108	1106	12.1% - 18.6%
Middle	9109-18216	1798	9.9% - 12.0%
Upper-Middle	18217-54648	2480	4.5% - 9.8%
Upper	54649 or more	2259	4.4% or less

a/ Based on Hosier (1982:14). The urban areas surveyed were Meru, Isiolo, Machakos, Kisumu, and Mombasa.

b/ Based on Hosier (1982:14) with regard to quantities of fuels consumed. The cost of electricity among small consumers (at unmetered block rates) is estimated by Schipper, et al. (1981) as 0.65 KSh/KWH. Costs of LP gas (5.63 KSh/kg), charcoal (1.58 KSh/kg), and paraffin (2.78 KSh/lt), are derived from Kane (1981:35-39). Charcoal was assessed at the cost per 20 lt tin in which it is usually sold retail. The paraffin price used here is the pump price, but it is often sold from bulk containers at a higher price equivalent to 3.50-4.50 KSh/lt.

Because of limitations in the data, these figures should be regarded as indicative rather than definitive; but it seems clear that poor and mid-income urban dwellers are burdened by high energy costs. In other parts of the world, high energy costs such as these have forced urban households to cook foods less thoroughly or to purchase foods which require little or no cooking. Often the result is poorer nutrition for young children (Fleuret and Fleuret 1980:254). Thus, there may be a link between the very high domestic fuel expenditures observed here and the surprising degree of urban child malnutrition identified earlier in Chapter Two. Anyhow, it would seem appropriate to increase the access of urban dwellers to woodfuel.[1] This might best be done by establishing peri-urban woodfuel plantations. Whether production were aimed at firewood or charcoal, the fuels would be used overwhelmingly by low and middle income householders. Furthermore, maintenance, harvesting, and distribution could be expected to generate low-wage employment opportunities which are much needed in these places.

1. The dimensions of the domestic energy problem among low- and middle-income urban dwellers can be expected to grow as urbanization proceeds, as easily-accessible biomass is depleted, and as inflation outruns wage increases. For political reasons alone it would be sensible to take some limited steps to slow foreseeable declines in quality of life among the majority of urban dwellers.

D. Other Considerations Regarding Fuelwood

Relatively few reports shed light on the amount of labor required to collect fuelwood, although women everywhere in East Africa perceive this task to be perhaps the most onerous of their household chores. A study of Machakos District found significant variations in labor expenditure, depending on the type of vegetation available locally. Table 6.6 illustrates.

TABLE 6.6. FUELWOOD LABOR-TIME IN MACHAKOS

Zone a/	Person-Days/Family/Year	% of Total Available Person-Days b/
I	57	10%
II	58	10%
III	69	12%

Source: Hosier 1981:22

a/ Based on the productivity of the biomass. Zone I is highly productive, Zone III is lower, and Zone II is intermediate.

b/ Calculated on the basis of the table presented in Hosier 1981:22. Assumes an average family size of 5.5, of whom 2 are available for fuelwood collection (the woman of the household and her oldest daughter), and a total of 300 working days during the year.

In Machakos, then, where we know fuelwood to be relatively accessible, collection time can absorb a significant amount of female labor. In Kisumu it was estimated that fuelwood collection demanded 5-7% of female labor time, still an impressive figure (Oleche 1982:9). Data from elsewhere in East Africa support these figures.[1] Thus it can be expected that

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1. Fleuret and Fleuret (1978) found that fuelwood collection demanded 5-15% of female labor time, depending on household size. Smaller households require more effort on a per-capita basis since fuelwood needs rise only slowly as household size grows.

rural domestic energy becomes more difficult to procure, greater constraints will be placed on the disposition of female labor time.[1] Since women already shoulder most the responsibility for farmwork, the need to devote more time to collecting household fuel will endanger the viability of most schemes to increase agricultural production. It seems that efforts to increase the availability of domestic fuel must accompany efforts to intensify agricultural production, especially in the high potential areas.

A final issue relates to the cooking time required to prepare various foods. We have already seen that dietary changes accompanying the sedentarization of pastoral populations lead to greater fuelwood consumption. Parallels emerge when we compare different smallholder populations. Where the diet is composed largely of whole maize kernels and beans, as in Central Province, cooking energy needs can be far greater than where the diet is based on ugali (ground maize or other cereals). Rosier (1981:144) calculated on the basis of his national energy survey that, other things being equal,

> ...a household consuming predominately maize and beans as a staple will utilize about 1400 kg more wood per annum than if they are mostly ugali or other non-whole-grain dishes.

An obvious implication is that local milling of grains should be encouraged in places where it is not now the rule. A less apparent conclusion may be that careful thought be given to agricultural programs that introduce beans and other legumes.[2] Dried whole legumes are notoriously difficult to cook, a circumstance which may create resistance to adoption or, in the event they are adopted, place added burdens on fuelwood resources and the labor-time of women.

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1. An extreme example may be seen at Mumias, where women "...may work all day collecting wood from a wooded area to which they are transported, and in return are allowed to keep a headload for themselves. The rest is sold [by the labor contractor] in town" (Buck 1980:3).

2. The 1979-83 Development Plan (Part I:233) calls for increased production of pulses to meet nutritional goals. These are important concerns which we do not seek to minimize; but it is important to be aware of significant cross-sectoral implications of the sort identified here.

E. Trends in Fuelwood Demand and Supply

The data reviewed here suggest that fuelwood scarcity may be an over-riding problem in the high potential, high density areas, especially in places west of Rift Valley. In these locations, and perhaps in Central Province as well, farmers have through the extensive use of crop wastes and dung entered into a pattern of domestic energy consumption that will inevitably tighten the constraints facing them in the agricultural sphere. As in other aspects of Kenyan development, we are not surprised to find that poorer smallholders, with small landholdings and meager cash resources, are most severely affected by fuelwood shortages. Household needs for fuel to cook food and to provide heat and light will increasingly undermine the capacity to intensify agricultural production through crop and livestock enterprises.

Fuelwood is not however a critical issue in the lower potential semi-arid zones. The current high rates of use indicate supplies are plentiful, an assessment which is confirmed by estimates of the total wood yield capacity of these zones.[1] On a national basis, however, ease of access to fuelwood may be declining. A comparison of the results of consumption surveys carried out in late 1978 and early 1981 shows that

> although the percentage of households using fuelwood...remained roughly the same, the amount of fuelwood used decreased by ten percent...(Rosier 1982:5).

During the same period, the percentage of households using charcoal and the total quantity consumed increased. At the same time paraffin consumption decreased by ten percent. Thus charcoal, which is less expensive than paraffin, and which can be transported over longer distances than fuelwood to user communities, has become an increasingly attractive option as the price of paraffin climbs and the availability of fuelwood declines. Very likely this has meant increased income for charcoal-burners, who as a category are in East Africa always among the poorest of local residents.[2] This trend also represents increased exploitation of marginal lands adjacent to

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1. Western and Ssemakula 1979: Appendix Table 6.

2. Rural residents desiring cash income have few options open to them if their capital resources are low or non-existent. Many such families burn charcoal to satisfy immediate cash needs, or when drought and crop failure have made other sources of income dwindle (cf. Perlov 1982:20; Fleuret 1980).

the high density areas, since it is from these places that charcoal is increasingly drawn (Buck 1980). In short, fuelwood shortages in the high density areas imply transfers of wealth to nearby low density areas. To the extent that only wealthier smallholders and urban residents can afford to purchase the imported fuel, this process may be relatively benign.[1]

Less benign outcomes may be expected from the sedentarization of pastoralists, which, as we have seen, generates higher demand for fuelwood in places where the biomass can be quickly over-stressed. The arid and semi-arid zone development programs planned by government (1979-1983 Development Plan; Part I:251-255), such as group ranching, development of water points, irrigation, and dryland cropping, have in the past encouraged sedentarization, and are likely to do so in future. It seems appropriate to suggest that the supply of domestic energy receive explicit consideration in such programs, which are otherwise likely to be undermined as participant households spend ever greater amounts of time and money obtaining essential household fuel.

Thus there are reasons to be concerned about fuelwood supply in both high potential and low potential areas, although the former is by far the most critical in terms of numbers of people affected. This makes it important to consider what may be done to augment fuelwood supply. Before turning to a consideration of supply options, however, it is appropriate to look at the possibilities for demand mitigation.

1. Demand Mitigation

The two approaches most frequently forwarded are to improve the efficiency of home cookstoves and to replace wasteful indigenous methods of charcoal production with improved kiln technologies. Shakow et al. (1981) have recently reviewed the potential contribution of these approaches to energy conservation in Kenya, and concluded that the field is unpromising. Engineered improvements on the traditional three-stone hearth are too expensive, place too many limits on the end-use of the cooking appliance, and often require increased labor for preparation of fuel. Capital-intensive charcoal production would displace very large numbers of poor peasants from the industry while increasing the cost of the product and channeling supplies to industrial users; the centralized location of major kilns would also add to collection and distribution costs.

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1. Some controversy attends the question of the extent to which charcoal-burning has a negative impact on semi-arid environments in Kenya. It has been suggested that tree-harvesting as such does little damage, but the cultivation of feed crops which often follows is much more serious.

Moreover, it is difficult to interest individuals in conservation until scarcity has become troublesome. In Nyanza, for instance, where fuelwood scarcity is often severe, women have on their own initiative modified the three-stone hearth to increase its efficiency; but such developments are not seen elsewhere. Research and development of energy-conserving rural technologies might continue, but little in the way of concrete results can be expected unless the technologies generated are congruent with on-going socio-economic processes. This would mean, for example, encouraging the spread of the so-called "Yrama stove" rather than designing replacement hardware. There is also a wide range of efficiencies achievable with local earth kilns, depending on the care taken in preparing and stacking the wood charge and in over-seeing the pyrolysis process. As with any rural innovation, incremental improvements that do not entail large changes in existing patterns of production, distribution, and expenditure can be expected to be more effective than major changes. We conclude that there is a role for conservation technologies, but on the whole there seems to be a greater role for development assistance in the realm of supply augmentation. This proposition is developed more fully below.

Fuelwood supply can be derived from forests, farmland, and rangeland. Table 6.7 shows woody biomass yield data for these sources of supply.

TABLE 6.7. FUELWOOD SUPPLY IN KENYA, 1982

Source	Yields a/
Forests/Plantations	4502.1
Farms b/	7053.0
Rangelands	14430.0
TOTAL	25985.1

Source: Hosier 1982:29,30,33.

a/ '000 tonnes/annum
b/ Including large and small farm areas.

The overall yield figure is far in excess of current consumption needs (14-16 million tonnes/annum), but the problem is that most of the production is inaccessible in the arid and semi-arid rangelands. Under current economic and social conditions, fuelwood will be transported no more than about 80 kilometers from point of collection to point of use, while charcoal may move 150-200 kilometers. Thus the vast majority of the rangeland areas are too remote to service woodfuel demand,

which is concentrated in the high-potential areas where most of the population is found. It is conceivable that with continued scarcity prices of charcoal will rise to the point where massive exploitation of the rangelands becomes feasible, but this cannot be considered an attractive outcome. It would only postpone the day when current supplies are found to be insufficient, and would in the meantime impose massive hardships on the bottom 30-35% of smallholders, who, as we have seen, are already unable to afford charcoal on any significant scale.

For these reasons most analysts conclude that programs to increase fuelwood supply near to areas of demand are necessary. Four approaches are commonly suggested: improved management of natural forests; large-scale fuelwood plantations; community woodlots; and agroforestry. We discuss each in turn.

2. Supply: Natural Forests

If managed with an eye to fuelwood production, the yield of natural forests can be approximately doubled. Apart from Nyanza province, most places in Kenya where fuelwood is scarce are rather near to forest reserves. However, the Kenyan forestry department has, like other forestry services around the world, consistently opposed the notion of using forests to provide energy. The traditional view is that forests are to serve largely as natural sanctuaries, although exploitation for commercial purposes is tolerated and even encouraged. The institutional inertia which would have to be overcome in order to develop natural forests for fuelwood production is substantial and this approach seems relatively unattractive.

3. Supply: Fuelwood Plantations

Fuelwood plantations have been proposed to provide domestic energy and to provide industrial energy. Fast-growing species such as wattle, leucaena, and eucalyptus would be utilized to reduce rotation cycles and maximize yields per unit land and per unit time. Various schemes differ in the extent to which the wood yield would be utilized directly or converted to charcoal, although industrial end-uses would nearly always require the latter.[1] A constraint here, however, is that large-scale plantations will normally conflict with alternative land uses. Unless the value of the purpose to which the fuelwood is put is very high, the opportunity costs of using land to produce energy will be substantial. Some industrial uses may overcome this deficiency, but domestic consumption is unlikely to do so. Other problems can also be foreseen: whereas industrial

1. Flue-cured tobacco is one exception.

users can generally locate near to the plantation to reduce transport costs, domestic users cannot. The inevitably dispersed pattern of domestic demand makes fuelwood plantations unattractive in all but peri-urban settings, as mentioned earlier. We conclude that fuelwood plantations make sense for industrial uses, where private enterprise can bear the costs and organize an efficient flow of the resource from production to a single, localized end-use. Rural plantations for domestic energy do not seem an attractive option, but peri-urban plantations could simultaneously ease energy shortages, provide employment, and improve living standards among poor and middle-income urban dwellers.

4. Supply: Community Woodlots

The community woodlot concept is often put forward as a means of dealing with fuelwood shortages at the community level, maintaining a small-scale mode of operations to keep capital costs low while taking advantage of local capacity to manage and maintain the facility. Most schemes suggest that underutilized community land be planted to trees, and community members will then share both management and distributional chores. In Kenya a number of difficulties may be anticipated. First, the communal sentiment which the concept assumes to be characteristic of rural life is simply not found. The peasant economy which has expanded throughout Kenya during the last 80 years or so has generated a nearly complete individualization of production and consumption, destroying in the process most modes of joint action based on units larger than the household. To the extent that joint action at more inclusive levels persists, as in harambee efforts, it is largely coercive and episodic in nature, and thus ill-suited for sustaining long-term initiatives, such as a woodlot, that would demand continuous and willing attention. Second, the woodlot concept assumes the free provision of community labor, which in practice would mean women's labor.[1] Kenyan women in most places are probably working at or near their capacity right now; although a woodlot would hold forth promise of reduced labor demands at some indefinite future point, it would require much additional labor in the meantime. It is

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1. It can be expected that men of the community will contribute their labor to the initial business of ground clearance and planting of seedlings, this being a highly visible task with a definite beginning and end, which would ordinarily require several days of community effort spread over a period of weeks. But after the initial surge of activity, daily maintenance would doubtless fall to women. The principle can be seen working with regard to cattle dips, for instance, which are built by men and women together; but the weekly chore of topping up the dip with water is left to women alone.

doubtful whether Kenyan women in general could be expected to contribute their labor on a communal basis for the necessary 4-10 years or more before the first returns emerge. Much more likely the scheme would be neglected, with attendant loss of the initial investment.[1] Third, there are really very few places in Kenya where centralized "communities" can be found. The dominant settlement pattern is highly dispersed, and so a community woodlot would inevitably be a long way away from most of the people it is expected to serve. Most people would therefore not view the woodlot as <u>their</u> benefit and would be unlikely to help establish or maintain it. All these factors would quickly vitiate the "community" aspect of a woodlot program such initiatives would then become government woodlot programs. We have already seen that government resources are severely overextended, and it does not seem wise to enter into a course of action that would, in all likelihood, increase the administrative and recurrent cost burdens borne by the central government.

5. Supply: Agroforestry

Agroforestry activities combine tree production with agriculture. To many in the development community, it has seemed an excessively over-complicated approach, adding new dimensions to an agriculture development problem that is already daunting. However, many Kenyan smallholders have been practicing agroforestry for decades on their own (cf. O'Keefe, Weiner, and Wisner 1980:186). There are several reasons why agroforestry has emerged as an effective smallholder response to fuel shortages in Kenya, and these are reviewed briefly below.

First, additional wood supplies generated in this way are located near to points of consumption, that is, near to the households owning the land on which the trees are grown. This reduces the labor of collection and eases the oversight/protection problem. Second, agroforestry can help maintain or increase soil fertility and enhance soil structure. Tree crops make sense on steep slopes, hilltops, and stream margins, where annual cultivation causes severe erosion. Third, agroforestry can make use of currently underutilized land. Plot boundaries are currently marked out with a variety of local plants that usually generate little fuelwood; appropriate species could perform the same function while providing household fuel.

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1. Often schools, water supplies, dips, and the like are neglected too--and in these cases the pay-offs are much more apparent to all concerned. In these cases too lack of continuity in maintenance does not imply loss of the entire investment, which would be the case with a plot of young trees.

other areas of poor soil, or along pathways, could be put to use in similar fashion. Fourth, agroforestry can increase the intensity of land use when the tree species used serve multiple purposes. The wattle tree, for instance, has functioned in this way in many parts of East Africa. The bark is stripped and transported to tanning extract factories; the trunk and limbs are used for fuelwood or charcoal; and thinned trees are used for building poles. Other examples are often seen: cashew trees in livestock/forage systems on the coast (Golden 1980:369-372); eucalyptus as fuel and building materials trees in the high potential areas; fruit trees in some places, and so forth. Profitable tree rotations have also been observed in dryland areas, for instance in southern Sudan where gum arabic is a valuable crop (Seif el Din 1980:420-1).

One major problem inhibiting the spread of agroforestry practices is availability of seedlings. Supply of seed is itself a limiting factor for a number of desireable or promising species (Konuche 1980:586), while government nurseries to provide farmers with transplantable seedlings are inadequate.[1] Non-governmental institutions have been active in providing seedlings for sale to farmers, particularly the National Christian Council of Kenya (NCCK), but so far have not had the funds or technical expertise needed to have a major impact (O'Keefe and Shakow 1981:21-23).

We conclude that agroforestry holds much promise for easing the fuelwood problem in Kenya, but some caveats are in order. First, this technology, as with most rural technologies, will be more accessible to those with superior resources. Thus large or wealthy landholders will find it relatively easy to benefit from such a program, while poor smallholders and the landless will benefit least. Second, we cannot be optimistic about government capacity to mount an agroforestry program on the scale needed. Existing extension services are already over-burdened and ineffective (e.g. in the Ministry of Agriculture), so it is unlikely these field staff could perform yet another task with any degree of success. To create a new extension service, for instance within the Forestry Department, would generate massive new drains on central government, and there is no reason to expect the new service would be more effective at performing their jobs than the agriculture field staff are at performing theirs. After examining these and

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1. The Forest Department is supposed to put nurseries into every division ultimately (Hosier 1982:42), but personnel availability and recurrent costs will be major hurdles.

other issues, O'Keefe and Skekow (1981:21-23) conclude that a realistic approach to agroforestry must be linked to private groups. These include religious and women's organizations, schools, and private companies. Through finance and technical assistance, government and donors could expand the role played by such entities in providing seedlings to farmers, while at the same time keeping government costs and involvement to a minimum. On the whole, this seems the most appropriate course of action.[1]

F. Commercial Energy Consumption.

1. Formal Sector

Three sources of commercial energy are used in Kenya: coal (and coke), oil, and hydro-electricity. Of these oil is by far the most important, accounting in 1980 for about 84% of all commercial energy. Table 6.8 sheds some light on trends in commercial energy consumption during the period 1976-1980.

TABLE 6.8. COMMERCIAL ENERGY CONSUMPTION, 1976-1980 a/

000 tonnes of oil equivalent

Energy Source	1976	1977	1978	1979	1980
Coal and coke (%)	44.9 (2.5)	43.8 (2.3)	34.8 (1.7)	11.3 (0.6)	16.9 (0.8)
Petroleum Fuels (%)	1563.5 (86.5)	1607.8 (85.3)	1659.9 (82.8)	1669.3 (82.1)	1768.2 (83.6)
Hydro Energy (%)	198.1 (11.0)	232.6 (12.3)	309.6 (15.4)	352.4 (17.3)	330.0 (15.6)
Total (%)	1806.5 (100.0)	1884.2 (99.9)	2004.3 (99.9)	2033.0 (100.0)	2115.1 (100.0)

a/ Economic Survey 1981:149.

These figures show plainly Kenya's dependence on imported fuels, especially petroleum; and despite government plans to exploit domestic geothermal and hydro power to the fullest, it is

1. Others have reached similar conclusions in reviewing African fuelwood development efforts generally (cf. Ellis 1982).

foreseen that "Oil ... will continue to remain the major primary source of energy for use in the modern sector of the economy." (Economic Survey 1981:150).[1]

The dominance of oil in Kenya's energy balance is matched by the dominance of the transport sector in energy consumption. About one-half of all commercial energy goes to transport, while the next largest consumer is the industrial sector. Table 6.9 provides details.

Table 6.9. COMMERCIAL ENERGY USE IN KENYA, 1979 a/

Sector	Total PJ b/	%
Transport	39.84	49.7
Industry	17.89	22.3
Energy	8.14	10.1
Agriculture	6.67	8.3
Residential	4.51	5.6
Commercial	2.22	2.8
Construction	0.83	1.0
Other	0.33	0.2
	80.43	100.0

a/ Schipper et al. (1981:36).
b/ PJ = Peta-Joule = 10^{15} Joules.

1. The growing contribution of hydro-power to the total is encouraging, but cannot be expected to continue, since Kenya's hydro-electric potential is strictly limited, and because rapid siltation is expected to diminish the useful life of existing facilities.

The commercial (trading) and construction sectors together consume less than 4% of all commercial energy, which reflects in part the labor-intensive character of these sectors. Agriculture, too, which of course provides employment for the vast majority of Kenyans, is a relatively minor consumer of energy.[1] This raises the topic that some types of employment-generating initiatives are more or less energy-intensive than others. Other things being equal, it would probably be preferable to encourage employment growth in relatively less energy-intensive sectors, since under these circumstances the constraints imposed by the high and increasing cost of energy could be minimized. Table 6.10 offers an assessment of the energy-intensity of various Kenyan industries, using the ratio of energy consumed to output (in GDP) as a measure.

Table 6.10. ENERGY:OUTPUT RATIOS IN KENYAN INDUSTRIES, 1979 a/

Industry	GJ per 1000 KL Output b/
Transport Equipment	6.9
Metal Products	28.7
Food	69.4
Rubber	91.8
Textiles	139.4
Chemicals	181.3
Paper	292.7
Cement, Non-Metals	1211.5
Clay and Glass	1329.7

a/ Derived from Schipper et al. (1981:35).
b/ GJ = Giga-Joule = 10^9 Joules. "Output" here is measured in terms of Gross Domestic Product.

1. These figures do not account for the energy content of fertilizer used in agriculture, or for the human and draught animal energy expended in cultivation. The focus here is on direct consumption of commercial fuels, which can be misleading but is suited to the present purpose.

There is plainly a wide range of variation in the extent to which various sub-sectors make use of energy to generate output. The differences emerge most strikingly when we observe that clay and glass manufacture consumes over 190 times as much energy as transport equipment (assembly, repair), while making an equivalent contribution to Gross Domestic Product. Such comparisons can be carried too far, of course, but if we group the four least energy-intensive sectors together and compare them with the four most intensive sectors, we still find that a factor of 15 separates the two; and this is a substantial difference.

In an earlier chapter we outlined Kenya's need for expanded non-farm employment opportunities, and pointed to some appropriate areas for industrial development. The main criterion used in selecting among various potentially-useful industries was labor-intensity; all other things being equal, expansion of such industries will contribute most to Kenya's development. Here, we are in a position to suggest another criterion. Consistent with labor-intensity and other economic criteria, those industries should be preferred which generate high output while consuming relatively smaller amounts of energy.

2. Informal Sector

A final word needs to be said about energy consumption in the informal industrial sector. Ordinarily consumption patterns in this area would be very poorly understood, but an innovative survey conducted recently by the Beijer Institute (in conjunction with Kenya's Ministry of Energy) has shed light on these matters. A random sample of 223 firms in Meru and Nairobi was chosen, covering five key areas of informal sector activity.[1] Some results are presented in Table 6.11.

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1. Much discussion attends the definition of the "informal" sector. In this survey a firm was considered to be informal if it was individually or family owned and operated; if it utilized family labor; if it utilized temporary or casual employees; if it was low in labor-specialization; if it had a low capital-to-labor ratio; if it was a small-scale producer; and if it had little or no access to formal capital markets (Hosier 1982:22).

Table 6.11. Annual Energy Consumption in Informal Industry, 1981 a/

Sector	Wood (kg)	Charcoal (kg)	Paraffin (lt)	LP Gas (kg)	Electricity (kWh)	Total (GJ)
	Type of Fuel					
Food/Drink	3024	8746	176	-	101	338
Retail	1583	4965	151	-	-	192
Workshops	762	2262	115	-	1202	94
Clothing/ Services	1255	118	26	-	209	25
Garage/ Mechanics	-	68	311	2	579	17

a/ Based on Hosier (1982:23).

The primary fact revealed here is the overwhelming dependence of the informal sector on traditional fuels: firewood and charcoal. Only workshops (furniture manufacture, for example) consume substantial amounts of commercial energy, followed in this respect by automobile repair firms. Also significant is the wide range of variation in the amount of energy consumed. Automobile repair uses very little, because in fact most of the work involved can only be done by hand or with hand tools. Food and drink establishments use most energy, obviously because cooking and brewing are their major activities. Hosier (1982:24) makes the point that firms in the clothing/services and garage/mechanics sectors differ little from urban households in their energy consumption patterns, while firms in the workshop sector are similar to rural households.

Altogether the informal sector probably accounts for less than one-half of one per cent of total national energy consumption (Hosier 1982:24). Employment creation in the informal sector would place minimal drains on commercial energy supplies in Kenya, but might have serious implications for consumption of fuelwood and charcoal in the vicinity of cities and small towns. As in the case of urban household energy consumption patterns, this argues for development of peri-urban fuelwood plantations.

Conclusion: Energy in Kenya

In this section we first reviewed patterns of demand and supply for domestic energy in urban and rural areas. The major fuel is firewood, but in these places where wood is most scarce farmers are increasing their reliance on crop wastes and dung. The following points emerge: First, the high potential areas face significant fuelwood shortages, but low potential areas do not. This will increasingly lead to an exchange of wood resources from rangelands for wealth generated in the highlands. Second, small landholders and the landless will be most severely affected by continued shortages, but no supply-enhancing strategy seems likely to improve their situation. Perhaps the best course here is to ensure, to the extent that tree-planting takes place through publicly-funded works programs, that these poor rural residents gain maximum access to the employment opportunities created. Third, agricultural intensification will be hampered by continued fuelwood scarcity, insofar as scarcity-induced behavior leads people to burn crop wastes and dung. These materials should be reserved for soil improvement and livestock development programs, which means that agroforestry efforts to improve the supply of fuelwood should be made an integral part of agricultural programs aimed at the high-density areas. Fourth, agroforestry as a fuelwood intervention holds much promise, but only if the necessary resources can be brought to farmers through largely non-governmental institutions. This implies a major role for private voluntary organizations and business firms in seedling production and distribution.

Finally, woodfuel plantations appear to make sense for certain high-value industrial users, and in the centers of peri-urban supply enhancement programs. Initiatives of the latter sort could be expected to have multiple employment benefits - not only would the planting and maintenance operations generate jobs for the least-skilled and most poorly-remunerated categories of workers, but the plantations themselves would help to assure a continued supply of energy to labor-intensive informal sector industries, which are still heavily dependent upon firewood and charcoal. Implementation might be through private contractors, or through a public works program on the model of Kenya's successful Rural Access Roads program.

In the commercial energy sector there do not seem to be many opportunities to apply the sorts of resources which AID can bring to bear. Indirectly, however, much may be done. As noted above, it is possible to plan employment generation initiatives in such a way that additional energy consumption is minimized. Further, by supporting domestic energy planning it might be possible to ensure that considerations such as these are applied at the national level. Finally, there is a place for technical assistance to help Kenya's public and private sectors to identify

areas where energy conservation measures could have a significant impact. One obvious target would be the vehicle fleet of the Ministry of Agriculture, which appears to be managed inefficiently when compared to other ministry fleets such as that of the Ministry of Livestock Development (Leonard 1981).

CHAPTER VII: FERTILITY IN KENYA

A. Introduction

Kenya's population growth rate--at 4.0 percent perhaps the world's highest national rate--is well-documented in population censuses and sample surveys. Further, fertility has risen in the last 30 to 40 years and the overall rate of population growth has increased (Social Perspectives 4(2); Henin 1979). Such demographic processes clearly make it more difficult to find solutions for the country's major development challenges: increasing agricultural production, providing productive employment for a growing labor force, maintaining the quality of the resource base, and improving access to basic social services.[1]

This chapter examines ways that development interventions in a range of sectors, especially the key areas of employment generation and agriculture, along with family planning, can be focused to create and expand the social and economic conditions supportive of fertility decline in Kenya. The intent is to define feasible development interventions which are most likely to accelerate changes conducive to smaller families at the same time that they lead to economic growth. We begin with a review of the economic, social and institutional processes which appear to be sustaining extremely high fertility in Kenya, or which are operating where fertility is declining. We then isolate significant social categories for whom processes may differ or for whom particular interventions might be more appropriate, and, using this framework, discuss implications for AID planning.

B. The Context of High Fertility in Kenya

Kenya's high fertility is linked to four main factors. First, children provide substantial economic support for the majority of Kenyan households, which are engaged in smallholder farming. Second, the status of Kenyan women is extremely low; there are limited opportunities for employment outside of the poorly-rewarded informal sector, and many can only gain prestige by rearing large families. Third, cultural traditions, although varying by ethnic group, tend to place extremely high value on a woman having children early and continuing to bear them throughout her reproductive life. These traditions are changing in urban areas but not much if at all in rural areas. Each of these three conditions, along with

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1. The role of population growth in constraining Kenya's development potential is detailed in a recent World Bank publication, Population and Development in Kenya (1980).

a fourth, major shortcomings in service delivery, are interrelated and form the context for high fertility in Kenya.

We can begin our analysis of fertility increase in Kenya by looking at changes in the total fertility rate (defined as the number of live births had by a woman reaching the end of her reproductive cycle). This rate has increased steadily for some decades, as shown in Table 7.1.

Table 7.1. TOTAL FERTILITY BY TIME PERIOD

Period	Total Fertility Rate
1941 - 1945	6.1
1946 - 1950	6.6
1951 - 1955	6.6
1956 - 1960	7.0
1961 - 1965	7.5
1966 - 1970	7.7
1972	7.9
1973	8.0
1979	8.1

Source: (Henin 1979.3 Table 3; 1979 census.)

This increase is fueled by the extremely high and growing value placed on children in Kenya. For the average Kenyan family, desired family size has kept step with fertility potential. In 1967, for example, a survey among women showed that desired fertility was 6 children; in a survey of similar women (age 15-49) in 1977-78, desired fertility was 8 (Dow and Werner 1981b:276).

The reasons for this rise are linked to modernization, which has intensified some of the conditions which made fertility high in the first place, and which has brought a decline in practices which traditionally served to space births. Better health has brought improved fecundity, reduced infertility and more surviving children (Henin 1979); the incidence and duration of breastfeeding has declined, resulting in earlier onset of post-partum ovulation (Mosely, Werner, and Becker 1981); and there has been widespread decline in traditional practices of postpartum abstinence and polygamy, triggered in part by education and the spread of modern attitudes. All these behavioral changes generate greater fertility, and the situation has been exacerbated by limited access to and availability of family planning services due to inadequacies in public sector delivery systems and constraints to expansion of private sector mechanisms.

1. Women, Men and Children: Household Economic Roles

The majority of Kenyan women are smallholder farmers, whose agricultural labor on family holdings and financial support for the household make major contributions to the rural economy. Some 85-90% of rural women work on a family holding, compared to 55-60% of rural males; more than 95% of rural women work in agriculture; and women provide 75% of all on-farm labor (Social Perspectives 3(3); Kenya Fertility Survey I:11-12). Women's cultivation of cash and subsistence crops often enables men to obtain temporary urban or rural employment, or to engage in rural enterprise. Women's financial support for the household may also free men to invest their income in other endeavors (F. Mott 1980). Virtually all women also perform domestic work, including childcare, food preparation, and provision of fuel and water.

Many women also work in non farm settings, but mostly in the poor-paying informal sector. According to a 1969 survey, women form less than 20% of the adult labor force active in permanent, non-agricultural rural enterprise; of these, one-half work in a family business likely to be owned by a male relative (Social Perspectives 3(3)). As for wage work, less than five percent of females in the smallholder group are employed in an off-farm wage job, as compared with 21 percent of men. Women constitute 17% of the modern sector labor force (both skilled and unskilled), and 28% of urban, self-employed informal and unpaid family labor. Women's participation in the wage labor force as a whole between the years 1964 and 1976 ranged from 13% to 18%, and it was far less in rural areas (Social Perspectives 3(3); F. Mott 1980).

Children contribute much in support of farm families in Kenya, providing farm labor (especially during seasons of peak demand), and performing household tasks such as fetching firewood and water. They also care for each other and assist in food preparation, and are especially called upon for family support when men are away. Their contribution may be most important in women-headed households, or in households where women spend time in cash-earning activities (Pala-Okeyo 1979); Monsted n.d.; Feldman 1981). All these circumstances increase people's need and desire for children. [1]

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1. Community studies also show that, in Kenya as elsewhere, the attitude is widespread that having many children increases the likelihood that one or more child will succeed, or at least survive, thereby being able to provide support to the parents in their old age (Ssenyonga 1975; Kabwegyere 1976).

2. Fertility Attitudes in Family Context

What has been called "prolific procreation" is traditionally valued as appropriate and natural behavior, essential to survival of the family and larger social units (Ssenyonga 1975). These values persist, although modernization has changed the roles of family members, diminished the importance of extra-familial social units such as the lineage, brought husbands and wives closer together, affected the system of economic rights and obligations within the family, and brought an orientation to the cash economy.

Conditions that encourage males to increase their land holdings, to take multiple wives, and to have many children are widespread. This complex of attitudes is especially well-described for the Gusii (S. LeVine 1979) and for the Maragoli of Western Kenya (Ssenyonga 1975), and persists despite widely held beliefs in the value of child-spacing. Male children are valued for the support they provide to family, lineage, clan, and tribe, while female children are valued for the assets (in the form of bridewealth) they bring through marriage. In-marrying wives, in turn, are valued for the children they bring to the husband's lineage and clan. In these circumstances there is no rational purpose in reducing fertility. Interethnic land strife is not infrequent in the present day, and so pressures to increase lineage and tribe membership, thereby staving off the demands of outsiders, remain strong.

For the Gusii--a group which represents an extreme case of high fertility--"all the conditions favorable to fertility are present and all the obstacles to it....absent," despite land shortages and fragmentation of holdings, and growing need for cash income to supplement farm production. People are "not oblivious to the fact that population growth has made land scarce and will make it scarcer," but men maintain their fathers' reproductive goals, and envision a future of economic success to be gained through education, employment, and purchase of new land. These values are widespread, even though in reality most Gusii are low-income smallholders whose plots of land are dwindling in size and whose access to employment is minimal (Levine, Dixon and LeVine 1976).

Although some aspects of social change have perpetuated traditional fertility values, the familial and biological context in which these values operate has changed significantly. In part because education has spread new ideas about family roles, practices such as breastfeeding, polygyny, postpartum and other periods of abstinence--which traditionally served to limit family size--have diminished. But, although most of the community-sanctioned practices which constrained fertility are gradually losing their effectiveness, two traditional practices, prolonged breast-feeding and polygyny, are still prevalent. Both continue to have a significant although largely unintended

constraining effect on fertility. In fact, it is the combined effect of both these practices which has the most important limiting effect on current fertility; the current level of modern contraception is so low that it is not possible to detect an effect on the overall fertility rate (Mosley, Werner, and Becker 1981:11).

Modernization has also caused changes in family relationships; husbands' and wives' social domains have become more nearly alike, with one possible result a higher frequency of intercourse which generates higher fertility (Greeley 1977; Whiting 1977). At the same time, common prohibitions on communication about sexual matters between adjoining generations (eg. child/parent, parent/grandparent) inhibit the spread of scientific information on topics such as menstruation and sexual intercourse, which in turn significantly limits acceptance and continuation of contraceptive use.

Improved health, leading to greater fecundity, is another factor. But the risks of childhood are still keenly felt by parents, precipitous declines in infant mortality notwithstanding.[1] What might be termed "partial modernization" has meant that familiar values of high fertility are matched by a new ease in meeting them: social change to date has affected some but not all fertility-related practices, with a rise in fertility the result.

The rise comes about through changes in the interval between births. Although the traditional period of spacing varied among ethnic groups, proper spacing was nearly universally seen as essential to the health of mothers and children. Typically, breast-feeding and prolonged sexual abstinence were practiced following birth; other customs such as the maintenance of separate living and sleeping quarters for husband and wife, polygyny and prohibition of sex for the uncircumcised and those in mourning, also limited the period when a woman was at risk of pregnancy.

In addition, there were among many groups specific cultural norms which sanctioned gaps of two or three years between births. Among the agricultural Meru and the nomadic pastoralist Galla, the period during which an adult fecund woman could appropriately bear children was socially defined, and limited to the years when she held the status of "mother;" childbearing was forbidden to an uncircumcised "girl" or elderly "grandmother." In these groups, the concepts of child spacing and family size limitation were explicitly endorsed, and the period of socially acceptable childbearing was considerably restricted (Greeley 1977). In other

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1. It can be argued that fear of child loss may remain high, even though infant mortality has declined precipitiously, because births have increased precipitiously at the same time. Thus the contemporary parent may be aware of as many infant deaths in the community today as his/her grandparent was two generations ago.

groups, such as the agricultural Kisii, there were virtually no cultural constraints on childbearing. In most ethnic groups, however, child spacing in association with breast-feeding was accepted as desirable and enforced by social sanctions. Indeed in many parts of Kenya the birth intervals of today would have been judged inappropriate two to three generations ago; older men and women in many communities interpret today's fertility as too high and births as too closely spaced (Greeley 1977).

Perhaps the most critical factor in closer birth intervals now is the decline in breast-feeding which shortens the period of postpartum infecundability.[1] Since modern contraceptive use is very low, the decline in breastfeeding is having a dramatic effect on fertility. If breastfeeding continues to decline, as appears to be happening among your jer and better-educated women, a rise in marital fertility of up to 25% could be expected unless compensated by increased contraception (Mosley 1980:7-8).[2]

3. Education of Women

A topic of great significance in Kenya is the fertility rise associated with primary education. Women with up to four years of schooling have higher fertility than either women with no

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1. There is a distinction between "full breastfeeding" and "breastfeeding." Most Kenyan women full breastfeed for about two months. From then until weaning supplemental food is given. Breastfeeding intervals include both periods. Postpartum abstinence, which often extended beyond the breastfeeding period, is of little significance now in affecting the birth interval, since the mean for the country is only 1.4 months. The duration of breastfeeding has decreased for younger women: it is 14.5 months for women in the 15-24 age group, rises to 16.9 months for women aged 25-35, and is 20.7 months for women aged 35-44 years (Mosley, Werner and Becker 1981:38).

2. Bongaarts (1979:17-25, quoted in Nag 1980) has noted that if an infecundability interval of two years is cut in half, a 40 percent rise in fertility can be expected, unless compensated by a 30 percent contraceptive prevalence rate.

education or women with full primary or secondary education (Zenin 1979; Kenya Fertility Survey I). Table 7.2 shows cumulative fertility by levels of education.

Table 7.2 Mean Number of Children Ever Born By Current Age

Level of Education	Current Age a/			
	15-24a/	25-34	35-44	45+
None	1.0	4.4	6.9	7.7
1-4 years	1.0	4.7	7.6	8.5
5-8 years	1.0	4.6	7.2	(8.9)

Source: Kenya Fertility Survey I:97.

a/ Standardized by age at marriage and proportion never married.

Since relatively few women go beyond primary levels, the overall result is a rise in fertility. Only in urban areas does fertility not rise with primary education; there it is stable throughout the primary levels and falls off with secondary education.

Through the new values and ideas it brings, schooling contributes to certain changes in lifestyle which influence fertility. Improved nutrition and health, and a decline in traditional spacing practices such as breastfeeding and polygamous marriage are closely linked to education (Mosley, Werner and Becker 1981). This is especially true for breastfeeding:

> The most consistent effect of education on the birth interval components relates to breastfeeding and contraceptive practice. There is a 2.2 month decline in the average duration of breastfeeding among women with 5-8 years of education resulting in over a 25% shorter duration of lactational amenorrhea (Mosley, Werner and Becker 1981:17).

Only among the highest educated women does contraceptive use compensate for the reduced duration of breastfeeding. The education-fertility relationship remains unclear, and it is difficult to state with certainty what the long term effect on fertility will be as young women with one to four years of primary education move through their reproductive years. There are still many unknowns as to why greater contraceptive use—a modern idea—has not accompanied other new ideas brought by education.

clues lie, of course, in the persistence of traditional fertility values, the great economic worth of children, and perhaps in the quality and content of schooling; but these factors would not fully explain why fertility has risen and why compensatory contraception has not served to stabilize fertility. To examine this further we now discuss the adequacy of service delivery.

4. Family Planning Services

Kenya is the first sub-Saharan African country to have an official family planning program. Voluntary family planning has been part of several government development plans and private family planning associations have been active since the early 1960's. Prior to that time, as early as 1955 in the metropolitan areas, family planning was promoted by voluntary organizations in the private sector (World Bank 1980:15). The major public family planning effort has been implemented by the Ministry of Health, although private channels, primarily church-based, have remained important.

By 1978 the public sector program had 500 government sponsored maternal and child health/family planning clinics in operation and the Ministry of Health had nearly met numerical targets for service delivery points and trained staff. However, contraceptive use remains far too low to have any appreciable impact on the overall level of fertility in Kenya. In the Kenya Fertility Survey, 5.9% of respondents reported using modern contraception and another 3.3% reported using a traditional method at the time of the survey (Kenya Fertility Survey I:133). This represents 7 seven of currently-married women, or six percent of ever-married women. Table 7.3, which shows the current low use of contraception, also reveals no consistent pattern of use by age group.

Table 7.3. Current Usage of Contraception by Age Groups [a]

Current Age	15-24	25-34	35-44	45+	All
Type of Contraception					
Traditional	3	3	4	5	3
Modern	3	7	7	7	6

Source: Kenya Fertility Survey I: 133.

a/ Percent of currently-married women.

Comparison of family planning data from a 1967/1968 survey and the 1977/1978 Kenya Fertility Survey reveal changes in contraceptive knowledge and use (Dow and Werner 1981a). For rural areas, there was a substantial increase in the number of women who know about modern contraceptive methods, but there was little increase in the size of this group as a proportion of total population. The percentage using modern methods is similar for both time periods, with, perhaps, a slight rise over time. For Nairobi, there was a significant increase in contraceptive use and knowledge over the period in question, but fertility remained approximately the same. The conclusion is that in urban areas contraceptives are used to maintain traditional fertility values; family planning is a spacing mechanism rather than a route to (significantly) smaller families. In rural areas, since contraceptive use did not rise, it could not compensate for the decline in breastfeeding.

Kenya Fertility Survey findings amplify this analysis of differentials in modern contraceptive use: less than one-half of ever-married women know where to obtain family planning advice or supplies; only 12% of women had visited a family planning source; and only about one-fifth of currently-married fecund women who had tried contraception stated an intent to use contraception in the future (Kenya Fertility Survey I: 142).

It is not unlikely that shortcomings in the program itself have served to limit the spread of family planning, thus conditioning a rise in fertility. This may be due to limitations in the availability, reliability and quality of services. Clinics are unevenly dispersed and sometimes poorly located, open their doors infrequently or on a part-time basis, are perennially short staffed and short of materials, and lack privacy and other amenities. Staff competence is also an issue: the criticism has been leveled that staff have frequently been delinquent in follow-up of visitors and in some cases both unable and unwilling to even answer questions about contraceptive side-effects (Mott and Mott 1980:32; Migot-Adholla 1981). Performance of field staff has been generally disappointing, each field educator having recruited only about 15-18 new family planning acceptors per year. This program has been characterized as an "extremely hopeless environment for family planning" (Migot-Adholla 1981:13).

Evidence for a positive relationship between quality approaches to service delivery in Kenya and popular use of services is most likely to be found in an examination of those private channels which have been operating in the country for some time. Because of their limited coverage, their impact is unlikely to show up in national statistics, but they may have, in fact, helped lead to widespread contraceptive use among pockets of the population and perhaps among at least one ethnic group, the Meru (Greeley 1977; S. Mott, 1981).

The Meru example suggests why this may be so. A network of church-based health facilities has been operating since the 1950's with family planning services now included in hospital, clinic and outreach facilities. Services are very widely available, compared to most of rural Kenya, and their accessibility, reliability and quality are much greater than in government clinics. Further, these private facilities have been linked to the broader community development efforts of church missions, the impact of which on family life has been considerable. Health and family planning services have been paired with family life education which emphasizes shared decision-making and planning between husbands and wives, attention to the care of children, and equality between men and women. The overall community development effort has included education, agricultural inputs, savings and credit institutions, as well as health services, plus a deliberate spreading of Christian and western values, and active promotion of individual and community involvement in the programs.

Today, church missions throughout Kenya are being joined by a range of private groups interested in expanding rural service delivery. Most of these organizations stress local involvement and have an outreach philosophy. Reasons for focusing on private sector groups go beyond the fact that they may offer an existing base for expansion: they may also serve as successful models for replication at a time when constraints in the public sector lead us to search for such models. The history of private family planning efforts in Kenya may offer lessons about efficient and appropriate service delivery, and about the household level socio-economic characteristics that encourage effective contraceptive innovation.

5. Summary

Between 1967 and 1977 in Kenya there has been an increase in modern contraceptive use at the same time that fertility has risen in rural areas. Even in urban areas, where fertility has remained stable, high fertility values persist and family planning is primarily used to maintain fertility and to space--not limit--births. Modernization and education have brought a decline in traditional customs that prolonged the interval between births, thus conditioning a rise in fertility. Overall, contraception is not compensating for the decline of traditional fertility-limiting practices. This rise in fertility is linked to continued extremely high desired family size and perhaps to limitations in the availability of contraceptive services.

While education has been a contributing factor in hastening the decline of traditional spacing, it has not brought widespread changes in attitudes about family size. The current state of social and economic development among most of the population perpetuates the circumstances that encourage high fertility. Children are key to household production and reproduction, and remain, even today, the primary channel by which women achieve high social status. The economic setting for much of the population is

one of increasing poverty and heavy work burdens. Although some people have taken on modern, western values, the transition to modern family lifestyles is incomplete.

C. Fertility Variations: Significant Groupings

In this section we show the extent of, and the reasons behind, diversity of fertility in Kenya. The first step is to describe the groups having the lowest fertility, and outline the causal processes operating upon which development planners can build. Then we look at the country in terms of ethnic and occupational categories and try to glean from these some further clues about the socio-economic basis for observed variation in fertility change. It is important to try to isolate subgroups where existing development trends have generated different fertility effects, in order to identify and evaluate the potential effectiveness of different possible development interventions. We conclude with a summary of implications for development strategy.

Before continuing it is necessary to make two points. First, the fertility differentials under discussion are not large. Table 7.4 shows the size of differentials based on various socio-economic categorizations.

Note that the number of children ever born ranges from a high of 8.5 children to a low of 5.0 children. The low figure, for the Mijikenda of the Coast, is anomalous; low fertility here is largely a result of poor health conditions and greater infecundity.

Secondly, much of the variation reflects differentials in degree and duration of breastfeeding and the extent to which breastfeeding declines are compensated for by contraceptive use (Mosley, Werner and Becker 1981:30). Conversely, where fertility rates are similar, variation in breastfeeding and other components of the birth interval may imply that quite different processes are operating to generate surface similarities. We will try to clarify such differences using an existing analysis of birth interval components (Mosley, Werner and Becker 1981).

1. Family Planning Innovators

Although the trend toward effective family planning is weak, there are sufficient data to allow a characterization of the kinds of women and families who are now the leaders in a gradual transition to smaller family size. These include: urban residents, the highest income and occupational classes, the best educated women, women with wage employment, and those from ethnic groups and social classes which were the first to, and still are the most likely to, adopt western family lifestyles. These

Table 7.4. MEAN NUMBER OF CHILDREN EVER BORN BY CURRENT AGE SELECTED SOCIAL CHARACTERISTICS a/

	Current Age			
	15-24	25-34	35-44	45+
Level of Education				
none	1.0	4.4	6.9	7.7
1-4 yrs	1.0	4.7	7.6	8.5
5-8 yrs	1.0	4.6	7.2	(8.9)
9+ yrs	0.9	4.5	*	*
Type/Place of Residence				
rural	1.0	4.6	7.2	8.0
urban	1.0	4.2	(6.9)	*
metropolitan	1.1	4.0	6.0	(5.7)
Region of Residence				
Nairobi	0.9	4.4	6.8	*
Central	1.0	4.7	7.5	8.2
Coast	0.9	3.8	5.8	5.0
Nyanza	0.9	4.3	7.3	8.6
Rift	1.1	4.6	7.1	7.6
Western	1.0	4.5	7.5	7.9
Eastern	1.2	4.6	6.8	7.9
Ethnic Group				
Kikuyu	1.1	4.9	7.5	8.2
Luo	0.8	4.0	6.9	8.0
Luhya	1.0	4.6	7.7	8.0
Kamba	1.1	4.4	6.8	7.7
Kisii	0.8	5.0	7.7	(8.7)
Meru/Embu	1.2	4.6	6.7	7.7
Mijikenda	0.8	3.8	5.5	(5.8)
Kalenjin	1.1	4.6	6.9	(8.1)
Other	1.0	3.7	6.3	(5.9)

Source: Kenya Fertility Survey I:97.

a/ Standardized by age at marriage and proportion never married.

categories cut across the Kenyan population in different ways, but there are reasons to believe that similar processes are operating in each case to lower fertility.

Urban-rural fertility differences are relatively large. Kenya Fertility Survey data show that women in Nairobi or Mombasa have a total fertility rate 2.5 births lower than rural women. Current contraceptive use is much higher in urban areas (19%) than in rural areas (eight percent), although the effects of increased contraception are partially offset by decreased duration of breastfeeding (Kenya Fertility Survey I:102, 140).

Both higher education and husbands' employment in white collar and professional occupations tend to correlate with decreased breastfeeding, but among the best educated women, and especially among those who also have husbands in the most modern occupational category, higher levels of contraceptive practice more than offset the decrease and there is a net decline in fertility (Mosley, Werner and Becker 1981:51). There is a dramatic increase in knowledge of, ever use of and current use of contraception among each incremental group of educated women (Kenya Fertility Survey I.140).

Significant variations in contraceptive awareness and use are observed among some ethnic groups (see Table 7.5), with Meru and Kikuyu women two to three times more likely to be using a method of contraception than women from other groups (S. Mott 1981). An important part of this is the effect of greater access to family planning services, but equally important is that

> the gradual inculcation of some Western values by the Kikuyu and Meru (independent of their education, literacy, urbanization and ease of access to family planning) over several generations of contact with the west...has led to their exceptional behavior with regard to family planning (S. Mott 1981:12).

Among the Meru, families that are most involved in the cash economy, and where the husbands are salaried professionals, are most likely to use contraception. In these families, wives are well-educated and the level of children's education is such that they are nearly certain to be as successful as their parents (Greeley 1977). Even among groups which are far less westernized, a similar category of families may be the first contraceptors (Ssyenyonga 1975).

TABLE 7.5. DIFFERENTIALS IN CONTRACEPTIVE KNOWLEDGE AND USE FOR EVER-MARRIED WOMEN AGED 25-34 YEARS, BY ETHNIC GROUP

A. % who had heard of any method.
B. % who had heard of any family planning facility.
C. % who had ever used any method
D. % current users a/

	Kikuyu	Luo	Luhya	Kamba	Kisii	Meru/Embu	Mijikenda	Kalenjin
A.	97	93	92	94	90	94	84	88
B.	62	45	50	50	28	74	20	36
C.	48	25	14	35	23	57	12	23
D.	17	10	4	8	6	16	3	5

Source: Kenya Fertility Survey I:140

a/ Traditional and modern methods included; figure based on currently-married non-pregnant fecund women.

Although the proportion of women in Kenya who are working in a wage or salaried job is small, these women have a fertility level 15 percent lower than other women, and a (modern) contraceptive use rate which is greater than four times that of those not so working (Mosley, Werner and Becker 1981:24). Working women breastfeed only slightly less than the average Kenyan woman (Kenya Fertility Survey I:67).

A recent analysis of Kenya Fertility Survey data divides Kenyan women into modern, transitional and traditional types, depending on whether they desire more or less than six children and on whether they have ever used contraception (Dow and Werner 1981b).[1] The authors conclude that contraceptive innovation

1. Modern women are defined as those who desire less than six children and are "ever-users" of modern contraception. Transitional women include two groups; those who desire less than six children, but have never used modern contraception, and those who desire more than six children but are "ever-users." Traditional women, who are in the majority, desire more than six children and have never used modern contraception. (The percentage of women in each category is as follows: modern women, 4.4 percent; transitional women desiring fewer than six children, 19.8 percent; transitional women desiring more than six children, 8.2 percent; and traditional women, 67.6 percent.)

is strongest among younger women, and that the complex of factors associated with development--greater education, better jobs, more urbanization, increased family nucleation and a "western cultural perspective"--should reduce traditional reproductive behavior and lead to smaller family size desires and greater contraceptive use. But the same study shows that most women (67%) still retain a traditional perspective towards fertility, and that almost two-thirds of women ever using effective contraception are doing so while retaining large family preferences.

2. Variation Among Smallholders and Occupational Categories

This discussion will focus on the majority of the rural population, the smallholder farmers whose fertility behavior sets them apart from the small group of innovators.[1] To obtain a range of measures, we use data on actual fertility, desired fertility and contraceptive use. First, we compare fertility measures by ethnic group and by husband's occupation (see Table 7.6).

Two groups with very high fertility are the Kalenjin of the Rift Valley and the Kisii of Nyanza. Both have very low contraceptive use rates (five percent and six percent respectively) and relatively long breastfeeding intervals (15.9 months and 16.6 months).[2] Kikuyu fertility, along with Meru/Embu, Kamba and Luhya, can be classed as intermediate.

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1. Fertility data for pastoralists are sparse in comparison to the wealth of data available for agricultural groups, but we know that their fertility is generally lower. Pastoralists are a small proportion of the population.

2. Contraceptive use rates do not necessarily parallel fertility rates; groups where use rates are low may have low fertility (Mijikenda) or high fertility (Kalenjin). Groups with relatively high use rates also show a wide range in fertility. The Luo, with a lower contraceptive use rate than either Kikiyu or Meru/Embu, have lower fertility than either group. Reasons for these apparent discrepancies stem from differences in breastfeeding intervals and other factors.

TABLE 7.6. Ethnic Differentials for Fertility and Fertility-Related Variables, from Kenya Fertility Survey, 1977/78

	Kikuyu	Luo	Luhya	Kamba	Kisii	Meru/Embu	Mijikenda	Kalenjin
Percent of KFS Sample	24.8	17.6	14.7	12.1	6.7	7.2	5.2	6.7
% Polygynously Married	12	43	35	26	33	32	39	23
% No Schooling	36	55	48	46	62	46	69	53
Breastfeeding Interval a/	14.4	16.9	16.2	17.5	16.6	18.3	22.8	15.9
Mean No. of Children Ever-Born to Women Aged: 25-34	4.9	4.0	4.6	4.4	5.0	4.6	3.8	4.6
35-44	7.5	6.3	7.7	6.8	7.7	6.7	5.5	6.9
45+	8.2	8.0	8.0	7.7	(8.7)	7.7	(5.8)	(8.1)
Current Fertility c/	8.4	7.6	8.3	8.0	3.6	8.2	7.4	8.9
Desired Family Size for Women Under 25	5.8	5.7	6.5	6.6	6.9	5.9	8.5	7.1
% Women Who Desire No More Children d/	19	15	15	18	8	14	6	11
% Contraceptors (All Methods)	17	10	4	8	6	16	3	5
% Contraceptors (Modern Only)	8.1	2.4	3.0	4.3	1.4	9.4	1.5	2.3
% Ever-Users of Contraception	48	25	24	35	23	57	13	23

Source: Kenya Fertility Survey, Volume I:60, 81, 97, 101, 111, 118, 140; Mosely, Werner and Becker 1981: Table 14.

a/ Duration of breastfeeding in months.
b/ Standardized by age at marriage and proportion never married.
c/ Estimates 5-year total fertility rate: number of children ever born by age 50 for hypothetical woman experiencing current age-specific rates throughout her reproductive life.
d/ Percent of currently married fecund women aged 25-34 who want no more children.

Although the Kikuyu and Luo show higher fertility in older age groups and relatively high fertility overall, there is some evidence for a reduction in actual family size and desired family size among younger women. (In other ways these two groups differ: Kikuyu measure low and Luo high with regard to the prevalence of polygynous marriage, and the Kikuyu are contraceptive innovators while the Luo are not.)

Differentials in fertility-related variables by ethnic group shed light on the dynamics of high and low fertility. Among groups where breastfeeding intervals are long, the rate of polygyny is high, and greater proportions of women have no schooling, fertility is likely to rise, in some cases dramatically, in the absence of increased contraception. In this category are the Mijikenda, Luhya and Kisii. With their low fertility, high fertility aspirations and low contraceptive use, Mijikenda fertility is particularly likely to rise in the near term. Thus, instead of reducing fertility, increased contraceptive use is likely to serve only as compensation for the decline of other traditional spacing mechanisms among all groups, but especially for the Mijikenda, Kamba, and Meru/Embu (where breastfeeding intervals are the longest).

But comparisons by ethnic groups can go only so far, because the Kenya Fertility Survey data do not tell enough about the social, economic and cultural factors which condition fertility processes; for this the findings of community-type studies are far more useful. In addition, analytic categories appropriate for understanding fertility processes will only in part be based on ethnic groups. It is also important to consider aspects of household production and economy, which we attempt to do below.

KFS data allow comparison of fertility measures by husband's occupational class, but to understand the observed variation it is essential to look at associated variation in the extent to which different birth interval components contribute to overall duration of the birth interval. Analysis of birth interval components shows that, for most occupational categories, there

is a decrease among all age groups in the duration of breastfeeding, and, although contraceptive use rises consistently with each occupational category, the net result is a very slight rise in fertility produced by a decline in breastfeeding. Thus, families in the white-collar, professional category have approximately the same fertility as skilled/unskilled workers and agrarian families, but for very different reasons. There is some evidence that younger couples in the modern sector will achieve smaller families as they move through their lives (Mosley, Werner and Becker 1981:21-22).

Other relationships between fertility and occupation are illustrated in Table 7.7. The largest family size desires, the lowest contraceptive use rates, as well as the highest current fertility rates, are found among workers in the agricultural sector and among unskilled manual laborers. Workers in sales and service occupations and skilled manual workers are an intermediate category in terms of desired fertility, current fertility and contraceptive use. Professional and clerical workers--the highest educated group--exhibit the highest rates of contraceptive use, the lowest family size, and lowered family size desires. Thus, there is a consistent negative relationship between fertility and the progression from agricultural and unskilled occupations to technical occupations to professional employment.

3. Summary

This discussion has examined fertility differentials along a number of dimensions to isolate significant variations in fertility dynamics. Demographic and contraceptive innovators were described, in order to gain clues about the conditions that promote innovation. Innovator families are a small percentage of the population, who are better-off economically, and who are fully incorporated into the cash economy. This group is the only one to achieve a family size significantly less than six children per woman.

TABLE 7.7. Fertility and Fertility-Related Variables by Husband's Occupational Class, from Kenya Fertility Survey, 1977/1978

	Profes-sional	Clerical	Sales	Ser-vice	Skil. Manual	Unsk. Manual	Agri. Labor	Self-Empl. Agri.
Percent of KFS Sample	9.4	5.0	8.0	9.4	17.2	5.0	29.3	8.0
% Polygynously Married	27	23	32	31	25	25	22	35
% No Schooling	19	27	47	45	48	40	65	66
Mean No. of Children Ever-Born to Women Aged: a/ 25-34	4.7	4.4	4.7	4.6	4.7	4.6	4.6	4.5
35-44	7.6	7.2	7.2	7.3	7.1	7.5	7.3	7.0
45+	(8.7)	*	7.9	7.5	8.6	(6.2)	8.1	7.9
Recent Fertility b/	6.4	6.6	6.6	6.7	6.6	6.8	7.1	6.4
Desired Family Size for Women Under 25	6.0	5.4	6.7	6.3	6.1	6.5	6.9	7.0
% Women who Desire no More Children d/	17	23	17	20	17	6	16	10
% Contraceptors (All Methods)	21	19	18	11	7	8	6	6
% Ever-Users of Contra-ception	55	47	41	41	38	26	21	25

Source: Kenya Fertility Survey, I: 60, 81, 96, 101, 112, 119, 141. Mosely, Werner and Becker 1981: Table 6.

a/ Standardized by age at marriage and proportion never married.

b/ Shows differentials in recent marital fertility; estimated mean number of children that would be born between 5th and 25th year of marriage to women continuously married during this period, at current fertility levels.

c/ Percent of currently married fecund women aged 25-36 who want no more children.

Smallholder farmers were divided into subgroups for whom different demographic and economic processes are operative. Ethnic variations are linked to variation in demand for contraception and in fertility dynamics. However, there are far more similarities than differences in fertility behavior among the categories analyzed here, and current economic and social differences are not great enough to have much impact on fertility. The implication is that real changes in family size will come only with significant further development in economy and society.

D. Conclusion

We have shown that fertility trends do not support and even threaten Kenya's development. The most effective practice limiting the present high rate of fertility is prolonged breast-feeding, but the effect on family fertility is unintended and is declining with modernization. Similarly the practice of polygyny, which is a non-intentional but nevertheless significant constraint on fertility, will probably decline over time. Modernization is promoting the conditions which support voluntary use of contraceptives, but by and large only among families with a considerable degree of educational attainment, higher levels of income, better status of women, and, in many cases, urban exposure and professional occupations. Current family planning use among married couples in Kenya is less than five percent, average desired family size among rural couples has increased in the last decade and the National Family Planning Program has remained essentially stagnant since 1978. In brief, current conditions suggest that for the vast majority of rural smallholders in Kenya, limiting fertility is simply not a desirable or attainable option.

Two major conclusions are apparent. First, fertility is not likely to drop much below a six-child-per-woman average without significant economic and social change among the majority population of rural smallholders. Thus, a resolution of the fertility issue will require increased employment, productivity, and modernization among Kenya's rural population. Meeting economic and employment goals will therefore contribute to fertility reduction goals.

Second, without a dramatic increase in access to and availability of family planning services, fertility is likely to continue to rise in the near term. This is because only modern contraception can compensate for ongoing changes in traditional practices that have in the past kept fertility under control. Compensation through modern contraception will not happen without an improvement in the performance of service delivery institutions.

Our final comments relate to institutional mechanisms for service delivery. As described above, the existing network of government services is inadequate, and family planning and maternal-child health have tended to be given low priority within the government health bureaucracy. Politicians, too, are reluctant to commit themselves publicly to fertility control measures. Ethnic rivalries as well as fear of conservative elements in their constituencies render most politicians very cautious in the family planning area. In general, those who make decisions in Kenya, from the national level to the family, will lose little if high fertility continues, but have considerable stake in avoiding the negative consequences associated with supporting fertility limitation. The politician, the Ministry of Health official, the religious leader, and the male household head in most circumstances are far more likely to be threatened by the implications of fertility limitation than by rapid population growth.

Since ameliorating these constraints will take time, and because public sector absorptive capacity is limited, and also because public mechanisms have always been complemented by private ones, a logical conclusion is to look toward private channels in this area. Private profit-making family planning activities in Kenya have been largely confined to urban areas, with the exception of the sale of condoms. The present government policy looks unfavorably on community-based distribution of the pill and IUD, although there have been some small, closely-supervised initiatives. A pilot marketing scheme to provide the sale of condoms for family planning was undertaken in Meru district in the mid-seventies, but, despite positive evaluations (see for example Rogers 1973), this program is seen as having generated harmful controversy and is characterized as a failure.

It appears that private and voluntary organizations offer promise in helping to promote effective family planning, although considerable resources and time will be required to realize this. Christian church-related institutions are one example. Although at present they account for a very small fraction of contraception service delivery, they provide about 40% of health services in rural areas. Certain Christian beliefs severely restrict the acceptability of contraceptive practices, but most Christian teachings promote family life-styles (eg. husband-wife communication and shared decision-making, joint responsibility for the development of children, participation in community and group activities) which are favorable to the spread of family planning. These teachings are especially effective in changing male attitudes towards the family in rural areas. Many church organizations have a long history of development-related activities in the communities they serve, and retain the credibility and local leadership needed to create and sustain an accepting environment for family size limitations and contraceptive use. A handful of case studies have shown that mechanisms of this sort have considerable promise.

A second area of promise in rural places lies with women's groups. Women participating in groups can be exposed to family planning messages relatively efficiently, leaders of these groups are often those most likely to adopt family planning and hence may serve as role models, and the benefits of women's groups (e.g., increased education and understanding of the modern world, greater income in some cases) can be supportive of family planning practices. A preliminary study of 10 income-generating women's groups in Nyeri district, for example, found family planning use among group members increased from 25% to 75% over a two year period (Odara Personal Communication). A third area of promise lies with initiatives undertaken by groups promoting breast-feeding, and a fourth area would include family planning promotion and service delivery among co-operative members, labor and teachers' union members, and other worker's organizations.

In sum, high fertility will continue to pose a threat to Kenyan development for some time. Only broad socio-economic development will reduce fertility levels, and then only slowly. A necessary complement to improving agricultural and employment conditions will be easing access to family planning services, since only this way can we expect modern contraception to effectively take the place of traditional practices in spacing birth intervals appropriately wide. Government will necessarily play a role in this, but we see a place for private sector involvement as well. Only with such an integrated attack on the socio-economic and institutional context of high fertility in Kenya can we reasonably expect progress to be made.

CHAPTER VIII: EDUCATION

A. Introduction

At Independence Kenya's educational system was characterized by significant inequities, based on racial discrimination, missionary evangelism, and the differential geographic impact of the colonial system. The colonial administration, reinforced by settler attitudes, had little inclination until the eve of Independence to invest in educational facilities for Africans. Schools were concentrated in white settlements and urban places to cater for the European and Asian communities, which together constituted about 3% of the population. Education for the African majority was underfinanced, and African schools also followed a separate curriculum focused on acquisition of technical skills rather than academic preparation.

Those Africans who did gain access to education during the colonial period were often from districts where there was much missionary activity. Major centers of early missionary contact were Kiambu and Nyeri districts in Central Province, Kakamega District in Western Province, and Siaya, Kisumu, and Kisii districts in Nyanza Province. Those parts of the country predominantly inhabited by Muslims, such as Coast Province, attracted less missionary attention and therefore tended to lag in their educational development.[1]

Differential incorporation into the colonial economy also affected educational development. The demand for schooling was greatest in those places most exposed to the new socio-economic patterns accompanying colonial settlement. Thus a few relatively richer districts in central and western Kenya had a considerable advantage in their educational development because the local native councils were able to raise sufficient money through taxes to build schools and pay teachers. An official policy to distribute matching grants to native councils reinforced these disparities. Not surprisingly, the arid and semi-arid parts of the country lagged furthest in the establishment of educational facilities (Court and Kinyanjui 1978; Nkinyangi 1980; Kinyanjui 1977).

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1. Much of the money allocated by the colonial administration to African education was channeled through church organizations, which could provide the needed staff and facilities.

After Independence government sought to reduce these disparities, but the task is complex and yet to be completed. Government has lacked the resources to finance universal primary education, a long-stated goal, and thus financing has continued to be largely the business of local communities. Communities raise funds to construct schools and teacher's houses, while government provides recurrent expenses. Therefore, differences in the ability and willingness of communities to invest in education have continued to cause considerable variation in the availability and physical quality of schools.

In contrast with the primary school sector, growth in secondary education has occurred despite official plans to limit increases. A post-Independence emphasis on investments in secondary and tertiary education to meet Kenya's manpower needs has been replaced with a concern that the scale of the educational system at these levels is imposing a burden on national development. Although there has been a surplus of secondary school leavers relative to job openings in the modern sector, the proportion of expenditure being allocated to higher education has steadily grown.

The inability of government to control the expansion of the secondary school sector reflects the central role of community initiatives in establishing these schools. Most secondary schools opened since Independence, both aided and unaided, originated as harambee facilities. Some of these self-help institutions were subsequently taken over by government. This precedent reduces the ability of government to limit the opening of new schools, and strong political pressures, coupled with a weak commitment to planning, have led the Ministry of Education to convert many such schools into government facilities. As i. the case of primary education, reliance on community financin has favored the more developed areas of the country.

3. Socio-Economic Context of Educational Variation

In this section we take a closer look at some of the issues introduced above. The most important of these relate to differences in educational access and attainment according to sex, age, location, and various economic factors.

1. Age

Most adults in Kenya, males and females, have not yet had opportunities for schooling. A 1977 survey of literacy showed that about 46% of the rural population 15 years and over claimed to be literate in any language. (Central Bureau of Statistics, 1977A). This attests to the restricted availability of schooling for Africans before Independence. Rapid post-Independence expansion of the educational system has meant that younger age groups tend to have higher levels of educational attainment than older age groups. This is shown below.

TABLE 8.1. EDUCATIONAL ATTAINMENT IN THREE AGE GROUPS (1977)

Schooling	Percentage 20-24 Years		Percentage 35-39 Years		Percentage 60-64 Years	
	F	M	F	M	F	M
None	40	16	77	40	96	83
1-2 Years (Primary)	2	3	3	3	1	4
3-8 Years (Primary)	42	51	18	46	2	11
1-4 Years (Secondary)	14	28	1	9	—	1
5+ Years (Secondary)	1	1	—	1	—	1

Source: Unpublished data from the 1977 National Demographic Survey

Levels of adult educational attainment are important because they may influence access of children to schooling. To assess the relationship between adult educational attainment and school enrollments, district rankings with regard to the proportion of adults with four or more years of education were compared with district rankings in respect to primary school enrollment ratios in 1969, 1973, and 1979. This yielded Spearman rank order coefficients of .87, .80, and .67 respectively. This suggests that the cumulative advantage of early educational development, which was very strong in 1969, has been steadily declining since; at the same time there continues to be a substantial association between historical and current access.

2. Sex

In each age group a higher proportion of males than females have attended school. Moreover, the gap between male attendance and female attendance has steadily widened since the colonial period; thus, despite generally improving access to education facilities the sex bias has grown more profound.

Overall enrollment patterns, outlined in Table 8.2, also show that parents prefer to educate male children. Preference for investment in boys's schooling may be linked to the dominant patrilineal descent system, in which inheritance passes through the male line, and in which sons retain responsibility for their parents as they grow older (daughters are incorporated into their husbands's families). Also, males have better prospects for wage jobs, which may provide a further reason for preferring to enroll male children in basic educational facilities.

TABLE 8.2. PERCENTAGE OF FEMALE ENROLLMENT BY EDUCATIONAL LEVEL THROUGH TIME

	Primary	Secondary	Upper Secondary	University
1963	34	32	23	N.A.
1965	36	28	20	21
1968	41	26	21	16
1972	44	32	24	16
1975	46	36	26	18
1980	47	40	N.A.	23

Source: Annual Censuses of Schools and Teachers; Office of the Registrar, University of Nairobi

Sex differences in enrollment have also been shaped by the structure of the educational system. Kenya, like many other former British colonies, has coeducational primary and tertiary facilities, but the majority of high quality secondary schools are single sex institutions. In 1977, for instance, there were 200 aided secondary schools for males, 107 for females, and 63 for both. Moreover, 79% of girls' schools were boarding institutions, compared to 43% of the boys' schools. This is significant because boarding schools usually charge higher fees and therefore may be too expensive for most rural families (Central Bureau of Statistics, Annual Census of Schools).

Despite the cultural and structural factors favoring male educational prospects, there has been a rise in female enrollment over time. Female primary school enrollment increased from 34% in 1963 to 47% in 1980, and secondary school enrollment rose from 32% to 40% during the same period. Improvements at the upper secondary and university levels were more modest.

3. Educational Variation By Location

a. Primary Education

The national gross enrollment rate (GER)[1] rose from 56% in 1969 to 114% in 1979[2]. But theoretical national coverage coexisted with actual shortfalls in many districts. Table 8.3 sets forth GERs by district groups for the period from 1969 through 1979. The difference between the least and most educationally advanced groups of districts actually increased over the period, from 74 percentage points to 115. It therefore seems that dramatic rises in the national GER did not eliminate significant district variation.

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1. The gross enrollment ratio or rate compares total primary school enrollment, including children under the age of six and over the age of twelve, with the estimated number of children aged six to twelve in a particular area. It is possible to have ratios of over 100%, which indicate that a considerable proportion of the enrollments are comprised of students over the age of twelve.

2. Estimates of the number of children of various ages for the years from 1969 to 1979 are based on the 1969 and 1979 censuses.

TABLE 8.3. GROSS ENROLLMENT RATIOS BY DISTRICT GROUPS a/

Year	Group I	Group II	Group III	Group IV	Group V
1969	7% b/	30%	46%	83%	81%
1970	8%	36%	52%	87%	79%
1971	10%	37%	53%	90%	81%
1972	12%	40%	63%	93%	93%
1973	13%	41%	68%	96%	94%
1974	15%	75%	105%	124%	89%
1975	14%	76%	110%	125%	86%
1976	15%	73%	107%	116%	82%
1977	16%	76%	103%	110%	80%
1978	16%	72%	91%	124%	82%
1979	18%	87%	125%	133%	82%
CHANGE 1969-1979	+11%	+ 57%	+ 79%	+50%	+ 1%

a/ Computed from Central Bureau of Statistics data files.

Group I (Pastoral): Marsabit, Garissa, Mandera, Wajir, Samburu, Turkana

Group II (Poor Rural): Kilifi, Kwale, Lamu, Tana River, Isiolo, South Nyanza, Baringo, Elgeyo Marakwet, Narok, Uasin Gishu, and West Pokot

Group III (Middle Rural): Kitui, Meru, Kisii, Kisumu, Kajiado, Kericho, Laikipia, Nakuru, Nandi, Trans Nzoia, Kakamega, Busia, and Siaya.

Group IV (Advanced Rural): Kiambu, Kirinyaga, Muranga, Nyeri, Nyandarua, Taita/Taveta, Embu, Machakos, and Bungoma

Group V (Urban): Nairobi and Mombasa

b/ These are mean values. Group means were computed by dividing the total estimated population into the total enrollment for the districts within the group.

Group III districts improved most between 1969 and 1979, the mean GER rising from 46% to 125%. Group II and Group IV attained increases of just 11 points and Nairobi and Mombasa only 1 point. Thus three types of districts have lagged in primary school development: arid and semi-arid districts (especially those with a predominantly pastoral economy), poorer agricultural districts (several of which include semi-arid areas with dispersed populations), and municipalities.

Weak educational development in the poorer districts happens because of dependence on local financing. While the extension of financial responsibility to local communities has undoubtedly increased the scope of the educational system beyond the levels which would have been possible if financing were solely in the hands of central government, this policy limits educational opportunities in poorer areas. It seems unlikely that the poorer districts, whether agricultural or semi-pastoral, will be able to achieve universal enrollment or even sustain current levels of enrollment without some modification of the present arrangement.

Kenya is one of the few developing countries in which educational development, as measured by enrollment, is higher in some rural districts than in the major metropolitan centers. Urban municipalities with responsibility for financing and operating primary schools include Nairobi, Mombasa, Nakuru, Kisumu, Thika, Eldoret, and Kitale. Municipal schools generally have better facilities and better qualified teachers than rural schools, but the higher costs of schooling in urban areas, combined with the limited revenues available to municipalities, have imposed constraints. Moreover, the municipal administrations have not had as much flexibility in dealing with sudden spurts in enrollment as rural authorities. This is because it is more time-consuming and costly to erect the permanent structures required in urban places than to build the temporary mud buildings permitted in rural locations, and because municipal governments have been more reluctant than rural education committees to authorize double-shifting or outdoor classes. The number of primary schools in Nairobi, for example, only increased from 110 in 1969 to 127 in 1979, and in Mombasa the comparable figures were 47 in 1969 and 56 in 1979. As a consequence, it is frequently difficult for children, especially those in the low income groups, to find a place in Nairobi or Mombasa schools; many potential students are turned away for lack of accommodation.

Although government has recognized the special need for education in pastoral areas, it has yet to develop programs that can cope with the difficult environment, the prevailing poverty, and the nomadic character of much of the population. During 1970-74 boarding facilities were provided at selected schools, and by 1973 there were a total of 86 such institutions. In the 1974-78 plan this program was de-emphasized because cost per pupil was extremely high and the response of the indigenous population disappointing. Instead, the plan advocated a new program of mobile teaching units in remote, sparsely populated areas (Republic of Kenya 1974:412), but again with little effect on enrollments. Despite negative evaluations of the boarding school program, the current plan returns to this concept, foreseeing an additional 3,600 primary boarding places (Republic of Kenya, 1979:154), very likely because a World Bank loan was available for this purpose.

It is unlikely that the provision of 3,600 additional boarding school places, at very high unit costs, will turn around the situation in arid areas. Moreover, a recent study of these facilities suggests that many openings may in fact be taken by students from outside the designated districts, especially by children from better developed agricultural areas. Since the official subsidy of 600 KSH per child covers only part of the expense, parents still pay over 200 KSH in various fees. Very few families in the pastoral areas can afford this; there are consequently many vacancies and a high rate of wastage among the pupils who begin. These openings attract pupils from other districts, who thereby gain the preferential access intended for pupils from disadvantaged areas (Mkinyangi 1980).

Uneven patterns of educational development are also reflected in the distribution of trained teachers. Municipalities have consistently had the highest proportion of trained teachers. In 1979, by contrast, more than half the teaching staff were untrained in 47% of schools in Kwale district, 33% of schools in Lamu district, 39% of schools in Kilifi district, 31% of schools in Baringo and Elgeyo-Marakwet districts, and 29% of schools in Wajir district. In many other districts (particularly the wealthier ones) none of the schools were in that situation.

b. Trends in Secondary Education

Secondary schools in Kenya fall into three categories depending on their recruitment base. The first category consists of 26 government maintained schools (15 are academic and 11 are technical institutions), which recruit their students nationally on the basis of geographic quotas. The second category is provincial schools, the major type of

maintained institutions. These recruit almost entirely from within the province in which they are located. Finally there are unaided harambee schools, which have even more limited catchment areas, in most cases being restricted to their districts and often locations. In contrast with maintained schools, for which entry is highly competitive and dependent on performance on the CPE examination, most unaided schools have not employed performance criteria for recruitment.

Schools in the unaided sector, despite the higher fees charged by many of them, have poorer facilities and a higher proportion of untrained teachers than maintained schools. In 1978 the Ministry of Education assigned a grade to all secondary schools it inspected ranging from A (highest) to D (lowest) on the basis of physical infrastructure. 26% of maintained schools had A ratings compared to seven percent of assisted and three percent of church and private schools. Just one harambee school of the 416 inspected received an A rating. At the other end of the spectrum, only seven percent of the maintained schools were Grade D, while 84% of unaided, 60% of assisted, and 53% of private schools fell into this classification. Districts where secondary education developed early tend to have a greater number of high quality maintained institutions (Central Bureau of Statistics 1979:55).

The most notable characteristic of the secondary school sector since Independence has been rapid growth. Enrollment rose from 20,553 students in 1963 to 419,201 in 1980. This expansion, however, has not eliminated geographic and ethnic inequalities but instead has reinforced them. In addition, the pace of growth has necessitated a diminution in the quality of education, particularly in the unaided sector. Analysis of secondary level enrollment ratios (that is, the proportion of the population aged 13 to 16 years enrolled in secondary schools compared with the total population within that age group) can provide an approximate indicator of variation in educational opportunities. Results are presented in Table 8.4.

TABLE 8.4

SECONDARY SCHOOL ENROLLMENT RATIOS
AGE GROUP 13-16: 1974, 1977

	1974	1977
Coast	9%	9%
Taita/Taveta	10%	12%
Kilifi	3%	3%
Tana River	5%	3%
Lamu	3%	4%
Kwale	3%	4%
Mombasa	22%	23%
Central	14%	23%
Nyandarua	7%	16%
Nyeri	16%	27%
Kirinyaga	13%	27%
Murang'a	13%	22%
Kiambu	16%	23%
Eastern	8%	12%
Machakos	12%	17%
Kitui	5%	7%
Embu	7%	9%
Meru	5%	12%
Marsabit		2%
Isiolo	3%	2%
Nairobi	25%	41%
Rift Valley	5%	8%
Nakuru	12%	18%
Kericho	3%	6%
Nandi	3%	7%
Laikipia	11%	13%
Kajiado	4%	5%
Narok	3%	4%
Baringo	3%	7%
Elgeyo-Marakwet	4%	5%
Uasin Gishu	7%	12%
Turkana	.3%	1%
Samburu	2%	2%
Trans Nzoia	8%	14%
West Pokot	2%	3%

Table 8.4. (Continued)

	1974	1977
Nyanza	6%	9%
Kisumu	5%	7%
Kisii	7%	14%
South Nyanza	5%	7%
Siaya	6%	6%
Western	7%	15%
Busia	7%	11%
Bungoma	4%	15%
Kakamega	8%	15%
North Eastern	1%	1%
Garissa	1%	1%
Wajir	1%	1%
Mandera	.3%	.4%
Kenya	8%	13%

Source: CBS data files.

Provincial enrollment ratios for 1974 ranged from highs of 25% in Nairobi and 14% in Central Province to lows of five percent and one percent respectively in Rift Valley and North-Eastern provinces. Patterns in 1977 were little changed. The most important point to emerge from this table is that the most educationally developed districts achieved the greatest rise in enrollment ratios. The least developed arid zones and the poorest agricultural districts showed little improvement. The most dramatic advances occurred in Nairobi and in several of the rural districts in Central Province, particularly Nyeri and Kirinyaga. Educational expansion in secondary schools has thus tended to accentuate district level disparities.

4. Economic Factors: Costs of Education

The strongest link in the relationship between social stratification and education in Kenya is ability to pay for schooling. The 1974 elimination of school fees for the first four years of primary school, which was extended between 1978 and 1980 to the full seven year cycle, did not necessarily reduce educational costs to parents. Many schools introduced a variety of supplementary levies to finance school costs, and contributions that were previously voluntary tended to become compulsory. The subsequent elimination of building fees and

other contributions from 1979 onwards again appears to have had little effect. The intent of this policy is to transfer the burden of construction costs from the families of school children to the entire community (and not to government), but no mechanism is provided to assure the community-wide financing.

No national data on the current costs of primary education are available, but two studies provide illustrative figures. A 1978 study of 47 primary schools in four districts showed that the average annual cost of sending a child to a rural primary day school was 297 KSh, a not inconsiderable investment for a family with upwards of four children in school. Educational outlays in the four districts were closely linked to levels of economic development: in Garissa, the poorest of the four districts, parents paid 114 KSh a year; in Kisumu, 293 KSh; in Kiambu, the most affluent of the rural districts, 460 KSh; and in Nairobi, 1303 KSh. Overall, parents of low socio-economic status spent a mean of 250 KSh; families of middle socio-economic status averaged 594 KSh, and high income families paid 1993 KSh. per year per child (Nkinyangi 1980:213-223).

The second study was conducted in five districts in 1980. A major finding was that schools were consistently contravening government directives to abolish fees, which according to parental calculations averaged 173 KSh per child per year. This figure represented a rise of 42% over 1974 costs. Headmasters' estimates of the costs of schooling were still higher, averaging 241 KSh (Olembo, 1980). Both of the studies cited financial constraints as a leading cause of enrollment loss. According to headmasters, 52% of dropouts take place because parents cannot pay for services, facilities, and supplies demanded by school authorities (Olembo 1980); similar results were obtained in the 1978 study. An examination of educational outcomes in relation to socio-economic status also showed that children of low socio-economic status were much more likely to repeat classes (Nkinyangi 1980: 236-238). Thus it appears that parental inability to afford the direct costs of primary schooling prevents the achievement of universal coverage.

Secondary school fees are even higher. Parents pay from 690 KSh to 1800 KSh per annum for a place in a government maintained boarding school, and 3430 KSh in one of the high-cost former European boarding institutions (Ministry of Education, 1975:20). Day school fees are lower: 400 KSh in a low-cost school and 600 KSh in a high-cost school for Forms V and VI, slightly less for the first four Forms (Ministry of Education, 1976:3). Harambee schools charge from 450 KSh to over 1200 KSh often more than maintained day schools, because these institutions do not receive any government support. A

recent lowering of fees in high-cost boarding schools through greater government subsidy (Ministry of Education, 1974:20) has made education in the harambee schools relatively more expensive yet, especially when measured by quality of education received. Government concern with secondary educational expenditure has resulted in a policy to shift a greater portion of the costs to parents (Republic of Kenya, 1979:157), which will presumably reinforce the inequities of the current system.

During the 1960s, research into the family backgrounds of secondary school students generally emphasized the openness of recruitment patterns. A student's background was of minor importance in determining educational or occupational placement (Olson 1974). However, there are now signs that family background increasingly affects both recruitment and performance (Prewitt 1974; Somerset 1973). By the time the children of the 1960s enter school, exposure to an enriched environment and placement in the best schools (through the ability to pay high fees), will probably be greater determinants of academic success. The result over time will be greater social stratification based on differential access to good education and rewarding employment.

5. Economic Factors: Benefits of Education

The importance of education to rural people in Kenya is illustrated by the observation that in many places the traditional obligation of a father to provide land for each son has been superceded or supplemented by an obligation to provide an income-producing job: education is the means to this end (cf. Paterson 1980). This shift is partly due to land scarcity, but is also the result of circumstances in which a job is worth as much or more than a plot of land, especially since employment is a much less risky income-generating strategy than agriculture. Moreover, only through non-farm employment can significant agricultural innovation be financed or increases in household income be attained. In this section we explore the role played by education in generating these beneficial outcomes.

Table 8.5 shows the relationship between education attainment and the structure of income. These facts stand out: first, there is a steady increase in both gross and net total household income as levels of education rise; second, there is a further consistent relationship between education and the contribution of non-farm income to total income; and third, education appears to be positively linked with gross and net farm income until the attainment of standard 4, after which education is linked to declining levels of farm income. We examine these phenomena more completely below.

Non-farm income constitutes about 61% of net income for uneducated farmers, and increased to 69%, 82%, and 91% for progressively more educated farmers. Within the category of "non-farm" income, regular employment accounts for the largest difference attributable to education, while trades and crafts are of secondary importance (but here the relationship is not consistent). Education does not seem to influence the level of earnings derived from either casual employment or remittances.[1] These data show very plainly that education and rewarding non-farm employment are closely linked, and lead jointly to higher levels of household income.

1. It is unwise to attach significance to small percentage changes in the figures presented here.

Table 1

TABLE 8.5.

EDUCATION AND THE STRUCTURE OF INCOME
(Integrated Rural Survey 1: 1974-75)
In Kenya Shillings

	No Education (N=1202)	Std 1-4 (N=287)	Std 5-7 (N=144)	Form II and Over (N=47)
Total Gross Income	2961	4670	6215	8399
Gross Farm Income	1346	2010	1975	1949
Gross Non-Farm Income	1613	2660	4240	6450
Gross Farm Income	1348	2010	1975	1949
Crop Sales	571	1727	1016	787
Livestock Sales (Non-Cattle)	184	157	222	169
Cattle Sales	366	427	392	565
Milk Sales	227	299	345	408
Farm Expenditures	417	949	1090	1397
Inputs	209	394	599	556
Wages to Labor	147	353	385	679
Wages for Cattle/Stock	48	90	144	278
Farm Repairs	61	202	106	163
Gross Non-Farm Income	1613	2660	4240	6450
Regular Employment	378	592	2179	5097
Casual Employment	240	361	256	394
Remittances	368	433	399	358
Other Gifts	70	123	74	88
Trade/Crafts	489	938	1144	325
Miscellaneous	145	210	188	332
Non-Farm Expenses	145	775	630	880
Net Farm Income	931	1061	885	552
Net Non-Farm Income	1464	1884	3610	5570
Total Net Income	2395	2945	4495	6122

as Percentage of Gross Income

	No Education	Std 1-4	Std 5-7	Form II and Over
Total Gross Income	100	100	100	100
Gross Farm Income	46	43	32	23
Gross Non-Farm Income	54	57	68	77
Gross Farm Income	46	43	32	23
Crop Sales	19	24	16	9
Livestock Sales (Non-Cattle)	6	3	3	2
Cattle Sales	13	9	6	7
Milk Sales	8	7	6	5
Farm Expenditures	14	20	18	17
Inputs	7	8	10	7
Wages to Labor	5	7	7	8
Wages for Cattle/Stock	2	4	2	3
Farm Repairs				
Gross Non-Farm Income	54	57	68	77
Regular Employment	10	13	35	61
Casual Employment	8	8	4	5
Remittances	12	9	6	3
Other Gifts	2	3	1	1
Trade/Crafts	17	10	18	4
Miscellaneous	5	4	4	4
Non-Farm Expenses	5	13	10	10
	as percentage of net income			
Net Farm Income	39	31	18	9
Net Non-Farm Income	61	69	82	91
Total Net Income	100	100	100	100

The relationship between education and farm income is more complex. In IRS I (1974/75), gross farm income increases significantly with minimal education, but does not appear to increase further with addtional education. In IRS II (1976/77), gross farm income seems to fall off after the attainment of minimal education levels. This may reflect a year of poor rainfall, in which failing crops would tend to even out differences among farmers. But in any case we see the contribution which primary education can make to the national economy: farmers with just a few years of education sold almost twice the value of crops sold by uneducated farmers. Moreover, farmers with education tend to sell more cash crops, while selling nearly as much maize and other food crops. It may be that educated farmers, who fully understand the need to school their own children, enter commercial agriculture largely or primarily to obtain the necessary school fees, which as we have seen can be substantial.

Although gross farm income is generally positively related to education, net farm income increases by only 10% up to Standard Four, and declines thereafter. The apparently greater efficiency of uneducated farmers probably reflects their dependence on farm as opposed to non-farm income, which would encourage better husbandry. Also, use of inputs and non-family labor increases with education, factors which (especially in a bad cropping year) would tend to raise relative costs.

The relative farming efficiency of various educational categories also varies across crops (Table 8.6).

TABLE 0.6

Table 10 FARMER EDUCATION AND FARMER EFFICIENCY FOR SELECTED CROPS
Integrated Rural Survey II 1974-75

	No Education	Standard 1-4	Standard 5-7 or 8	Form II and over	All Households
I. LOCAL MAIZE	(N = 831)	(N = 153)	(N = 80)	(N = 36)	(N = 1110)
Area in Hectares	0.84	0.84	0.78	0.95	0.83
Pure stand	(.33)	(.29)	(.22)	(.19)	(.31)
Kilos Harvested	534	559	524	478	518
Value of Harvest (Sh.)	461	431	387	367	449
Cost of Inputs	35	36	41	10	37
Purchased Seeds	(9)	(8)	(6)	(0)	(8)
Machinery Contract	(8)	(15)	(19)	(5)	(10)
Fertiliser	(3)	(7)	(11)	(1)	(4)
Labor in Hours	684	429	502	396	629
Hired Labor	(28)	(41)	(38)	(61)	(34)
Gross Income Per Hectare	584	513	543	386	541
Net Income Per Hectare	519	471	487	376	509
Return to Family Labor per hour	0.66	1.02	0.82	1.07	0.71
Value of Auto-consumption	284	300	340	312	291
II. HYBRID MAIZE	(N = 418)	(N = 142)	(N = 75)	(N = 27)	(N = 662)
Area in Hectares	1.01	1.33	0.98	2.11	1.10
Pure Stand	(0.37)	(0.90)	(0.69)	(1.87)	(0.83)
Kilos Harvested	1399	1497	3017	4324	1510
Value of Harvest (Sh)	889	1003	1297	2309	1021
Cost of Inputs	160	183	202	456	182
Purchased Seeds	(38)	(28)	(46)	(144)	(41)
Machinery Contract	(45)	(54)	(46)	(131)	(50)
Fertiliser	(58)	(89)	(66)	(151)	(70)
Hours of Labor	607	587	601	776	608
Hired Labor	(95)	(127)	(164)	(360)	(120)
Gross Income per Hectare	880	815	1323	1132	929
Net Income per Hectare	722	667	1117	917	765
Return to Family Labor per Hour	1.42	1.78	2.51	4.65	1.72
Return to all Labor per Hour	1.20	1.40	1.82	2.49	1.38
Value of Auto-Consumption	423	458	648	581	466

TABLE 8.6. (Cont'd)

Table 2 (Continued)

	No Education	Standard 1 - 4	Standard 5 - 7	Form II and over	All Households
III. BEANS	(N = 185)	(N = 162)	(N = 89)	(N = 24)	(N = 863)
Area in Hectares	0.58	0.68	0.50	0.50	0.57
Pure Stand	(0.08)	(0.04)	(0.04)	(0.05)	(0.07)
Kilos Harvested	171	163	146	172	167
Value of Harvest	357	373	318	347	356
Cost of Inputs	33	34	21	29	32
Purchased Seeds	(19)	(17)	(12)	(7)	(18)
Machinery Contracts	(6)	(9)	(2)	(18)	(7)
Fertilizer	(2)	(2)	(4)	(0)	(2)
Hours of Labor	315	315	277	282	310
Hired Labor	(33)	(39)	(65)	(100)	(39)
Gross Income per Hectare	616	611	536	694	688
Net Income per Hectare	559	556	594	636	568
Return to Family Labor per Hour	1.15	1.23	1.40	1.75	1.25
Value of Auto-Consumption	257	270	216	332	258
IV. COFFEE	(N = 165)	(N = 54)	(N = 28)	(N = 24)	(N = 243)
Area in Hectares	0.23	0.27	0.29	0.48	0.28
Pure Stand	0.20	0.24	0.27	0.39	0.22
Kilos Harvested	763	840	1129	318	813
Value of Harvest	630	729	1005	326	729
Cost of Inputs	88	100	318	325	118
Purchased Seedlings	(16)	(17)	(4)	(122)	(18)
Fertilizer	(14)	(18)	(31)	(118)	(19)
Sprays	(18)	(39)	(61)	(53)	(28)
Labor in Hours	326	744	666	509	588
Hired Labor	82	310	175	299	103
Gross Income per Hectare	3000	2700	3865	776	2900
Net Income per Hectare	2617	2330	2714	1/	2456
Return to Family Labor	1.36	0.99	1.60	1/	1.77

1/ Owing to the small sample of 6 in this category, there appears to be skewed data which cannot be interpreted.

TABLE 8.6. (Cont'd)	No Education	Standard 1 - 4	Standard 5 - 7	Form 1st[2/] and over	All Households
V. TEA	(N = 76)	(N = 26)	(N = 17)	(N = 6)	(N = 125)
Area in Hectares	0.67	0.67	0.88	0.32	0.68
Pure Stand	0.65	0.66	0.85	0.32	0.67
Kilos Harvested	1058	1768	1322	318	1280
Value of Harvest	673	1130	1272	225	826
Cost of Inputs	13	10	45	18	17
Purchased Seeds	(-)	(2.7)	(-)	(-)	1
Sprays	(-)	(0.4)	(1.2)	(-)	
Other	(12.6)	(7)	(44)	(16)	(16)
Hours of Labor	938	1251	1258	366	1023
Hired Labor	(233)	(213)	(596)	(158)	(295)
Gross Income per Hectare	1139	1669	1443	703	1213
Net Income per Hectare	985	1656	1398	647	1190
Return to Family Labor per Hour	0.94	1.86	1.78	1.06	1.11
VI. ALL CROPS[2/]					
Area in Hectares	1.3	1.7	1.4	2.1	1.4
Value of Crop Production	1020	1472	1341	2913	1161
Cost of Inputs for Crops	114	185	219	344	141
Purchased Seed	35	38	44	107	38
Fertilizer	28	65	53	106	38
Sprays	3	9	13	15	5
Machinery Contracts	27	54	46	89	35
Other Inputs	21	19	63	26	25
Cost of Hired Labor	169	394	433	752	-
Gross Farm Expenditures	283	579	652	1096	-
Gross Income per Hectare	785	866	1101	912	-
Net Income per Hectare	567	525	635	396	-

2/ Includes maize (local and hybrid), beans, coffee and tea.

TABLE 8.6. (Cont'd)

Table 3 (Continued)

	No Education	Standard 1 - 4	Standard 5 - 7	Form II and over	All Households
VII. LIVESTOCK					
Value of Assets	2850	3215	2964	4401	
Value of Production	777	883	959	1162	
Wages for Labor	48	90	146	276	
Crop Fed to Cattle	88	83	24	36	
NET Income	718	780	791	850	
Net Return as % of Assets	25%	24%	27%	19%	
Hours of Labor	1373	1356	1373	1293	
Family Labor	(1297)	(1239)	(1180)	(926)	
Hired Labor	(76)	(117)	(193)	(367)	
Return per Hour of Family Labor	0.55	0.63	0.67	0.98	

TABLE 8.7.

Table 4
EDUCATION AND ECONOMIC ASSETS

Integrated Rural Survey I - 1974-75

	No Education	Standard 1-4	Standard 5-8	Form 1X and over	All Households
Farm size (hectares)	2.7	3.5	2.8	3.9	2.9
Size of Household	7.5	8.4	8.2	7.7	7.7
Adults in Household	3.1	2.8	2.8	2.8	3.0
Female Adults	1.[illegible]	1.4	1.6	1.5	1.7
Value of Physical Assets (Shillings)	9344	12658	14141	19867	10877
Land	1931	2644	2733	3268	2150
Land per Acre	1704	2141	2258	2816	1855
Farm Equipment	150	202	294	1021	196
Transport Equipment	214	359	646	1676	316
Structures	1709	2556	3632	5069	2104
Improved Cattle	786	1514	1614	1616	995
All Livestock	2850	3215	2964	4401	2961
Other Factors					
Unemployed Adults	1.0	2.4	2.3	2.0	2.0
Unemployed Adults w/Ed.	0.3	1.2	1.2	1.1	0.6
Number of Separate Buildings	1.2	1.3	1.2	1.2	1.2
Distance to Furthest Parcel (km)	0.8	1.0	1.1	1.0	0.9
Distance to Water (Wet Season)	1.2	1.2	1.2	1.3	1.2
Distance to Primary School	1.9	1.8	1.8	1.7	1.9
Distance to Government Sec.School	4.1	3.9	3.8	4.1	4.0
Distance to Karembee Sec. School	3.6	3.4	3.3	3.3	3.6
Distance to Health Center	3.6	3.3	3.3	3.3	3.5
Distance to Market	2.9	2.8	2.6	2.7	2.9
Distance to Post Office	3.7	3.7	3.5	3.7	3.7
Distance to Bus Route	2.6	2.7	2.5	2.4	2.6
Distance to Matatu Route	2.2	2.1	2.0	1.7	2.2
Output Consumed by Household	1196	1543	1660	1761	1349
Output Used for Wages	22	41	48	73	28
Total Food Expenditures	1272	1511	1870	3016	1383
Other Household Purchases	797	1413	1610	2195	1005
Number of Observations	1202	257	144	47	1650

Uneducated farmers do better in production of local maize, educated farmers do better in tea, while for hybrid maize, beans, and coffee the patterns are mixed. But the data indicate a stable relationship between education and the efficiency of family labor. Education augments the returns to family labor, as more inputs and cheaper outside labor are combined with family labor to increase net returns. Thus family labor, a key constraint to smallholder production in many areas, can become a more efficient production tool with greater educational attainment.

Crop production represents only about one-half the value of farm production; the remainder comes from livestock. Here we see a pattern similar to that for crop production. Table 8.6 shows that the value of livestock holdings increases with education, but the increase is not uniform or very significant. Net returns are somewhat lower for educated than uneducated farmers, perhaps because of the increased use of hired labor. But more educated farmers tend to have greater numbers of improved animals than farmers with less education, and once again we see that the efficiency of family labor grows with education.

Education is also related to increases in the value of land and other physical assets such as equipment, structures, and livestock. As education increases, both area of land and land quality[1] increase (See Table 8.7). Thus the relative inefficiency of more educated farmers is a matter for concern. Probably agricultural holdings and livestock are regarded among the more educated farmers as a form of savings and investment, rather than primarily as a source of income; for this group, most income comes from non-farm employment.

In sum, we conclude that: education increases both gross and net income of rural households, primarily through providing access to regular employment; education enhances returns to family labor (likely due to utilization of more inputs and hired labor); education is associated with crop sales generally, but cash crops in particular; and education often diminishes the efficiency of farming, by reducing gross and net returns per unit area. These data lend support to our central thesis, that education is not valued disproportionately by rural Kenyans. Primarily by increasing access to non-farm employment, education results in substantial improvements in household income and overall standards of living.

1. As reflected in value per unit area.

C. Other Aspects of Education in Kenya

1. Public and Non-Public Institutions

Clear-cut distinctions between public and non-public educational sectors are difficult to make in Kenya. The educational system actually has three sectors: central government, community, and private, with the community sector the most important of the three. Community and central government activities are, as we have seen, linked very closely.

Maintained primary schools depend on the community for construction, equipment, and maintenance. Government provides salaries for teachers and supplies. The number of private primary schools receiving no assistance from the government is very small, and most of these cater primarily to non-citizens. Of a total primary enrollment of 3,698,246 in 1979, 5,592 pupils were registered in unaided schools and another 81,433 in "assisted" schools, many of which are operated by churches (Central Bureau of Statistics, Annual Census of Schools).

The dichotomy between public and non-public education at the secondary level, already indistinct because most secondary schools began as harambee institutions, has been blurred further recently. Some harambee schools are given limited aid (in the form of one or two teachers), without altering the status of these schools as community facilities. Another complication arises from the unauthorized expansion of many maintained schools through the establishment of parallel unaided streams, the students enrolled in which utilize most of the same facilities as students in the authorized maintained streams.

2. Formal and Non-Formal Education

A general perception that formal educational qualifications are the major means of social advancement in Kenya has tended to diminish interest in non-formal educational programs. Extension programs have been offered for some time by the Department of Social Services, the Institute of Adult Studies at the University of Nairobi, county councils, and various self-help groups under the sponsorship of the Board of Adult Education. These programs have used mass media, correspondence courses, and formal classes. Until recently the major thrust has been to enable adults to improve their formal educational qualifications, rather than to offer basic literacy training; but a commitment to eradicate illiteracy among adults during the 1979-1983 period has generated an expansion in this area. In 1977 there were 1,693 literacy training centers with

an enrollment of 36,000 (Central Bureau of Statistics, 1978). But by 1980 a total of 12,000 centers were open, with an estimated enrollment of 350,000. 8,000 of these with a registration of about 168,000 were government operated; the remainder were managed on a self-help basis by local communities and private organizations (Central Bureau of Statistics, 1981:212). Despite such encouraging figures, it seems doubtful that Kenya will eliminate illiteracy in the near future. An enrollment of 350,000 is but a small fraction of the perhaps 3,000,000 adult illiterates in Kenya. Furthermore, an evaluation of the program points to several inadequacies in curriculum and approach, with consequent problems in learning and retention (Gakuru, Somerset, and Wallis, 1976).

3. Impact of Population Growth

Kenya's current high rate of population growth raises fundamental questions about the ability of the government to attain its educational goals, or even to maintain these services at current levels. There are already some indications that the quality of educational services has deteriorated. We mentioned earlier the declining primary enrollment ratios and coverage rates in the municipalities; the nationwide increased reliance on untrained teachers is another facet of this problem.

Projections based on current rates of growth indicate there will be almost 4 million children within the primary school age group by 1983, which represents an increase of some 30% over the numbers estimated for 1978. By the year 2000, the numbers of children eligible for primary schooling will rise nearly 8.5 million, or some 175% more than in 1978. To maintain the ratio of 40 pupils per class in Standard 1 would mean construction of 5,500 new classrooms between 1978 and 1983 and an additional 6,400 classrooms between 1984 and 1989 (Central Bureau of Statistics (Smock)B, 1979:6).

Projected growth in primary school enrollments has implications for other levels of the educational system. More students leaving Standard 7 will create pressure for a comparable expansion in secondary school facilities in order to maintain existing enrollment rates. Greater numbers of secondary school leavers would translate into demands to expand post-secondary school facilities. Such a spiralling in enrollments at all stages of the system would require ever greater portions of the budget to be allocated to educational expenditures, leaving fewer funds for other needed investments.

4. Educational Investment

Education has consistently consumed a major share of public and private resources in Kenya. This is due partly to consistently high public demand for education, and partly to the willingness of government to allow the supply of educational opportunities to be determined by political criteria rather than manpower planning. The opportunity costs of educational expansion cannot be easily measured, but an examination of the pattern of education expenditure illustrates the difficult financial bind in which government now finds itself.

During the period 1970/71 - 1980/81 development expenditures on education increased from KL 1,500,000 to an estimated KL 12,500,000 (Central Bureau of Statistics, 1976 and 1981). Although Kenya pledged to reduce the annual increase in expenditures from 13% to 11% during 1974-1978, by 1979 the annual rate of increase in recurrent expenditure rose to 17% and represented perhaps as much as 30% of all recurrent expenditure.

It was further estimated that direct private expenditure on education amounted to another KL 38,000,000 in 1976, an amount equal to about half of the total Ministry of Education recurrent expenditure for that year. The major private investments, as shown in Table 8.8, came for primary and harambee education.

TABLE 8.8 ESTIMATED DIRECT PRIVATE EXPENDITURE ON EDUCATION, 1976

	KL.Million
Harambee education	15.0
Primary education	12.9
Private schools	3.2
Pre-primary education	2.6
Secondary/technical education	2.5
Overseas donations	1.5
Teacher training	0.2
Total	37.9

Source: Central Bureau of Statistics, 1978:171.

The annual cost of schooling per student, shown in Table 8.9, rises sharply with ascending levels of education. Recurrent costs per student in 1978/9 ranged from KL 18 in a primary school to KL 1,780 at the University of Nairobi. This means that the cost of one student-year of secondary schooling in an aided institution is nearly five times greater than one student-year of primary education, while the average cost of one student at the University of Nairobi is nearly 100 times the cost of a student in a primary school.

TABLE 8.9. ESTIMATED RECURRENT COST PER STUDENT BY TYPE OF INSTITUTION, 1978/1979 .

Level	1978/1979 (KL.)
Primary school	18
Secondary maintained	85
Harambee institutes of technology	150
Primary teacher training college	270
Kenya Science Teachers College	902
Kenyatta University College	1,730
University of Nairobi	1,780

Source: Central Bureau of Statistics, 1979:180

The distribution of educational expenditure, as shown in Table 8.10, has also been changing in recent years. Development expenditure has received a larger share of the total educational budget, rising from 3.5% in 1975/1976 to nine percent in 1980/1981. The proportion of the budget allocated to primary education has declined, from 66% to 59% of recurrent and development outlays. Higher education is the most rapidly expanding sector, with recurrent expenditure growing at an average annual rate of 1[illegible]% per annum between 1977/1978 and 1980/1981.

TABLE 8.10 MINISTRY OF EDUCATION EXPENDITURE AS PERCENTAGE OF TOTAL

	1975/1976	1980/1981
(Recurrent Expenditure)	(96.5)	(91.0)
General Administration	3	4
Primary Education	66	58
Secondary Education	14	10
Technical Education	1	1
Teachers' Training	3	3
Special Schools	—	—
Polytechnic Education	1	2
Higher Education	9	11
Miscellaneous	1	2
(Development Expenditure)	(3.5)	(9.0)
General Administration	—	—
Primary Education	—	1
Secondary Education	2	1
Technical Education	1	2
Teachers' Training	—	1
Special Education	—	1
Polytechnic Education	—	2
Higher Education	—	1
Miscellaneous	—	—

(Note: Values under 1% are not shown.)

Source: Calculated from Central Bureau of Statistics, 1979:170 and Central Bureau of Statistics, 1981:199.

These figures suggest that Kenya may not be able to afford the second university called for in the 1979-1983 development plan. The educational sector is already taxing public and private investment very highly. High per-student costs of tertiary schooling will further escalate educational

investments while providing a very narrow range of training not already offered at the University of Nairobi. In pledging to establish a second university, the government appears to be succumbing to political pressures for universities to absorb a higher proportion of the output of secondary schools.

5. Harambee Institutes of Technology

The recent emergence of harambee institutes of technology, based on local initiative, exemplifies Kenya's capacity to raise major sums from communities and individuals on behalf of education, as well as some of the problems associated with such efforts. Harambee institutes of technology were conceived to fill a need for technical skills and to offer Form IV leavers, unable to gain entrance into upper secondary schools or career training programs, an alternative form of training. At present there are 15 such institutes registered with the Ministry of Higher Education, of which 10 were operational in 1980 with a combined enrollment of 1,312 students. The objectives are to train skilled personnel to meet the needs of rural development. The largest enrollments are in three types of courses: business studies, secretarial studies, and masonry, with smaller numbers studying carpentry, plumbing, electrical and mechanical engineering, and business administration (Central Bureau of Statistics, 1980:184 and 1981:204).

Major constraints relate to relevance of course offerings, staffing, meeting the costs of building and equipment, and recurrent expenditure. The translation of a vaguely-felt need for additional technical education into the establishment of institutes has taken place without local planning or, until recently, central coordination. Therefore the siting and curriculum often reflect competition among politicians and communities, as well as access to external aid sources, more than local or national needs. Initially most teaching staff were expatriates, paid by donor agencies, together with some personnel supplied by the Ministry of Higher Education. There are not enough local teachers to replace the expatriates. Although building costs are met from harambee activities, the more costly items of equipment have been provided by donors. Rapid increase in the number of institutes which require such assistance is delaying the provision of equipment, which in turn slows down development of the institutes. Recurrent costs presently amount to 14,000 KSh per student per year, which is partly funded by government. The bulk of recurrent expenditure must be raised in the form of fees, which makes such schooling beyond the means of most potential students.

The institutes of technology, like harambee secondary schools before them, have developed without planning and have imposed major funding demands on the Ministry of Higher Education. Alternative funding is now being sought, and higher enrollments may reduce the high recurrent cost per student. But the small increase in enrollment between 1979 and 1980, less than 100 students, suggests that constraints on the development of the institutes are not going to be easily overcome. It is therefore likely that pressures will build for a major infusion of government funds, and that the future pattern of financing will have more to do with political considerations than the ability of government to absorb another high-cost educational expenditure.

6. Village Polytechnics

Kenya's village polytechnics (VP's) are meant to train young people in a variety of trade and artisanry skills so that they need not be dependent upon farming to earn a living. Thus VP's are a tool in Kenya's program to build opportunities for rural employment. Table 8.11 shows growth in the VP movement during the period 1975/76 to 1979/80.

TABLE 8.11. EXPANSION IN VILLAGE POLYTECHNICS, 1975/76 to 1979/80[a]

Year	No of Projects	No of Instructors	No. of Trainers
1975/76	130	650	7000
1976/77	160	800	9000
1977/78	190	950	11000
1978/79	220	1000	14000
1979/80	220	1250	20000

a/ Caplan (1982:13).

Polytechnics must be initiated and supported entirely by local communities for a period of time before government considers their reliability to be established. At that point the Ministry of Housing and Urban Development takes responsibility for staff salaries and some other costs, although the community must continue to provide substantial material support. Course offerings, fee levels, school development, and hiring of instructors are done by a local management committee. Table 8.12 shows the distribution of courses offered in 1978.

TABLE 8.12. VP COURSES OFFERED, 1978a/

Type of Course	Number Offered	% of Total
Carpentry	178	21
Masonry	160	19
Tailoring	158	19
Home Economics	137	16
Agriculture	74	9
Metalwork	46	5
Leatherwork	38	5
Motor Mechanics	17	2
Typing/Book-keeping	14	2
Plumbing	10	1
Painting/Signwriting	6	0.5
Electrical	4	0.5
	842	100

a/ Caplan (1982:13)

The majority of trainees come from low income households, but not the poorest, since fees are required. These usually amount to 500-800 KSh per year, and courses last two years. Instructors are local tradesmen, whose salaries are generally lower than those paid to primary school teachers. This means that only poorly-skilled tradesmen generally accept VP positions, for competent workers can earn much more money plying their trade.

A small survey of male and female leavers (Caplan 1982:42) showed that women are generally sent to VP's to become more marriageable, not to become independently employed. Also, higher bridewealths can be requested for girls with advanced education, so some fathers may see this as a form of investment. In any case the skills taught girls, apart perhaps from home economics, are not generally useful in rural settings. Other skills, of which typing is a good example, usually require urban surroundings to apply.

Male leavers were also surveyed. Depending on location, only about 10-20% could be classified as successfully self-employed, while fully 61-75% were otherwise occupied; most of these were farming or had migrated to towns. Thus the VP program does not seem to have been generally successful at stimulating rural employment; most leavers are destined to make poor use of their skills due to lack of capital and business contacts. Employers also show no preference to VP graduates, since they employ them and untrained apprentices at equal rates of pay. A new program to give VP's preferential access to

small government contracts may allow some of these institutions to find employment for their graduates, but probably at the cost of increased inefficiency. Some VP's provide leavers with either tools or a cash grant funded through a revolving loan program, hoping thereby to ease their entry into the working world, but it remains to be seen whether this can overcome basic problems related to limited rural demand for the skills they possess. Most leavers will probably continue to migrate to urban places in search of jobs, where employers treat them as they would any other raw prospect. Overall the village polytechnics do not seem to constitute a viable approach to employment generation.

D. Conclusion

Although the distribution of financial responsibility between central government and local communities has undoubtedly enabled Kenya to increase the scope of the primary educational system far beyond the levels which would have been possible if government had to provide basic facilities for all communities, the policy of making educational development dependent on local initiative and financing has imposed constraints on those areas where people have limited access to cash income. Various policy statements in support of free universal primary education have not altered the pattern of financing: parents of school age children still bear most of the burden for the cost of primary schooling, through community contributions to the construction and maintenance of buildings, and through payment of fees for building funds, uniforms, books, and school equipment.

Kenya planners have three goals for the secondary educational system: limits on expansion, improved quality, and greater relevence in terms of Kenya's culture and manpower needs. Little progress is being made on any of these. From 1974 to 1978 total enrollment in secondary schools rose from 195,674 to 362,025, an increase of 85%. There may have been a recent slowing-down in expansion, but not to the extent needed. Growth was five percent in 1979, but by 1980 enrollments reached 419,201, an increase of nine percent. This continued rapid growth has increased educational opportunities, but at the expense of improving the quality of education; and has delayed reform of the educational structure and curriculum. The pattern and rate of expansion have reinforced reliance on harambee efforts, thereby relegating many students to schools with poor facilities, limited programs, and a predominantly untrained teaching force.

The quality of schooling in harambee and private schools is sufficiently poor that some planners have expressed fears that two to four years of schooling within them actually leads to loss of basic skills learned during the primary cycle.

And at a time when job placement, career training, and entry into higher secondary and post-secondary programs favor students with science and mathematical skills, few schools outside of the maintained sector have the laboratories and equipment which the Ministry of Education requires be present before it accords permission for a school to offer biological and physical science subjects.

We suggest that universal access and coverage of the primary educational system, and more equitable development of the secondary system, may not be possible without modifying the self-help ethos and providing some form of assistance in poorer areas. It is unlikely that the poorer districts, whether agricultural, semi-pastoral, or pastoral, will rise significantly beyond their present levels of educational development without some such attempt. Stagnation in educational development in many of the municipalities, especially Nairobi and Mombasa, also reveals problems in according complete financial responsibility for primary education to urban administrations, which have limited financial resources. We are concerned about increasing the equity of educational development for two reasons. First, past experience has shown that basic literacy encourages and may even be essential to the adoption of agricultural innovation in Kenya. Thus better education in the areas that are lagging economically has special importance. Second, continued maldistribution of educational opportunities will help harden the emerging patterns of stratification discussed elsewhere. No one should underestimate the political and social problems that can ensue when such processes are allowed to run their course.

CHAPTER IX: HEALTH AND NUTRITION

A. Health

1. Introduction

Health trends in Kenya have showed significant and steady improvement over the past several decades.[1] Table 9.1 presents data on mortality trends from 1948-79. Life expectancy for women in Kenya is about four years longer than for men and seven years longer for urban dwellers than for the rural population (Kibet 1981:7,19).

Table 9.1. KENYA: Mortality Trends, 1948-79

Year	Crude Death Rate %	Infant Mortality Rate Per 1000	Life Expectancy in Years
1948	25%	184	35
1962	20%	n.a.	44
1969	17	119	49
1979	14	87	53

Source: For all data in 1948, 1962 and 1969: Kenya Population Censuses. For 1979 crude death rates: 1979 Population Census. Life expectancies are from U.S. Bureau of the Census estimates. Infant mortality rates are estimated by Frank Mott from Kenya World Fertility Survey data.

The current average life expectancy in Kenya (53 years) compares well with Africa as a whole (49 years). Infant mortality in Kenya is also lower than in Africa overall, as only 8 out of 52 African countries reported rates under 100 per thousand. The decline in infant mortality probably reflects an overall rise in standards of living and improvements in maternal and child health (MCH) services.

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1. Parts of this discussion are based on World Bank (1982:3-4).

Table 9.2 provides information on morbidity patterns in Kenya, based on outpatient case records in 1978.

Table 9.2. KENYA: Outpatient Cases in District Hospitals, Health Centers, Health Sub-Centers and Dispensaries--1978

Type of Disease	Number of Cases ('000s)	% of Total Cases
Acute Respiratory Infections	5,881	31.2
Malaria	4,417	23.4
Diseases of the Skin	3,262	17.3
Diarrheal Diseases	1.664	8.8
Intestinal Worms	1,126	6.0
Accidents	1.120	5.9
Gonorrhea	507	2.7
Measles	292	1.5
Pneumonia	288	1.5
Other	358	1.7
	18,915	100.0

Source: Ministry of Health, Kenya, Health Information Bulletin, Volume 3, November 2, 1979.

The prevalence of infection and infestation shows that Kenya's standard of living, while rising, is still quite low. Malaria, though absent at higher elevations, continues to be an important cause of morbidity and death. While the table does not show age breakdowns for the different types of diseases, most of the cases of respiratory infection, diarrhea and infestation are among infants and young children (World Bank 1982:4).

2. Early Childhood Mortality (based on Kibet 1981)

An important indication of overall health status of a population is the rate of infant and young child mortality, defined as the number of children dying before reaching their second birthday. Table 9.3 shows these mortality rates for each administrative District. The overall figure is high, 125/1000. Of particular significance is the great variation observed between districts, with Nyeri reporting a rate of

Table 9.3. CLASSIFICATION OF KENYAN DISTRICTS BY INFANT AND YOUNG CHILD MORTALITY RATES

DISTRICTS WITH GIVEN RANGE OF DEATHS PER 1000 BIRTHS

Province	45-60	61-90	91-120	121-165	166-220
NYANZA			Kisii		Kisumu Siaya S. Nyanza
WESTERN				Kakamega Bungoma	Busia
RIFT VALLEY		Laikipia Kajiado Samburu	Narok Nakuru Kericho Uasin-Gishu Nandi Trans-Nzoia	Turkana Elgeyo-Marakwet	Baringo W. Pokot
CENTRAL	Nyeri	Kiambu Muranga Kirinyaga Nyandarua			
NAIROBI			Nairobi		
NORTHEASTERN				Garissa Wajir Mandera	
EASTERN		Embu Meru	Machakos	Isiolo Kitui Marsabit	
COAST			Mombasa Taita-Taveta		Kilifi Kwale Lamu Tana River

Source: Kibet (1981:74).

of 49/1000 as against South Nyanza, on Lake Victoria, reporting a very high rate of 216/1000. In general, districts on the coast and in western Kenya have much higher rates than districts in central Kenya. Two factors are responsible for much of the observed variation: the prevalence of malaria and education of women.[1] Table 9.4 shows mortality by district with regard to these two variables, and adds a third, a rough estimate of the amount of high potential agricultural land available on a per capita basis. Multiple regression analysis reveals that malaria is by far the most important variable explaining differences in the distribution of infant and young child mortality; level of literacy was also found to be significant. According to the analyst:

> "The regression obtained suggests that when the percentage cases which are malaria are reduced by 30%, the effect would be to reduce child mortality level by 81 deaths per 1000 births. If the percentage of women with five or more standards of education were raised by 50% and allowance is made for other variables, the result would be a reduction of child mortality level by about 58 deaths per 1000 births. These results suggest that malaria control would have a tremendous impact on child mortality" (Kibet 1981:122).

The same study shows that a number of variables ordinarily thought to influence child mortality were found to have a very weak relationship with levels of child mortality by district. These include number of hospital beds, available health care facilities, rates of fertility, urbanization, and kilometers of roads. The analysis suggests that access to health care has very little effect on patterns of mortality, but this conclusion should be regarded as tentative; the measures of access to health care utilized took into account only government facilities, without considering access to non-governmental facilities.

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1. It takes at least five years of primary education before mother's education begins to affect infant mortality.

Table 9.4. CHILD MORTALITY RATES BY DISTRICT AND RELATED VARIABLES a/

District/Province	Child Mortality	Percent Malaria Cases	Percent Female Adults Literate	Per Capita High Potential Agr. Land (ha
NAIROBI	93	—	67.84	—
CENTRAL				
Kiambu	70	4.53	46.50	0.289
Murranga	68	11.29	38.41	0.289
Nyeri	49	1.35	46.59	0.329
Kirinyaga	82	14.35	44.99	0.336
Nyandarua	64	1.74	39.42	1.136
NYANZA				
Kisumu	199	34.71	31.88	0.451
Siaya	211	32.62	24.12	0.451
South Nyanza	216	31.56	25.35	0.692
Kisii	101	20.91	36.50	0.253
WESTERN				
Kakamega	143	31.03	33.22	0.315
Bungoma	140	30.38	37.16	0.502
Busia	198	27.60	22.45	0.547
COAST				
Mombasa	120	18.29	43.96	—
Kilifi	212	26.09	8.65	0.241
Kwale	190	23.79	9.84	0.437
Lamu	200	17.55	3.23	0.165
Tana River	181	28.22	7.90	0.790
Taita-Taveta	116	23.93	21.42	0.284
RIFT VALLEY				
Laikipia	77	5.97	32.40	0.966
Narok	95	13.71	8.33	4.398
Kajiado	75	18.70	18.46	0.148
Turkana	133	13.84	2.09	0.084
Samburu	77	14.08	4.91	1.820
Nakuru	97	9.16	37.47	0.557
Baringo	171	16.25	19.33	0.814
Kericho	91	14.92	27.69	0.600
Uasin Gishu	92	19.81	34.06	1.087
Nandi	110	13.84	27.01	0.782
Trans-Nzoia	114	17.50	29.53	0.802
Elgeyo Marakwet	127	13.23	23.69	0.699
West Pokot	188	23.63	6.35	0.649

Table 9.4 (Continued)

District/Province	Child Mortality	Percent Malaria Cases	Percent Female Adults Literate	Per Capita High Potential Agr. Land (ha)
EASTERN				
Meru	75	15.71	26.34	0.290
Isiolo	127	27.00	5.86	0.000
Kitui	148	24.98	18.57	0.144
Machakos	98	19.63	36.14	0.122
Marsabit	130	18.76	2.08	0.042
NORTHEASTERN				
Garissa	131	23.21	2.83	0.000
Wajir	129	16.42	1.72	0 000
Mandera	146	19.82	1.23	0.000

a/ Based on Kibet 1981.

3. Health Care

In most countries, curative services are considered the first priority, and so they are in Kenya. For a series of reasons related to historical circumstance and demand for curative care by the articulate and influential, the existing health care system can be characterized as having both a strongly curative bias and an urban one.

The structure of the Kenyan health system includes:[1]

the public or government run health services--which offer free care;

the church-related health services with an historical emphasis on hospital and dispensary based curative medical practice. Fees are charged for the services provided. Many were established by missionaries in the colonial period to serve isolated communities not served by the public service;

private curative services centered on metropolitan hospital systems with fees for service. Historically and currently these cater to the European and Asian population, as well as a high-income elite. A range of private clinics providing high-cost curative services in the urban areas can be included in this category;

1. This classification is taken from Mburu 1979:573.

a small number of industrial health services for occupational groups located primarily in urban areas; and

a widespread but poorly understood traditional health system providing care to people in both urban and rural areas.

The government health system, despite considerable rhetoric to the contrary, remains urban and curative care oriented to a considerable extent. Table 9.5 presents recent data on government health expenditures. Kenyatta National Hospital, the expenditure for which is included in the figures for the fourth category listed in the table, requires an estimated 25% of the recurrent budget yearly. Rural health facilities, serving the vast majority of the population, receive slightly less than 12% of the budget. Assistance to urban hospitals was actually increased in 1980/81; these urban hospitals are heavily utilized and benefit considerably from political support.

Table 9.5. COMPOSITION OF HEALTH EXPENDITURES (DEVELOPMENT PLUS RECURRENT) ACCORDING TO FIVE-YEAR PLAN AND FY 80/81 BUDGET

	Plan and Budget 1978/79 %	Budget 1980/81 %	Plan 1982/83 %
1. Rural Health Services			
a. Rural health facilities	10.7	11.8	16.1
b. District hospitals	28.0	26.1	24.3
c. Private hospitals	2.8	3.8	2.9
d. Preventive and promotive services	5.1	6.7	8.7
2. Training	10.8	6.4	9.8
3. Supplies and Equipment	2.4	1.9	1.9
4. *Central and/or Referral Facilities & Services	39.9	43.0	35.9
	100.0	100.0	100.0

* e.g. Kenyatta National Hospital and Provincial Hospitals

Source: Kenya Five-Year Development Plan 1979-83, and Annual Budgets 1978/79 and 1980/81 (World Bank 1982:13).

The urban bias with regard to facilities is matched in the distribution of personnel. It is estimated that 70% of the 1600 physicians in-country are in private, urban-based practice (Miller 1982:8). Persons with paramedical training are also concentrated in urban areas. An estimated 13% of all registered nurses and midwives have been assigned to rural areas since 1970 (when the central government took over responsibility for services), and a similar proportion is expected to be rural based in 1984. Less than 50% of the enrolled midwives and 55% of the health inspectors are similarly placed. With 85-90% of Kenya's population rural, the implication is that 87% of the registered nurses and midwives, 53% of the enrolled nurses, 70% of the enrolled midwives and 45% of the health inspectors serve 10-15% of the population (Mburu 1979:579-580).

At present rural health services of any sort reach less than half of the rural population. Access to rural health facilities however is better in Kenya than in many parts of Africa. As of mid-1980, there were in Kenya 830 Ministry of Health rural health facilities, 182 health centers, 37 health subcenters, and 611 dispensaries. There were also 374 rural health facilities operated by non-governmental organizations, most of them church related, of which 23 were health centers, 7 health subcenters and 339 dispensaries. The ratio of rural population to facilities by province ranges from 7,506 in Rift Valley to 27,595 in Western Province, the average being about 11,300.

An indication of accessibility is provided by the figures in Table 9.6, which shows (by province) the percentage distribution of households (in rural areas) within given distances of a rural health facility. For the country as a whole about 42% of households are within 4 km. of a rural health facility and about 77% within 8 km. The percentage of households farther than 8 km. from a rural health facility ranges from 7.5% in Central Province to 43.5% in Eastern Province. As might be expected, facilities in the three densely populated provinces (Central, Nyanza, and Western) are more accessible than in the three sparsely populated provinces (Coast, Eastern and Rift Valley).

Table 9.6. PERCENTAGE DISTRIBUTION OF HOUSEHOLDS BY DISTANCE FROM A RURAL HEALTH FACILITY, BY PROVINCE

Distance	Central	Coast	Eastern	Rift Nyanza	Valley	Western	Total
0-1 KM	0.7	1.6	4.6	9.0	3.7	7.1	4.8
1-2 KM	13.4	3.2	7.3	9.1	12.7	14.0	10.7
2-4 KM	35.1	33.1	18.1	30.0	25.3	21.7	26.9
4-8 KM	43.3	29.7	26.5	33.7	31.2	28.8	34.2
8+ KM	7.5	32.6	43.5	18.2	27.1	18.5	23.5

Source: Integrated Rural Survey 2 (unpublished), 1977 (World Bank 1982:10).

Coverage of mothers and children under the maternal and child health service program has been relatively good. The numbers of first visits and revisits for antenatal and child welfare services have been growing steadily. It is currently estimated that 65-70% of pregnant women and about 55-60% of newborn children are being reached by the program (World Bank 1982:18). An estimated three-fourths of all deliveries, however, occur at home, usually with the assistance of a traditional birth attendant. The relatively high proportion of mothers involved with the MCH program has important implications for the family planning program discussed in Chapter Seven (Fertility), as the MCH clinic is an important location for introduction of family planning education and services.

4. Church-Related Health Care

Mission supported medical services in the rural areas constitute a large part of the total health care system. There are several characteristics of the church-related health service delivery programs which merit discussion. These relate both to the relative efficiency of the programs compared to government-type programs, and, to a less well-substantiated degree, to aspects of the quality of service delivery.

Church-related hospitals account for about 30% of the hospital beds in rural areas, and about the same percent of rural health facilities. In mid-1980, there were 374 rural health facilities which were operated by non-government organizations, and virtually all were church sponsored. Of these 28 were health centers, 7 health subcenters, and 339 dispensaries.

The efficiency of the church-related hospitals is significantly higher than that of government services. One recent estimate indicates, for example, the average cost of an inpatient per day (or inpatient equivalent, calculated as a ratio 10/1 for outpatient to inpatient days) is higher for government than non-government institutions. The comparative costs were $7.50 per inpatient day for government services, as opposed to $6.00 per day for Protestant Church facilities and $4.00 a day for Catholic facilities. (CORAT personal communication May 1982.) A further factor suggesting greater efficiency of church-related facilities as compared to government services is that while the government services are free, church-related institutions charge fees. Fees offset significantly more than 50% of all recurrent costs for church-related facilities. The heavy pattern of use of these facilities, despite the costs to users, might suggest a perception that these non-government facilities provide significantly higher quality services.

5. Traditional Medicine

Historically, the colonial administration and missionaries actively sought to reduce the role of traditional healing practices, arguing that the practices involved were primitive, ridden with superstition, and often more harmful than efficacious. There is increasing evidence from many parts of the world, including East Africa, that some aspects of local healing systems are in fact very beneficial, but negative attitudes are still common among present day health officials in Kenya, and work to reduce the role that indigenous healing systems might play in the national health care system. Moreover, prohibitions on killing or trafficking in wild game have given the subsector an illegal character, as many treatments require substances taken from wild animals (Miller 1982). There is very little knowledge of the nature and extent of the traditional system of health care, but what we do know suggests that there is considerable variation among ethnic groups and locations around the country.

The indigenous system includes traditional medicine, folk medicine, traditional birth practices, herbal and ethno-psychiatric practices, and the belief in various forms of

vengeance and supernatural intervention regarding health. These practices are in part geographically conditioned. Arid land pastoralists, for example, have relatively little "informal" medicine compared to agricultural people. Nor do pastoralists have the witchcraft beliefs that heavily influence the health ideas of agriculturalists. Beliefs that fertility of the soil and of women are directly related to good health is common in much of Kenya. Ritual protection and herbal intervention are mainstays of healers at the coast, in semiarid and western areas. Highland peoples, by comparison, although still using herbal medicines on a moderate scale, have generally opted for modern, formal remedies (Miller 1982); this probably reflects both longer exposure to the ideas of western medicine and modern education, as well as generally high levels of income.

The geographic variety of Kenya's flora promotes an herbal richness which is enormous. The collection, sale and transport, growing, and storage of hundreds of medicinal herbs is a major industry. Herbs from various ecological zones, particularly in high rainfall areas such as Mt. Kenya's lush slopes, provide supplies of great variety. A large market is serviced by mail, matatu (taxi), and telephone sales networks. The underground traffic in botanical and animal parts used for medicinal purposes may well be one of Kenya's most profitable "local" industries, and may have much potential for development (Miller 1982). But this is likely to be stymied for some time by the generally negative attitudes of Kenya's professional health care civil servants.

6. Conclusion

The following points seem most important from the perspective of development planning. First, we note the major significance of women's education in reducing infant mortality. Clearly increased educational opportunities could do much good, particularly in the poor pastoral and agricultural zones where infant mortality is currently very high. Second, there is an extremely significant private health sector in Kenya, which is generally more cost-efficient than the public sector and which is preferred by rural inhabitants who can afford the fee-for-service condition. Development interventions in the health sector should probably support an expanded role for the private sector, but the needs of poor rural residents must continue to be met through free public care. This introduces the third point, relating to the public sector. There is an obvious need here for more efficient service, and an overwhelming need for services to move out into rural areas. Finally, the large role played by malaria in infant mortality points up the need for major malaria control efforts. In Kenya, the areas suffering worst from malaria are those with the least monetary and political power; so donors should plan to encourage and assist government and private action in this area.

B. Nutrition

1. Introduction

Better nutrition is accepted by Kenya planners as a national goal (Development Plan 1979-1983: 146-151), and nutritional considerations were incorporated into food production targets and other programs proposed in a recent statement of national food policy.[1] Apart from the obvious humanitarian considerations, there are sound developmental reasons to be concerned about nutrition. Among adults, good nutrition contributes to good health and efficient work performance. Among children, good nutrition ensures proper physical and mental development and improves learning capacity. More generally, good nutrition, especially among children under five, affirms that a variety of national-level socio-economic processes, such as relate to agricultural production, marketing, employment, and education, are following paths that result in meaningful development at the level of the household. Unfortunately, mild to moderate protein-energy malnutrition[2] among young children is rather common in Kenya, as shown in Table 9.7.

TABLE 9.7 PROTEIN-ENERGY MALNUTRITION IN KENYA, 1977 a/

Measure b/	Mean % of Standard	% of sample below 90% of standard
Height for Age	93.3	28.7
Weight for Height	95.7	28.6

a/ ROK 1979a: I. 1-1.
b/ Height for age (H/A) is thought to be influenced by long-term nutritional deprivation; children who are consistently undernourished will achieve a lower percent of standard, that is, at any particular age they will be shorter than they should be. The "standard" used is the internationally accepted Harvard Growth Standards, as presented in Jelliffe (1966). Weight for height (W/H) is accepted as an indicator of short-term, episodic nutritional deprivation.

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1. Sessional Paper No. 4 of 1981 on National Food Policy:9-10, 43-44.

2. Protein-energy malnutrition in young children is "the most widespread form of malnutrition in Kenya" (King-Meyers 1979:6). Other less common but still important nutritional diseases include iron-deficiency anaemia and goiter. These will not be considered here.

2. Regional Variation

About one-quarter of rural Kenyan children are significantly malnourished, but malnutrition is not distributed evenly around the country.[1] There are important differences by province and by agro-ecological zone. Variation by agro-ecological zone is displayed in Table 9.8.

TABLE 9.8 AGRO-ECOLOGICAL VARIATION AND NUTRITIONAL STATUS

Zone	Mean H/A	% of sample below 90% of standard
Coffee		
East of Rift	92.0	35
West of Rift	94.5	21
Tea		
East of Rift	93.0	25
West of Rift	94.3	21
Cotton		
Lower Cotton East of Rift	90.9	44
Upper Cotton West of Rift	93.2	30
Coast:		
Composite	95.3	20
High Altitude Grass	92.0	40

a/ ROK 1979a: I.1-8.

These data show, somewhat surprisingly, that children in Western Kenya are generally better off than those in the central and eastern areas. The Western sub-zones score

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1. Patterns of protein-energy malnutrition among urban children are discussed in Chapter Two. Patterns of malnutrition among pastoralists are poorly understood, but there is nearly universal agreement that child nutrition in this group deteriorates in populations undergoing sedentarization (officially sponsored or otherwise). This is probably related to changed dietary patterns and cooking procedures (cf. King-Meyers 1979: 26, 63, 66).

consistently better than the eastern sub-zones with respect to both indicators used here.[1] The reader will recall that exactly the reverse pattern was revealed when, in Chapter Two, we compared agro-ecological zones with regard to the value of consumption and with respect to the contribution of off-farm income to total income. Ordinarily we would expect the higher levels of household consumption found in the east to be associated with better nutrition, not worse; the consistently negative association observed here requires explanation. Although limitations in the data make it difficult to be certain, there is reason to believe that variations in diet may have something to do with this. Table 9.9 illustrates.

TABLE 9.9 VARIATIONS IN STAPLE FOOD CONSUMPTION BY AGRO-ECOLOGICAL ZONE a/

Zone	Monthly Frequency of Consumption b/	
	Cereals	Potatoes/Cassava/Banana
Coffee		
East of Rift	37	41
West of Rift	41	14
Tea		
East of Rift	33	37
West of Rift	48	12
Cotton		
East of Rift	53	11
West of Rift	52	19
Coast		
Composite	43	8

a/ Based on ROK 1979a: I.5-4.
b/ The numbers are frequency counts. "Cereals" here are chiefly maize, with millet and maize-millet mixtures being of secondary importance.

1. The same patterns may be discerned using weight-for-age and weight-for-height.

Cereals are the dominant staples in the western zones, while root crops and bananas dominate in the east.[1] This has nutritional significance because cereals are generally more "nutrient-dense" than the other foods listed. That is, a given quantity of cereal will ordinarily provide more calories and protein than a similar quantity of the other staples. Even when food supplies are relatively plentiful, young children may have difficulty in eating enough of these bulky foods to meet their nutritional needs. Although these comparisons are admittedly of the crudest sort, we can suggest that differential patterns of staple food consumption may be linked to patterns of malnutrition in rural Kenya.[2] We may also tentatively conclude that the bad effects of diets based on bulky, poorly-constituted staples can outweigh the good effects of increased levels of income and consumption.

3. Off-Farm Income

Elsewhere in this report we have suggested that in Kenya access to off-farm income is an important determinant of overall levels of material wealth, and of the propensity to innovate. Is there also a link between off-farm income and the nutritional status of young children? The national survey results have been inconclusive in this respect (cf. ROK 1979a: 1-29), but preliminary results from community-level nutrition investigations in Taita/Taveta District show an interesting pattern.

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1. Except for the cotton zones. Staple food consumption patterns here do not help explain the nutritional conditions observed.

2. Confirmatory evidence is contained in ROK 1979a: I.5-8 through I.5-11.

TABLE 9.10

% Distribution of Adult Labor-Time by Activity, Location, and Nutritional Status.a/

Activity/Location	Nutritional Status b/ Best Group	Worst Group
Off-farm Employment		
Highlands	40	15
Plains	24	14
Farming		
Highlands	18	23
Plains	13	6
Herding		
Highlands	0	9
Plains	0	9
Other		
Highlands	42	53
Plains	63	71
Total		
Highlands	100	100
Plains	100	100

a/ Fleuret and Fleuret, unpublished field notes 1980-1982.
b/ In this instance nutritional status was assessed by height for age, which measures the results of cumulative or long term protein-energy malnutrition. For each community, the "Best Group" contains the six households whose children attained, on average, the highest per cent of standard H/A. The "Worst Group" contains the six lowest-scoring households. The disposition of adult labor time was assessed by direct observation, for each individual in the selected households, of a 50% random sample of the 94 daylight hours between a Saturday and the following Sunday. This technique allows estimates of the actual amount of the time devoted to casual labor or self-employed income-earning activities, which is otherwise difficult to assess accurately.

Table 9.10 shows plainly that better nutrition among children under five is attended by greater emphasis on off-farm employment. This is true in the highlands, where prevailing high levels of economic activity and education have generated many opportunities for employment, but it is also true in the plains, where off-farm employment opportunities are relatively restricted. It is also significant that, in both locations, adults from households where children are worst-nourished spend the greatest amounts of time in non-productive ("other") activities. In some cases these people are simply idle, but more often the problem is that desired employment is lacking. Thus the large amounts of time spent in "other" activities includes a considerable degree of under-employment. These results suggest that increased levels of rural off-farm employment may directly address malnutrition problems in both high- and low-potential areas of rural Kenya.[1]

4. Commercial Agriculture

We have noted in Chapter Four that some types of commercial agriculture in Kenya appear to have a deleterious effect on child nutrition. It is appropriate to explore this question further. Table 9.11 shows the impact of various cash crops on nutrition in the major agro-ecological zones.

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1. This does not exclude a role for agricultural interventions, of course. The explanation for variable farming labor inputs shown in Table 9.10 is complex, being related to seasonal cultivation cycles, and is not directly relevant to the argument here.

TABLE 9.11 NUTRITION AND CASH-CROPPING IN KENYA a/

Zone	(Crop)	% of children with H/A below 90 among households: Growing Crop	Not Growing
Crop			
Coffee			
East of Rift	(Coffee)	33.0	39.4
East of Rift	(Sugar)	61.3	34.4
West of Rift	(Coffee)	16.1	20.6
Tea			
East of Rift	(Tea)	26.2	26.7
West of Rift	(Tea)	37.5	16.1
Cotton			
Lower Cotton East of Rift	(Cotton)	44.4	45.2
Upper Cotton West of Rift	(Cotton)	26.9	30.2
Upper Cotton West of Rift	(Sugar)	38.9	29.0
Coast	(Cotton)	20.0	20.8
High Altitude Grass	(Pyrethrum)	50.0	40.0

a/ ROK 1979a: II. 3-7.

Small percentage differences here cannot be regarded as significant. The only clear evidence is with respect to tea production in the Tea West of Rift zone, sugar production in the Coffee East of Rift zone, and perhaps sugar production in the Upper Cotton West of Rift zone. In these three places households growing the indicated crops seem to be worse off, nutritionally, than households not growing them. In no zone does any cash crop appear to contribute greatly to nutritional status.[1] Overall we can conclude that cash crop production tends to increase household income without altering nutritional conditions, apart from the exceptions noted above. In these places it would be well to undertake further research to pinpoint more precisely the causal chains leading to increased levels of malnutrition among grower households. Only by so doing can we be certain that the spread of commercial agriculture, which is attractive on other grounds, will not be accompanied by discouraging nutritional trends at the level of the household.

A related issue has to do with nutrition on settlement schemes, particularly those with irrigation. There is comprehensive evidence that settler households will suffer nutritional deficiencies for a period of years following initial relocation. Later, adjustments in farming patterns, food expenditure, and perhaps food preparation combine with a steadier income stream to lessen the nutritional risks. However, the incidence of severely wasted children seems to remain generally higher on settlement schemes than in the population at large (King-Meyers 1979: 13-15, 25, 31-32; Korte 1969). There is a clear need for resettlement programs of all types to be linked to nutrition surveillance, education, and intervention.

5. Breastfeeding and Weaning

A final area of concern relates to breast-feeding, weaning, and the introduction of supplementary foods. Table 9.12 shows the effect of duration of breast-feeding on nutritional stunting.

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1. The apparently encouraging figures for the High Altitude Grass Zone cannot be said to be significant because the numbers of households involved are too small.

TABLE 9.12 NUTRITIONAL STATUS BY DURATION OF BREAST-FEEDING a/

Nutritional Status	Duration of Breast-feeding (months) 3-5	6-8	9-11	12-14	15-17	18-20
% of Children Normal	70	69	68	60	57	54
% of Children Stunted	25	28	26	37	37	41

a/ ROK 1980b:30.

On full, breast-feeding for periods of one year or more seems associated with greater nutritional risk than breast-feeding for shorter periods. But we cannot conclude that extended breast-feeding endangers nutritional status, because other potentially causal factors, such as education, income, and the role of weaning foods are not considered simultaneously. It is possible, for instance, that families where mothers breast-feed for longer periods of time are poor, and breast-feeding is extended to compensate for weaning foods that are not available in sufficient quantities.

Generally speaking, supplementary foods of good nutritional quality should be introduced at the age of three or four months. Most Kenyan mothers seem to do so, as suggested by the table below.

TABLE 9.13 INTRODUCTION OF SUPPLEMENTARY FOODS a/

Age (Months)	% Receiving Supplementary Foods (cum.) Urban	Rural
1	13	18
2	25	37
3	43	58
4	59	73
5	71	82
6	84	92
7	89	93
8	94	95
9	96	96
10	97	97
11	98	98
12	99	99

a/ ROK 1980b: 34. The percentages given are approximate only.

Most Kenyan children receive supplementary foods before six months of age, and nearly all do by the eighth month. On the whole these figures are encouraging, but they say nothing about the quantity or quality of the supplementary foods provided. Maize, millet, and maize-millet mixtures are the dominant foods used (ROK 1980b: 30), and there is good reason to believe that the use of non-cereal supplementary foods leads to nutrition problems. Table 9.14 illustrates.

TABLE 9.14 WEANING FOODS AND NUTRITIONAL STATUS a/

	Nutritional Status (% of children)	
Main Ingredient of Porridge	Normal	Stunted
Maize	59	36
Millet	58	36
Maize and millet	64	33
Cassava and other	43	35
Banana	48	45

a/ ROK 1980b: 31

Cassava and bananas are used as weaning foods primarily in rural areas of Nyanza Province, Western Province, and Eastern Province; and there is no question that these circumstances contribute to lower nutritional status among children in those places. The widespread use of cassava in Nyanza and Western Provinces is almost certainly related to the very high population densities observed there. Under these conditions farmers often turn to cassava as a staple food, because this crop provides more calories per hectare and per unit time than any other East African crop (Fleuret and Fleuret 1980); the switch to cassava is observed first among the poorest, most land-short farmers, but within a generation or so the movement becomes general. It is very unlikely that the agricultural and population dynamics encouraging the use of cassava in Nyanza and Western Provinces can be altered through development assistance; most probably the best alternative will be to increase off-farm employment opportunities in these places so that people may afford to buy cereals. Nutrition education has also an obvious role to play.

6. Conclusion

In this section we have reviewed linkages between nutrition and several socio-economic variables. Agro-ecological variation, types of staple foods consumed, off-farm income, commercial agriculture, resettlement, breast-feeding, and choice of weaning foods are all seen to play a role in determining child nutrition in rural Kenya.[1] Overall, malnutrition in Kenya does not seem to merit programmatic consideration to any great extent, but should be monitored on a continual basis to ensure that interventions in other sectors are in fact resulting in beneficial nutrition outcomes among the population generally.

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1. Prevalent disease patterns are also important, but are dealt with in the health section.

CHAPTER X: CONCLUSION

In presenting this profile, our first step was to set out, in Chapter One, the basic context within which Kenyan development planning must proceed. The context is a rapidly-growing population on a small resource base. For the foreseeable future, development planning in Kenya will be, in one way or another, a reaction to the manifold social, economic, and potitical processes which have been set in motion by the interaction of fundamental demographic trends and environmental constraints. The remainder of the profile is an attempt to illuminate, from the social perspective, various critical aspects of Kenya's socio-economic and institutional fabric, and through so doing to show how planners might usefully respond to a range of development problems, some of which are evident now and some of which are foreseeable.

Even when focused on legitimate and vital development issues, national planning is often weakened through failure to appreciate important aspects of the social landscape. Planners use words like "urban," "rural poor," "women-headed household," and so forth, without any clear understanding of what they may mean in the Kenyan context; these terms then become not analytic categories that sharpen our perceptions but empty glosses that confuse them. The result can be development strategies that miscarry, or which are not as effective as they might be, because they rest on an illusory understanding of basic social phenomena. Development planning, to make the best use of limited development resources, requires precise understanding of the social context of development. Hence, in the second chapter, we presented a detailed analytic description of important Kenyan social groupings. The basic categories-smallholders, pastoralists, migrant/squatters, urban dwellers, women--are further divided into significant social groups on the basis of a number of characteristics: location, income, access to non-farm employment, access to land, and the like. Each group faces a particular congeries of resource limitations, which structures their current economic behavior, and which ought to play some part in structuring the assistance directed at them. In subsequent chapters of the profile we made some attempt to show how particular technical approaches to development might be better adapted to suit the capabilities of one or the other social grouping.

We believe that interventions which are grounded on a firm understanding of the social context will be more effective than those which are not; but even the most socially sound intervention will achieve little if there are weaknesses in the institutional mechanism relied upon for implementation. In

Chapter Three, therefore, we offered a review of some important development-related institutions in Kenya. The focus was on national and local government, parastatals, private profit-making organizations, and community self-help groups. All these various types of institutions differ in motivational structure and in the extent to which they promote comprehensive participation in development. Through a series of case studies we explored the ways in which institutional motivations and the structure of participation influence the effectiveness of development interventions. Although some clear "do's" and "don'ts" emerged in this material, the clearest lesson is that each institutional mechanism should be carefully matched to the job at hand. Probably most Kenyan development tasks can be done best by combining different types of institutions so as to build on the strengths of each; but there is a danger here of erecting a delivery mechanism so complex that it can accomplish nothing. Thus we feel justified in making rather few prescriptive statements about appropriate development institutions in Kenya. Instead of recommending an institution or type of institution, we recommend an approach: cease allowing institutional arrangements to emerge haphazardly from technical discussions, as is now often the case, and upgrade the Agency's institutional capacity to do project-specific institutional analysis.

After laying out in this way the social and institutional background to development planning in Kenya, we proceeded to examine a series of sectoral issues: agriculture, employment, fertility, energy, education, health and nutrition. In each case our intent was to make explicit the socio-economic and institutional context within which various development problems have emerged, and to show how this might influence the shape of development interventions. Here we shall summarize the conclusions reached, and then go a bit beyond the conclusions to sketch out some broader implications for planning and implementation of development assistance in Kenya.

In Chapter Four (Agriculture) we concluded that an overall focus on smallholder development holds most promise for meeting Kenya's requirements for increased production and employment. But the situation is in fact much more complex than this general statement reveals. First, about 45% of Kenya's "smallholder" population consists of rural families whose farming activities contribute a minor and probably decreasing proportion of total household income. In these households landholdings are small and total earnings depend importantly upon access to wage employment and remittances. Describing these people and thinking about them as "farmers" or "peasants" is misleading, since their interest in and capacity to undertake investments in agriculture are both limited. We

conclude that agricultural interventions of any kind are unlikely to contribute to improved livelihoods among these people, except in minor and temporary ways. Growth in employment opportunities, on the other hand, may be very efficacious in meeting the needs of this category of the rural population. The focus of agricultural interventions should thus be on the middle 45% of smallholders, who have demonstrated commitments to farming as an occupation, and who have the basic resources (land, education, capital) that are required to undertake investment and innovation. A two-pronged rural development strategy of the sort suggested here will simultaneously focus scarce agricultural development resources on a target population with the capacity effectively to respond, while recognizing the overwhelming need in Kenya for expansion in non-farm employment opportunities.

Chapter Five (Non-Farm Employment) examines the question of employment generation in some detail. This section should be read in conjunction with Section Five of Chapter Three (on private sector interventions). Together, these sections explore the social and institutional context of possible development interventions in the industrial and manufacturing sectors. The most general conclusion is that a program of lending to small enterprises through profit-making financial intermediaries is most likely to meet Kenya's need for employment growth while minimizing program management and analysis burdens on donor organizations. Other important issues concern the size of firms to be supported; the market structure of industries targeted for intervention; the technologies to be introduced, and the geographic focus of a lending program. All these criteria together constitute a large, but not exhaustive, set of non-financial, non-economic considerations which ought to help shape interventions meant to generate employment. The reason why these considerations should enter into development strategies is not necessarily that they will lead to more equitable developmental outcomes, but rather because they seem likely to increase the effectiveness and efficiency with which scarce investment resources are deployed. Kenya cannot afford to delay or waste investment funds while developing programs to generate increased rural and urban employment.

Energy consumption and associated expenditures are issues that are confronted at all levels in Kenya, from the Treasury to individual peasant households, and in all sectors of development activity. Thus it is not surprising that Chapter Six (Energy) is devoted not primarily to trends in demand and supply, but rather to the significant implications of changes in demand and supply for various development objectives. Fuelwood scarcity emerges as an over-riding problem in the high

density, high potential areas west of Rift Valley, but is less critical in low potential arid and semi-arid areas. In the high density zones consumption of animal dung and crop wastes for fuel in place of wood will increasingly threaten the success of programs to intensify agriculture, because of attendant long term declines in soil quality. Also, because women in these areas spend large and increasing amounts of time provisioning the household with fuel, they may not be available to supply the increased labor inputs that most schemes to increase the intensity of production assume will be forthcoming. These circumstances argue for fuelwood production components to be built into agricultural development schemes; a variety of other concerns (related to land tenure and the individualization of production and consumption in rural Kenya) indicate that agroforestry (rather than community woodlots) offers the surest approach to successful fuelwood interventions in rural areas. In peri-urban areas, where small-scale manufacturing and service industries and low-income residents consume significant quantities of firewood and charcoal, fuelwood plantations seem to make sense; apart from easing access to necessary energy supplies, these would provide needed employment for the under-employed and low-paid segments of the urban population. Finally, we suggest that the energy intensity of Kenyan industries might be considered in assessing alternative employment generation strategies. Where possible, and where consistent with other program criteria, it would obviously be preferable to stimulate growth in those sectors where the resulting increase in demand for scarce traditional and commercial energy sources can be minimized.

As we stressed in the introductory chapter, high and increasing fertility rates, with consequent rapid population growth, constitute Kenya's most fundamental--and perhaps most intractable--development problem. In Chapter Seven (Fertility) we explore the socio-economic context of high fertility in Kenya, and conclude there is little likelihood that any intervention apart from broad, sustained social and economic development will have a significant effect on rates of growth. High fertility is matched by high--and increasing--desired family size, which suggests that increasing the availability of family planning information and services (the "traditional" approach to fertility control among development planners) is not likely to achieve much. Rather, programs must address the many mutually supportive and interlinked factors which make large families a rational, even inevitable, response to the exigencies of life in Kenya today. Continued high demands on the labor time of women and children, the dependence of parents on their children for sustenance in old age, and generally high child mortality all encourage child-bearing. Factors encouraging lower fertility are few: post-primary education for

women, non-agricultural and non-menial jobs for their husbands, prolonged breastfeeding, and polygynous marriage. There is little reason to expect the circumstances that encourage high fertility to disappear any time soon, nor do we expect the special circumstances that generate lower fertility to spread rapidly through Kenyan society; in fact, duration of breastfeeding and polygyny are both on the decline, and modern methods of birth spacing are not taking their place in limiting family size except among small elite urban populations. Although the picture is therefore bleak, our analysis has nevertheless identified some areas where official policy and investment can, over time, address Kenya's population problem. Needed are rural production and household technologies that reduce the demand on labor time of women and children; continued reduction in rates of child mortality; more education for women and men alike; and growth in non-farm employment opportunities. In general, these initiatives can also be expected to have a favorable impact on development issues identified in other chapters of this report, and so might serve multiple goals. We conclude that, while provision of family planning services and information might play a needed facilitative role in reducing Kenya's high rate of population growth, the conditions that make people wish to limit their progeny will only come about through broad-based and sustained economic development.

Basic education (Chapter Eight) emerged as an important factor at many points in our analysis. Basic education encourages agricultural innovation and investment; increases the productivity of family labor; improves people's access to rewarding non-farm employment; completed primary education for women engenders lower fertility; and female literacy contributes importantly to reduced child mortality. Because of the centrality of education to so many socio-economic processes in Kenya, the current pattern of limited and differential access to education is, or should be, a matter of grave concern. Apart from hampering significant development in a wide range of sectors, limited and differential access to education is leading to very rigid patterns of social stratification. No one should underestimate the destabilizing influence of these hardening patterns of stratification, or expect any but the bleakest outcomes from continued official disregard for the plight of the majority of rural Kenyans who have little access to quality education. Kenya's needs for political stability, population decline, and sustained economic growth will not be met without substantial improvement in the quality and distribution of basic education facilities.

In Chapter Nine (Health and Nutrition) we focused first on the determinants of infant and young child mortality. The most important factors are prevalence of malaria and female literacy: the former contributes to higher and the latter to lower rates of mortality. The programmatic implications are plain: malaria control and basic education for women should be given firm support. Both these interventions would also contribute directly to lowered fertility, by decreasing the risk of child loss and by fostering that congeries of circumstances that inclines women to desire smaller families. Hence, our review of health issues in Kenya supports and expands our assessment of fertility issues, and provides additional guidance on what types of program interventions may be expected to have a positive impact on population growth.

Nutrition concerns in Kenya center on protein-calorie malnutrition of young childhood. We showed that a great many aspects of the socio-economic environment may influence nutritional status, but in general malnutrition is not a major development concern when compared, say, to fertility or to employment. At the same time, there are indications that certain transformations of the rural economy (commercial sugar and tea production especially) may pose threats to nutrition, as may rapid urbanization. We conclude that agricultural and urban development ought to proceed with due regard for potential nutrition complications, but there do not seem to be grounds for orienting an assistance program to the alleviation of malnutrition *per se*.

Although much of what we have said here deals with specific sectoral issues, it has been impossible to avoid concluding that particular problem areas have cross-sectoral implications. This should not be surprising; although the sector-by-sector approach may have value as a way of planning and implementing specific development projects, it masks as much as it reveals when our intent is to analyze and understand the widely-ramifying complexities of national development trends. Probably there are few who would disagree with our contention that development analysis should transcend sectoral boundaries, but many might wonder whether such an approach could ever generate discrete "do-able" development interventions. We argue that cross-sectoral analysis of the sort presented here can in fact generate viable ideas for interventions; moreover, by directing our attention to interventions that might have beneficial impact in more than one sector, cross-sectoral analysis can actually improve the efficiency with which development resources are applied. To illustrate this, we offer a list of the most important areas in which interventions may be expected to have this desireable multiple impact. The list is presented in descending order of priority.

Basic education interventions can speed the pace of agricultural innovation, improve output and producer incomes, help to lower fertility and infant mortality, and weaken emerging and politically dangerous patterns of social stratification.

A small business loan program might simultaneously generate employment, improve industrial efficiency, and strengthen an important series of private-sector financial institutions.

Malaria control could have a major impact on child mortality and hence fertility, by reducing parents' perception of the need for "insurance births."

Agro-forestry and peri-urban plantations may address rural and small town needs for domestic energy, support informal sector industrial enterprises, and provide employment for the landless and near-landless, and support agricultural interventions.

Small scale irrigation has the potential to raise output, improve producer incomes, and increase rural employment.

Redistribution of under-utilized high potential land may improve output and provide employment for migrant and squatter farmers, a seriously deprived and socially unstable category of smallholders.

Remember, though, that this is not a list of all the things that it makes sense to do in Kenya today; in each sectoral chapter we have explored the possibilities for fruitful intervention in some detail. Rather, these are interventions which seem likely to have beneficial impact in a number of problem areas. It should be noted, too, that action on any of these could--and should--be ruled out if no satisfactory institutional framework can be evolved for the delivery of assistance.

Our final comments summarize the criteria for assessing development interventions in Kenya which we are forwarding in this document. First, interventions must match very closely the needs and capabilities of "proposed beneficiaries;" only in this way can outside assistance hope to engage the full resources of local communities in programs of national development. This matching will require a precise understanding of Kenya's socio-economic fabric, and can generally be assured only by involving local people in substantial decisions about the shape of proposed interventions.

Second, few development resources will get into the hands of the people who can best put them to use if the institutional delivery mechanisms are weak. In Kenya a wide range of possibilities presents itself; no type of institution should be discounted in the search for appropriate and effective aid intermediaries. Probably the best results will be obtained by using central and local government to undertake needed planning and support functions where other institutions cannot fill the gap; by relying on well-run parastatal and private organizations for program implementation; and by using PVO's and local government to reach out to and engage the support of community self-help sentiment. At the same time, no prescription should be allowed to take the place of careful, case-by-case institutional analysis. We also note that AID is not without its own institutional deficiencies. Many of the difficulties AID encounters in delivering effective development assistance stem not from weakness in other institutions, but from internal contradictions. No change for the better can be expected until current (and long-lasting) emphases on project design and the commitment of funds are balanced with concern for project <u>outcomes</u> and the <u>effective expenditure</u> of funds.

In sum, we have attempted to show how socio-economic and institutional analysis can contribute to a greater understanding of development problems, as well as to more effective implementation of proposed solutions. In fact, we would argue that more effective implementation will often be an outcome of improved understanding of the socio-economic and institutional context of development. We hope this document will contribute to both goals.

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