

About 90% of household heads have lived in the current location since birth in the areas: 92% for Kericho and 85% for Nyamira. The rest of population came to the areas due to marriage (3.9%) or in-migration (4.2%). On the other hand, those who once lived outside districts are few with the experience of ten years on an average, in most cases in employment. Those areas where they lived are Nairobi, Mombasa, Trans Nzoia, Kiambu, Nyandarua, Nandi, etc. Accordingly, the population in the areas has had little experience with in-migrants. Similarly, they seem to have little experience of out-migration although current out-migration trend has not been traced.

2.2.2 Economic aspects

(1) General

Employment

An overall sketch of economic activities in the areas can be seen from the employment structure as shown in Table 2.3. As suggested in the Section 2.1, those who are not engaged in work, such as schooling and young children, have the largest share of 61.7% of the total population. Aside from such population, net working group comprises employed and unemployed. While unemployment and sick/disabled account for 3.4%, 96.6% of people have jobs. Among the latter, mixed farmers, engaged in both the crop cultivation and the livestock rearing, come the first with a share of 62%, followed by wage employment (19%), crop farmers (8%) and self-employed in household business (6%).

Table 2.4 shows the breakdown of the wage employment and self-employed in household business by sector, totalling 25% of the population. There are two major sectors; one is the services (41%), and the other is agriculture and forestry (34%). The share of total working group is calculated at 10% and 8% respectively.

With the above analysis on the employment structure, it is revealed that at least, 78% of working group in the areas are engaged in the agricultural sector as self-employed or employed mainly in the tea estates nearby. Most of the rest are engaged in service sectors.

Incomes and expenditures

Household income distribution in the areas is presented in Table 2.5. Over 50% of households earn less than KShs.3,000 per month. Proportions of households falling in such group are 53.4% and 43.8% for Kericho and Nyamira, respectively.

The average monthly income per household is calculated at KShs.4,620 in both the areas: KShs.4,727 for Kericho and KShs.4,345 for Nyamira.

The imbalance in income distribution appears larger in Kericho than in Nyamira. Major income sources of households are sales of crops since 96% of respondents stated it as an income source, followed by sales of livestock or its products (70%), household heads' employment (34%), transfers (25%) and household heads' business (20%) and wives' business (16%). Transfers may suggest the existence of the remittance from some of the household members.

Table 2.6 presents the ranking of sources of income according to shares of total income. The majority of households derives their incomes from crops or livestock or a mixture of both. It is noted that 28% of households live mainly on salary/wage, trade/business and others. Such income sources also contribute to 42% of households as secondary. Thus, not only sales of agricultural products but other income sources are important to the household economy in the areas although economic activities in the areas largely depend on agricultural sector.

For the expenditure, the mean monthly expenditure of a household in the areas is estimated at KShs.2,588 on an average, far below the reported average monthly income of KShs.4,620 (refer to Table 2.7). As shown in the same Table, the most common expenditure item, regardless of the amount of expenditure, is food, followed by transport, recreation, donations and medical in order. On the other hand, relatively few households spend for education, durable household goods and savings. It does not seem that most of households in the areas can afford to spend for those other than requirements for their daily lives.

Of the total households in the areas, only 13.4% borrowed money or incurred any debt over the last year: 13.1% in Kericho and 14.2% in Nyamira. The purposes for the borrowing were: to purchase agricultural inputs (31%); to purchase household goods (both consumables and durables) (30%); to meet an unforeseen contingency (29%) and to put into business (12%). They owed such funds mostly to their friends (56%), followed by co-operative societies (23%); commercial banks (9%), informal lenders (5%) and non-bank financial institutions (3%). The range of the amount borrowed was KShs.50 to KShs.500,000 with an average of KShs.12,580.

The above facts suggest that the households in the areas, generally live their lives in self-sufficiency from the financial point of view, probably reflecting their aforementioned tendency of expenditures. Otherwise, they may be forced to give up borrowing money, or avoid the risks in debt by giving the land as collateral. If the debt incurred at all, most of money is utilized for economic activities except for unforeseen contingency. It is noted that they do not seem accustomed to owe their debt to the formal financial institutions.

(2) Agriculture

As mentioned before, most of all the people largely depend on agriculture, especially the mixed farming. In general the farmers enjoy much precipitation, fertile soil and better agro-ecological conditions. There is a major contrast between Kericho and Nyamira in that there is an acute population pressure in Nyamira such that farm sizes are smaller than in Kericho. Furthermore, the households in Kericho concentrate in extensive growing of maize and keeping cattle, while those in Nyamira are more diversified with a variety of other crops with a shorter gestation period and/or are harvested throughout the year, e.g. vegetables, sugar cane, pineapples, bananas, etc. They have less livestock on an average than those in Kericho.

Farm sites

The description of the farm sites involves the position of the farm, slope of the land, internal drainage, soil type and erosion. It was observed that 47.4% of the farms were sited on footslopes (of hills and escarpments), 29.6% on ridges, 14.3% on terraced land and 6.5% on hill tops. The remaining about 2.2% of the farms were sited on plateaus, upland plains or valleys. However, very steep valley sides and depressions tend to be avoided probably because of lithosolic and waterlogged soils respectively. Nevertheless, about 80% of the farms are well-drained to moderately drained depending on whether they are located on red clay loam or red-black soils developed on undulating topography which is suitable for mechanization of agriculture.

Although the farms visited in the areas experience rainsplash, sheet wash, rill or gully, erosion hazard is moderate as confirmed by about 50.4% of the farmers interviewed. This lack of severe soil erosion is a reflection of application of appropriate agricultural technology involving terracing, crop rotation, fallowing,

intercropping (mixed cropping), strip cropping, mulching, manuring and mechanization.

Land

The following Table presents land use typology in the areas based on the questionnaire survey. Although the hectarage by type of land answered by farmers may be incorrect, the distribution pattern is considered to reflect the actual one, more or less. About half a total holding is used for agriculture, followed by pasture (38%), forestry including agroforestry (9%) and waste land (2%). It is worthwhile noting the greater intensity of land use and the large share of pasture for livestock.

Type of Land	Hectarage (ha)	Percentage (%)
Arable agriculture	1,223	50.6
Pasture land	912	37.7
Agro-forestry	64	2.7
Forestry	160	6.6
Other (waste land)	59	2.4
Total	2,418	100.0

The pattern of land tenure (land ownership) has changed in the Project Area. Since the 1950s the Land Adjudication and Registration Programme has been transforming customary land rights into individual freeholdings, tenancy, or leasehold rights in the Magwagwa Project Area. This involves a process of determination of actual land use and land tenure rights (adjudication) of all parcels of land and registration of such lands. Most lands are normally registered in the name of individuals, although they could also be registered in the name of groups of persons.

It was found during the field investigation carried out in the areas that about 98.5 % of the land has been adjudicated and registered. About 76% of the farmers here obtained their title deeds.

Most of the farm households have their own land as shown below. However, the same Table cannot tell about the existence of owner-cum-tenant farmers, or actual transaction of land in the form of renting in and out. In Kenya, with increasing land pressure, it is becoming evident that more and more people can only have access to land through outright purchase or renting from other farmers that have land to spare.

Ownership	Frequency of Farmers	Percentage (%)
Individual ownership	568	69.8
Owner Occupier	55	6.8
Free holding	154	18.9
Share cropping	0	0
Lease holding	1	0.1
Communal ownership	20	2.5
Other (temporary gift etc.)	3	0.4
Not stated	12	1.5
Total	813	100.0

The following Table shows the land holding size distribution of the households in the area:

Range of Holding (Hectares)	Percent		
	'R' Side (N = 103)	'U' Side (N = 61)	'L' Side (N = 49)
Up to 2	25.24	22.95	34.69
2.1 - 5	36.89	42.60	44.90
5.1 - 7.5	20.40	11.50	14.28
7.6 - 10	6.80	8.14	4.08
Above 10	10.68	14.55	2.04

Source : The Land Office Land Registers, Kericho and Nyamira districts.

The average size of registered land holding is 4.6 hectares for 'R' Side of the Project Area (the right bank area of the Yurith River including both Kebenet and Kabianga in Kericho), 6.3 hectares for 'U' Side (the area between the Yurith and Kipsonoi rivers including Roret, Nyamanga, Kimolyet and Tebesonic in Kericho), and 3.6 hectares for the 'L' Side (the left bank area of the Kipsonoi River or the Kisii/Nyamira side of the Project Area). The overall average size of land holding amounts to 5.0 hectares in the areas approximately. However, these figures probably overestimate the actual ones since it is often observed in Kenya that some of those who obtained and/or transferred land do not always report to the land registries. It is clear that Kericho side (both the 'R' and 'U') has more of the large land holdings than Nyamira side does.

One of the key issues for land is the fragmentation of land as the population pressure on land is getting acute, especially in the Nyamira side, through the land

inheritance system equally divided among male successors. A "fragmented" farm is one whose land input consists of two or more pieces (commonly observed in the Project Area during the field survey), termed "parcels", separated by land which is non-contiguous to the farmstead, but is commonly part of another farm unit. The term may also refer to the fragmentation of cultivated fields or plots of crop. Fragmentation of farms in the Project Area has led to insufficient management of crops due partly to the high allocation of time needed for maintaining various parcels (largely by women). Although farm fragmentation has been eradicated in the Project Area through land consolidation and registration, uneconomic farm (say, less than 0.5 hectares) caused by population pressure and inheritance traditions remains one of the stumbling blocks in the implementation of farm mechanization in the region.

Production system

Reflecting the relatively small size of land holding, especially in Nyamira, most of the farmers cultivate their own lands for themselves although some with larger lands employ agricultural labours. Approximately, only one percent of the land is leased.

The area is known for mixed farming, which is practiced by about 88% of the farmers. This mixed farming embraces livestock production, ley farming and irrigated agriculture (involving 1.8% of the farmers). The main crops include maize, millet, wheat, tea, coffee, sugarcanes, bananas, beans and vegetables/fruits, while livestock cattle (exotic and local breeds), sheep, goats, donkeys, pigs, poultry and bees. About 62% of the farmers reported that there is adequate grazing land while other farmers use fodder crops for zero grazing.

With the small size of land plots on footslopes, but with the fertile soil and better environment of agro-ecological zone, farmers in the areas produce a relatively large number of different crops and livestock reflecting their awareness of environmental risk and uncertainty, and their willingness to improve food and income. The following Table shows crop-combinations tabulated on the basis of the results of the questionnaire survey:

No. of Crops	Number of Farmers	Percentage (%)
No crops grown	21	2.6
Single crop grown	9	1.1
2 - 3 crops grown	146	18.0
4- 5 crops grown	313	38.5
6 - 7 crops grown	236	29.0
8 - 9 crops grown	82	10.1
10 or more crops grown	6	0.7
Total	813	100.0

Out of 813 households, only six percent grows a single or no crop, whereas 94% more than single crop. Nearly 39% plants four or five crops and 29% six or seven crops. They are keen in securing a minimum amount of food of different kinds made available throughout the year by allocating sufficient area to food crops.

Such diversification of agricultural production is a typical risk-spreading device used by households in the areas. The planting of different crops at different times over an extended planting period which allows some produce to be obtained in either an early or a late season, crop rotation and the combining of species in crop mixtures (inter cropping) reliable though non-preferred crops, are all practices with a strong element of risk avoidance in their adoption.

In addition to the reason for risk avoidance, crop mixtures and crop rotation are preferred by the farmers due to:

- maximizing the production from the limited or marginal land,
- Increasing the efficiency of labour or small scale hand operating farming,
- Improving soil fertility and productivity with susceptibility to diseases and pests, and
- Alleviating soil erosion with the provision of reasonable soil cover.

Livestock rearing brings a variety of benefits to farmers. While the sales of livestock are a source of income, cows also provide the family with milk, which is an essential ingredient of a balanced diet. Drought animals such as oxen and donkeys are used for ploughing and transportation respectively in the areas where both access and feeder roads often become impassable during the wet periods. They are also good instruments in land preparation, harrowing and weeding while its manure is used in crop production. Besides, livestock, especially cows have a

value of "property", which was a symbol of "wealth", would be sold against unforeseen accidents or big events, and used as dowry.

Because of shortage of grazing land in some areas, zero grazing has been introduced and is practiced by 38% of the farmers, using napier grass, maize stalks etc. About 76% of the farmers indicated that they have sufficient fodder for feeding cattle.

For labour requirements, 43% of farm households reported that they handle all the farm works with family labour alone. Most of those which need others' help hire casual labour during the peak period. However, there are 12% of households which require permanent hired labour.

Farm production

Although the farmers have developed the aforementioned production system with the consideration of risk avoidance, they produce surplus more than their own consumption for major crops as shown in Table 2.8. Even for major food crops such as maize, millets and beans, 60 - 70% of total production is directed to markets. While the farmers produce sugar cane for their consumption to much extent, they sell almost all their productions of tea and coffee, and vegetables and fruits to lesser extent.

Most of all the households live their lives in self-sufficiency of food. Out of 807 households, 89% reported that food crops they grew were enough for the household. The remaining 11% explained the reasons for the food deficiency: land shortage (11%), lack of capital (1%) and poor soils (1%). The other households did not give any specific reasons. Table 2.9 presents household earnings from farm produce. The major crops for sale are maize, beans, vegetables/fruits, bananas, millets and tea in Kericho, while maize, beans, coffee, bananas and vegetables/fruits in Nyamira.

For the earnings per household, major crops which substantially contribute to the households' income are maize, vegetables/fruits, tea, bananas and beans in Kericho, while vegetables/fruits, maize, bananas, coffee and beans in Nyamira. Almost all the households were proud of the fertility of their land and few stated that they were using fertilizer. Of the households, 82% have any plans to increase the area under cultivation.

Marketing

The households sell some of their farm produce and/or livestock to the following:

<u>Crop/produce</u>	<u>Main buyer</u>
Tea	Kenya Tea Development Authority
Maize	National Cereals & Produce Board
Beans	NCPB and Private individuals/middlemen
Coffee	KPCU and Co-operative Societies
Bananas	Private individuals
Wheat	- do -
Vegetables/fruit	- do -
Cane	- do -
Millets	- do -
Livestock	- do -

It is evident that although there are organized institutions through which most farm produce could be marketed, private individuals and middlemen play a significant role in the marketing. About 33% of the farmers reported that they had no marketing problems for crops. For the remaining farmers, there are some marketing problems; the insufficient access to the buyer or market (transportation) (26%), price fluctuations (16%), storage (1%) and unspecified (23%). For marketing problems of livestock, they enumerated price fluctuations (21%), transportation (11%), diseases (2%) and unspecified (11%) although 53% had no problems. Thus, households face problems in the marketing of crops more than in that of livestock. Price fluctuations and transportation are the main problems.

(3) Commercial activities

There are five major trading centres in the reservoir and its vicinity areas: One in Nyamira, i.e. Magwagwa and four in Kericho, i.e. Roret, Cheptuyet, Mabasi and Kiplanye. Although the number of establishments to be displaced has not been identified yet, some of the trading centres would be relocated. Besides the trading centres, there are other retail kiosks scattered here and there as well as several water mills in the areas.

Of 109 establishments enumerated in the trading centres, 72 for Kericho and 37 for Nyamira, the most common type of business is retail shops (39%), followed by tea kiosks (15%), butcheries (11%) and water mills for grinding maize flour (10%).

Other types of business and the number of establishments are presented in Table 2.10. About 90% of the businesses are operating in permanent or semi-permanent structures.

For the ownership of business premises, 60% of the businessmen rent them while 40% have on their own. However, the general picture is not true for posho mills, tailoring and water mills where 100%, 100% and 83% of the premises, respectively, are owned by the businessmen.

Majority of the businessmen are sole owners (81%) while the remaining 19% are in partnership with their parents or friends. For the partnership establishments in Nyamira, all of the partners are family members. Amount of daily sales for the entries is KShs.877 on an average with a range between KShs.30 and KShs.10,000 in Kericho, while average daily sales of KShs.1,040 in Nyamira, ranging from KShs.50 to KShs.10,000.

For the employment in the commercial establishments, 48% are assisted by their relatives, two persons on an average, although about an half of the establishments do not pay for their assistances. Thus, some 60 persons earn their income by assisting in their relatives' commercial activities. The mean monthly wage for these assistants is KShs.470 in Nyamira and KShs.550 in Kericho.

On the other hand, 61 establishments (56%) use hired labours. The mean number of the hired labours is 3.6 persons in Nyamira and 2.5 persons in Kericho, amounting to 175 labours in total. Accordingly, the number of those engaged in the commercial activities in the trading centres is estimated at 344 (109 of businessmen, 60 of their relatives for assistance and 175 of hired labourers). Most of the hired labours are found to be working in retail shops (30%), tea kiosks (20%), butcheries (15%) and water mills (8%). The mean monthly wage for the hired labours is KShs.708 in Nyamira and KShs.429 in Kericho.

In summary, commercial activities centred around the trading centres in the areas are a small-scale in terms of numbers and kinds of establishments, amount of sales and employments. However, the residents in and around the trading centres enjoy from them not only the requirements of ordinary life but amusements (bar and tea kiosks), and hence exchange of information and employment opportunities.

2.2.3 Social aspects

(1) Ethnic groups

Ethnic groups in the reservoir and its vicinity areas are clearly separated into two groups: the Gusii for Nyamira and the Kipsigis for Kericho. In the Nyamira side, the Gusii people occupies a share of 96.5%, followed by 2.2% of the Kipsigis and the Kikuyu (0.8%) and others (0.5%). In the Kericho side, 98.5% of the Kipsigis lives there with other minorities such as the Gusii (0.6%) and others (0.8%).

(2) Selected social indicators

Marital status

Of the 724 heads of households, 85% are currently married and 10% are widowed. About 5% are still single and there are very few who have been divorced or separated. This pattern of marital status is almost the same in Nyamira and Kericho as shown in Table 2.11. The few cases of divorced or separated may reflect the fact that the Gusii and the Kipsigis have cohesive kinship systems enhanced by marriage bonds, which not only tie the couples but are extended to the in-laws, the clans and sometimes even villages.

Religion

Although traditional belief systems appear to still affect their lives to a lesser extent than before, the christianism is a dominant religion in the areas. However, there is a major contrast of sects between Nyamira and Kericho. Some 68% of the population belong to Protestant and 29% to Catholic in Nyamira, while 63% and 37% for Catholic and Protestant, respectively in Kericho (Table 2.12). In the Nyamira side, the religious affiliation is more diversified than in the Kericho side.

Education

Table 2.13 indicates the formal educational attainment of household heads. Some 29% have never been to school, of which a majority are from Kericho (33%) as compared to Nyamira (19%). About 50% have attained some primary education, whereas 20% have some secondary education. An insignificant population (0.5%) have post-secondary education.

Literacy levels

Literacy levels in the areas can be seen from the ability to read and write each of languages widely used in Kenya: Vernacular, Swahili and English. Of the total household heads in the areas, 52% can read and write Vernacular language, followed by Swahili (44%) and English (34%) as tabulated below:

Household Heads' Levels of Literacy
(Ability to Read and Write)

Languages	Nyamira (%)	Kericho (%)	Total (%)
Vernacular	55.2	51.2	52.4
Swahili	46.3	42.2	43.5
English	34.9	33.9	34.2

As shown in the Table, the pattern of levels of literacy is almost the same between the household heads in Nyamira and Kericho, although the level of literacy in Nyamira is slightly higher than that in Kericho for all the three languages.

(3) Community and social organizations

Traditional social relations

The Gusii, they called themselves Abagusii - "the people of Gusii" -, are a Bantu-speaking who claim the same origins as the Abaluyia of Western Province; the Abakuria of South Nyanza; and the Agikuyu, Aembu, Ameru and Akamba of Central Kenya. Occupying the fertile south-western slope of the Mau escarpment overlooking Lake Victoria to the west, they are surrounded by Nilotic speaking groups; the Joluo to the western and north western frontiers, the Kipsigis to the east and north-east, and the Maasai to the south and south-east.

The following descriptions owe much to "Socio-cultural Profile: Kisii District and Kericho District", prepared by Institute of African Studies, University of Nairobi. The Gusii are patrilineal with an unilineal descent, or their properties are taken over by their male children. The most important property is land, which is, in principles, equally divided among male children, the successors. They were and still are largely polygamous, although this is declining nowadays.

Traditionally, leadership was largely in the hands of elders in each clan and sub-clan among the Gusii. The elders arbitrated in societal conflicts and administered the legal and day to day affairs of the community. It seems that their roles are still effective to a lesser extent than before, and assist the assistant chiefs of sub-locations appointed by the Government.

They evolved two types of social groups through which it was possible to organize their economy and exercise authority: territorial based social units and biologically based social units. The territorial environment is divided into four units by the Gusii: a homestead or village surrounding it (Omoche), a sub-locational unit (Egesaku), a locational unit (Ekenyoro) and a wider territorial unit (Ense'). The sub-locational unit consisted of clan members, whereas the locational unit was commonly inhabited by people of the ancestor.

The biologically based social units can be divided into three sub-sets arising from age and gender roles; genetic ties; and reproduction relations.

The Kipsigis are nilotic speaking people, and a group of Kalenjin mainly residing in Rift Valley province composes of the Nandi, Keiyo, Tugen and the Pokot. They are surrounded by the Gusii and other Nilotics: the Joluo of the South Nyanza to west, the Maasai to the south, and the Nandi, Keiyo and the Tugen to the north and the east. They are also patrilineal, the members of which are said to be descendants of a common ancestor and form a sub-division of clan.

Like the Gusii, the Kipsigis had no central system of government. Authority lay with heads of families, clan elders and war leaders. Among the kinds of social groups, the age-set-system was one of the most importance. It, for example, regulated at what exact moment a young man should bear arms, marry and retire. Another important grouping among the Kipsigis was "Kokwet". This was important in co-operative tasks, e.g. clearing farms, path-making, bridge-building and other activities for the overall benefit to the community. Different clans were brought together by the groupings as the wife's relations must be of different clan from that of husband. This interweaving held all sections of the ethnic group together.

Socio-economic groups

The aforementioned traditional social systems have been changed by the influx of the organized religions, formal education, the Government's policies, etc., although social systems are still largely based on kinship systems. As symbolized by the Harambee, or self-help movement since the Independence, the Government has promoted the development activities at the community level. Table 2.14 presents the household heads' participation in community-based socio-economic groups. More than 50% of them belong to and/or participate in organized socio-economic groups among which the major ones are Women Group and Co-operative Societies.

Natures of socio-economic group activities can be divided into two; income generation and social welfare. Almost all the activities are geared towards income generation such as farming/produce marketing, business/income generating and self-help/credit/saving (Table 2.15).

It is noted that business/income generation is largely preferred in the the Kericho side. About 80% of the socio-economic groups in the areas are reported to have been formed in 1980's. This corresponds to the dates when most of the members indicate to have joined these groups. There is a significant increase in group activities, and particularly women group during the Women's Decade (1975 - 1985). A majority of the women groups in both Kericho and Nyamira were formed between 1980 and 1985. Most of the groups have at least 30 members although the average membership is slightly over 400 - a figure influenced by the large membership reported in some of the groups. Some groups, such as the producer cooperative societies were up to 1,000 or more. This is not common in rich tea/coffee or cash-crop growing areas.

III. SOCIAL AND ECONOMIC IMPACT ANALYSIS

Social and economic impacts of the Project on the affected people should be assessed whether or not the Project is socially sound by analysing them from the following viewpoints:

- (1) Identification of impacts
 - What impacts are anticipated, on whom/where when and why?
- (2) Evaluation of the magnitude of the impacts
 - How serious will each impact be for the affected people?
- (3) Assessment of the necessities of countermeasures against the impacts
 - Why will the countermeasures be required against the impacts?
- (4) Overall evaluation of Social soundness of the Project
 - Is the Project socially sound or viable?
 - What counter measures should be taken to get the Project socially sound?

Although a strong emphasis is placed on the negative impacts of the Project, the positive side of the Project is also taken into account. In this section, an assessment will be made on the above viewpoints except for (4), which will be described in the next section, allowing for the findings in the previous section.

3.1 Major Impacts of the Project

To analyse the socio-economic impacts of the Project, what would make the impacts, firstly, should be identified with regard to the Project. Such causes of the impacts can be anticipated from the relations between the affected people, and the components and the work flow of implementation. Then, the impacts will be identified by inferring the causes and effects.

(1) Major project components and causes of impacts

Like other hydro-electric power development projects, the Project involves the construction of dams. Major components or facilities of the Project are summarized as follows:

- 1) a main dam and a saddle dam with an impoundment reservoir
- 2) a diversion tunnel and a spillway
- 3) a headrace tunnel
- 4) a surge tank and a penstock

- 5) an underground powerhouse, and
- 6) a tailrace tunnel.

The most influential component is the dams with impoundment of 26 km² in terms of the requirement of area and changing environments of the river and areas concerned. Thus, major affected areas are considered to be centred around the dams and the impoundments; the reservoir area, its vicinity area and its downstream area, whereas other areas related to other facilities are affected to a lesser extent. Work procedures of implementation of the Project have not been elaborated yet, but principal causes resulting in impacts can be enumerated in connection with the people in the affected areas as shown below:

- 1) Pre-construction stage
 - a. Land acquisition for structures and others
 - 2) Construction stage
 - a. Influx of labours from outside
 - b. Generation of employment opportunities (temporary)
 - c. Increases in traffic volume
 - 3) Impounding of the reservoir
 - a. Displacement of people
 - b. Inundation of infrastructures and facilities
 - 4) Operation stage
 - a. Reduction and fluctuations of flow downstream of the dam
 - b. Provision of rural water supply
 - c. Provision of rural electrification
 - d. Generation of employment opportunities (semi-permanent)
 - e. Possibility of uses of the reservoir for fishery
- (2) Major socio-economic impacts

Major socio-economic impacts can be foreseen, although not completely, by anticipating the relations between the causes and effects involved with the Project.

1) Pre-construction stage

Land acquisition

Land acquisition will be required before the commencement of construction of the structures including quarries, access roads, etc. As a result, the evacuation of land buildings and/or residents will disturb their socio-economic activities. Those to be displaced are estimated at around 40 households with regard to the dams, headrace tunnel, surge tank and penstock line, powerhouse, tailrace channel and quarries.

2) Construction stage

Influx of labours from outside

Construction of the structures will require a lot of casual labours. Some of them would be recruited from the site and its vicinity, but usually most of them come from relatively remote areas. The influx of a mass of the labours into the sites may cause social frictions between them and the residents if the former ignores the latter's cultural background, social norms and/or economic activities.

There is also another concern that some labours may bring communicable diseases and may give the local residents their diseases.

Generation of temporary employment opportunities

Some of the local residents would find their employment opportunities in the construction works. They, especially the unemployed, would improve their standard of living by earning daily incomes in cash. Cash would be attractive for many people, so that some of those who work on their farms would prefer the casual labour to the cultivation. This may lead to increases in work load for the remaining cultivators of the households, mainly women, during the peak period.

Increases in traffic volume

Increases in traffic volume due to the dam construction may disturb a smooth flow of vehicles on the road from Sondu village to the damsite.

3) Impounding of the reservoir

Displacement of the people

As a reservoir is getting impounded with water, the residents in the reservoir area will be displaced. This displacement will affect not only those to be displaced, but those who would remain around the reservoir. The former will lose their immovable properties such as land, houses, trees, etc. and jobs which are basic requirements for their livelihoods. Some of them would be those whose residences escape from inundation, but forced to move since they lose most of their land, or jobs due to the submergence.

The displaced people will lose not only their livelihood bases, but their communities where they will have lived since birth. They will have to leave their kinships and neighbours who will have assisted them or vice versa, and ancestral land behind them. With uncertainty of their lives in future, the displaced people would be damaged psychologically by the submergence.

Of the remaining people around the reservoir, some would lose a part of land and/or jobs, whereas some workers, customers and co-operators due to the reduction of the population. They would also suffer from the disruption of their communities.

Submergence of land infrastructures and facilities

Submergence of infrastructures and facilities will get the remaining people in trouble mainly because the roads will be cut and some public facilities such as schools and health facilities submerged. This will disturb their economic activities, especially marketing and trade as well as social requirements. In other words, some essential functions required for the communities will be broken.

Loss of the land in the reservoir area may be classified into two in terms of socio-economic impacts for the remaining people. Firstly, as the land is getting scarce more and more, the rise in value of land is anticipated if there is a shortage of land affected by the population pressure on land, and some of the displaced people prefer or be forced to resettle in the vicinity of the reservoir area, for some reasons. Secondly, the loss of agricultural products in the areas may induce a shortage of products, and hence may rise in

commodity prices if there are many local people who have to purchase the agricultural products from the local markets, and the areas are relatively isolated from other markets.

4) Operation stage

Reduction and fluctuations of flow downstream of the dam

Reduction of flow of the Sondu River will take place in the downstream reaches between the dam and the point where the water used for the Project returns to the river through the power station. Also, the river flow will fluctuate between the Magwagwa power outlet and the Sondu/Miriu intake due to peaking operation of the plant.

Reduction of flow will negatively affect the riverine people's socio-economic activities such as irrigation farming and fishery, if any, and the existing projects which intake the water from the affected area of river flow. Discharge increases from nil to 41 m³/sec in the river reaches between the Magwagwa power outlet and the Sondu/Miriu intake along with the first half load increment of the plant, resulting in affecting such activities as ferry crossing the river, watering livestock, swimming in the river and so on. Notable affects are not expected in the second half load increment of 41 m³/sec to 82 m³/sec, since the fact that considerable amount of water (41 m³/sec) exists in the river draws attention of local people.

Provision of rural water supply

The sufficient water made available after the completion of the dam can be utilized for rural water supply, which will provide the piped water for the remaining people and others if appropriate. Water, if properly treated, would improve their health and sanitary conditions and relieve the burden for women and girls to fetch from sources usually far away from their homes, if they can afford to pay some water charges.

Provision of rural electrification

When the hydro-electric power plant of the Project is commissioned, some generated electricity can also be supplied to those in the affected areas. The electrification in the areas could contribute to improving their standard of

living, and promoting agro-based industries if other requirements are met. Like the case of rural water supply, their capacity-to-pay should be taken into account.

Generation of employment opportunities

The implementation of the Project can offer fewer, but semi-permanent employment opportunities as compared with the case in the construction of the structures. Some of the local people could be employed for the operation and maintenance of the power station and dams.

Possibility of use of the reservoir for fishery

If the fish culture is feasible technically, economically, socially and environmentally using the reservoir, it could provide some employment opportunities and contribute to improving the local people's standards of living.

3.2 Initial Screening of Socio-economic Impacts

In this Section, possible socio-economic impacts will initially be examined in order to identify which impacts should be assessed carefully or in detail, taking into the account the specific characteristics of the existing conditions in the areas affected by the Project. The major criteria of the screening are:

- the number of people to be affected by the Project,
- the intensity of impacts, even though the number of people to be affected is relatively small, and
- the difficulty of preventing or alleviating the negative impacts.

(1) Pre-construction stage

Evacuation of the land, buildings and people due to the construction of the structures related to the Project would cause seriously negative impacts on those who would be uneconomic to live on. Although the number of displaced households is estimated at approximately 40 due to the construction of the dams, headrace tunnel, surge tank, penstock lines, powerhouse, trailrace channel and quarry sites, the impacts would be considerable if they are not assured to secure their economic and residential bases suitable to them. Those who would be

displaced include the Gusii and the Kipsigis as well as the Luo in Kisumu District. Those whose land would become uneconomic have not been identified yet.

(2) Construction stage

Influx of labours from outside

Although the number of labours employed has not been able to estimate yet, a mass of labours would flow from the outside into the communities in the affected areas, and establish their bases there up to the completion of the construction judging from the experiences of similar dam projects. The socio-economic impacts due to the cause are considered to be i) Social frictions between the labours and the local residents; and ii) occurrence of communicable diseases.

Those who would be most affected by the influx of labours are most likely the ones living around the dams, or those in Magwagwa village in Nyamira and/or Ceptuyet village in Kericho. They are likely to be vulnerable to such impacts because they are not accustomed to living with such in-migrants and there appears less communication with the outsiders in the mountainous area. About 90% of the household heads have lived there since birth, and few people have experienced out-migration, mostly in employment.

Such impacts could be avoided if the appropriate measures are taken, such as the following:

- Employment of casual labours from the local residents as many as possible,
- Explanation of the Project to, and hearings from, the local residents about the possible socio-economic problems, and
- Enforcement of the labours' disciplined behaviours so as not to disturb their socio-economic activities taking into account the local people's opinions and their social norms.

The occurrence of communicable diseases is dealt with in the natural environment study.

Generation of temporary employment opportunities

As mentioned before, the number of casual labours required for the construction works has not been estimated yet. However, a substantial number of the local

people in the areas could be hired for the construction works, even if temporarily only during the construction period. The job opportunities can contribute to improving the living standards, especially for the unemployed and those in disguised unemployment as well as the lower income households probably with the smaller size of land.

It appears that not only such candidates but many who work on farms are likely to apply for the casual labours because 42% of the households in the areas depend on salary/wage, trade/business and others, mainly non-farm activities as the secondary income source, whereas 72% earn their incomes principally from sales of crops, livestock and the both of them. If the income from the casual labour is larger than that from the existing sources, most of them would choose the former.

As a result, it would affect agricultural activities in that work load of women and children would be increased and/or agricultural produce decreased. The traditional system of the division of labour implies that males are required for manual labours such as ploughing. In addition, the production system in the areas requires relatively a lot of labour inputs due to inter-cropping and crop rotation without agricultural mechanization. Since the labours are relatively abundant compared with the employment opportunities, they are most likely to be forced to continue the casual labours even during the peak period, when their manual labours are called for in agricultural activities.

However, it is impossible to regulate their willingness to obtain the new employment opportunities, and hence there would be no alternative but to explain to them the working conditions that they cannot have enough time to cultivate their fields, unless they are allowed to do in the working conditions.

Increases in traffic volume

It is apparent that traffic volume will increase on the roads leading to the sites of the structures, especially the dam site, for the construction works. The increase in traffic volume may disturb a smooth flow of vehicles, resulting in affecting socio-economic activities such as marketing. This impact should carefully be taken care of because the insufficient access to buyers or markets or transportation was enumerated as one of major problems for marketing by the local people.

However, the impact due to the increase in traffic volume would not be so serious owing to the following reasons:

- Existing traffic volume does not seem substantial, mainly "matatus", i.e. small buses, and buyers' vehicles collecting tea and coffee, and this tendency will not change drastically in near future, and
- Improvement of the roads is expected qualitatively and quantitatively for the lorries to be passable.

Upgrading the existing conditions of the roads from dry weather to all weather would resolve the marketing problems to some extent, since both access and feeder roads often become impassible during the wet periods on a current condition.

(3) Impounding of the reservoir

Displacement of the people

Displacement of the people in the reservoir and its vicinity areas will cause serious socio-economic impacts on them in terms of both the number of the affected people and the intensity of the impacts. Approximately 700 households with the population of some 4,300 will be submerged, assuming the dam crest at E.L. 1,670 m. In addition, there would be those who reside outside the reservoir area but would be forced to move because they substantially lose their land located in the reservoir area, or because of losing their jobs.

Some remaining people would lose a part of their lands and/or their jobs, suggested by the increasing fragmented land due to the population pressure on land. Although the number of people to be displaced in such indirect ways remains to be identified, Kenyan people seem to have never experienced such a large scale of displacement.

For intensity of the impacts, losing land will nearly equal to loss of the economic and social bases of livelihood for the displaced people. In the reservoir and its vicinity areas, some 70% of total working population are mainly engaged in agricultural activities as farmers. Sales of crops and livestock (or its products) are an income source for 96% and 70% of the total households, respectively.

As mentioned in the preceding Sub-section 2.2.3, Social aspects, the communities in the areas are socially cohesive on the basis of kinship ties, reflected in the existence of overwhelming dominant ethnic groups in the areas: 97% of the Gusii in Nyamira and 99% of the Kipsigis in Kericho. Also, they appear to add some

sorts of social value to the land: social status and "gifts" inherited from their ancestors.

Although a private ownership system has been introduced into almost all the areas, they must have some "residual" feelings on their land as "communal land", the previous land holding system which stipulated that all the lands belonged to communities or clans. In general, indeed, the individual household heads cannot easily sell a part of their land without their family members' and their relatives' consent, as compared to the land transaction in other countries. Thus, separation from their communities and ancestral lands will put a substantial grief on the displaced people and will deprive them of social functions such as mutual help.

Submergence of land, infrastructures and facilities

Parts of roads which cross the reservoir area will be submerged by the implementation of the Project as shown below:

- Nyamira
 - Magwagwa - Misogwa
- Kericho
 - Mindililwet - Kiptenden/Roret
 - Kiptenden/Roret - Ngoina
 - Kiptenden/Roret - Kapkisara
 - Kiptenden/Roret - Tebesonik
 - Roret - Cheboror.

When parts of the roads shown above are submerged, those who will have been using them will suffer from the interruption of both the economic and non-economic activities. An emphasis can be placed upon the trading centres, which are often not only the ones for commercial activities but non-economic activities as depicted in the preceding Sub-section 2.2.2, Economic aspects. Taking this viewpoint into account, the socio-economic impacts of the interruption would be substantial, since Magwagwa and Roret are large trading centres in the areas.

In connection with the trading centres in the areas, some of the establishments either in business or in non-business such as conference centres would be submerged. The displacement of such establishments, especially of scarcity value, would get the remaining people in trouble unless the roles that those play in their social lives are to be recreated.

Some public facilities, especially with regard to social services, would also be submerged although the number of these has yet to be identified. Apparently, the remaining people around the reservoir would severely be affected without the reconstruction of the lost facilities because they are sparsely distributed with relatively poor access.

There appear no cultural/historical sites which either have scarcity of value or are important. Still, hearings to the local people on them will be required since no study has been conducted on the valuables, for instance graves and holy places, for the local people even if outsiders cannot perceive them invaluable.

Loss of the land in the reservoir area is likely to induce a rise in land value based on the following existing conditions and assumption:

- Scarcity of land in the areas due to the increasing population pressure on it, and
- Among the remaining people who would lose a portion of their land, some are likely to rush into purchasing alternative land with the compensation grants, allowing for the existing condition that there are no more valuable investment opportunities than the land in the areas.

For the loss of agricultural products, no significant impacts are anticipated in that about 90% of total households in the reservoir and its vicinity areas have already achieved the self-sufficiency of major food crops such as maize, millets and beans. In addition, 60 to 70% of total food production is directed to markets. However, some who would lose a part of land due to the impoundment should carefully be taken into account.

(4) Operation stage

Reduction of flow downstream of the dam

The impacts due to flow reduction downstream of the dam are assessed in the natural environmental study. At a glance, no serious socio-economic impacts would take place since a certain volume of maintenance flow (0.5 m³/sec) will be secured so as not to have substantial damages on the riverain people. However, a socio-economic study on them has yet to be conducted, focussing on their water use/requirements.

Fluctuations of flow downstream of the power outlet

The impacts due to release increase of nil to 41 m³/sec from the power plant would affect to the ferry crossing the river, watering to livestock, swimming in the river and so on. Since the affects caused by these impacts are related to life of local people, it would be required to give pre-warning by siren for release and to increase release gradually with a harmless rate.

Other impacts

Major socio-economic impacts accrued at the operation stage except for reduction and fluctuation of flow downstream of the dam are considered positive for the local people in the areas as mentioned in the previous Sub-section. Among the causes of the impacts, provision of rural water supply is expected most energetically not only by the local people but by the district offices concerned.

Of the total households surveyed, 89% expressed their expectation of a better water supply after the implementation of the Project, followed by improvement of living standards (85%) and increased fish species and population (56%). This result does not necessarily mean that other benefits were disregarded because all the people did not know about the Project well.

The Kericho district office claims that some benefits of the Project accrue to the people in the district including the rural water supply. Also, Nyamira district proposes the Project to provide a water source for the North Mugirango Water Supply Project, which was already planned, but has not been implemented due to insufficient fund.

Those district offices also expect the Project to provide some electricity generated by the Project for the local people.

Fish culture in the reservoir may become a prospective industry in the area, and many people appear to indicate affirmative attitudes towards it, although the people in the areas have no custom to catch and eat it. According to some district officers in Nyamira, however, there are some who are doing fish culture in ponds, and fish is observed in markets within the district.

(5) Summary

The aforementioned discussion on the initial screening of socio-economic impacts can be summarized as shown in Table 3.1. The magnitude of impacts was examined from three points of view: number of people to be affected; intensity of impacts; difficulty of prevention and/or alleviation.

For each criterion, the magnitude of impacts is presented in four indices: significant (++), not significant (+), no need to consider (-) and unknown (?). These indices should be interpreted as a relative expression, or relative magnitude in order to identify the impacts which will be examined more carefully. Thus, it is not necessarily concluded that those impacts which are not considered significant can be disregarded.

The same Table indicates the causes of impacts which should be carefully dealt with. The causes which will have the most severe impacts are:

- Displacement of people (land acquisition), and
- Submergence of land, infrastructures and facilities.

Indeed, some 95% of total households surveyed expressed their concerns that the Project will have a negative impact of land loss, while 86% the impact of resettlement.

3.3 Evaluation of Significant Socio-economic Impacts

Major objectives of this Sub-section are to examine the significant impacts in detail and to provide useful information and/or requirements to prepare countermeasures against the impacts.

3.3.1 Displacement of people

As mentioned before, there would be of people to be displaced. A preliminary estimate of the displaced households shows approximately 700 households in the reservoir area with the proposed dam crest level of E.L. 1,670 m including households in other affected areas. The displaced households have some 4,300 people.

In addition, some of those either whose land holding would become uneconomic or who would lose their jobs might be forced to leave their residence due to the impoundment although they are inhabitants outside the reservoir area.

Some people inhabiting outside the reservoir area may be subject to moving for social reasons, for instance the existence of polygamous families. As mentioned in the Sub-section 2.2.3, there are relatively many polygamous families in the areas, and some wives do not have their residence at the same homestead as their husbands'. Such wives would be obliged to follow their displaced husbands even if they live outside the reservoir. Another case is the aged households for the same reason as the above. Indeed, there are 10% of households in the areas which are headed by the widowed and 0.4% by the divorced or separated, probably including the aged relying largely on other households.

Major ethnic groups of the displaced households in the reservoir area are divided into two groups: The Gusii in Nyamira district and the Kipsigis in Kericho district. For the other areas, a dominant group is the Luo in Kisumu district with regard to the penstock line, whereas the Gusii and the Kipsigis for other structures. Each ethnic group has its own culture, and the residential mixture of different ethnic groups is rarely observed in the areas.

(1) Economic aspect

The majority in the areas want to receive the compensation grant in the form of land as given below:

Compensation Preference				
Form	"R" Side	"U" Side	"L" Side	Total
Land for Land	285	228	250	763 (82.3%)
Land and Cash	15	55	85	155 (16.7%)
Cash only	0	3	1	4 (0.4%)
Do Not Know	0	2	3	5 (0.5%)
Total	300	288	339	927 (100%)

The above data shows the number of households interviewed and their preferred form of compensation if their land was taken for the purposes of the Project. The data collection was organized in accordance with the Right, Upper and Left (including Lower) sides of the Sondu River in the Project Area. The "R" is the

right side of the Sondu River. The "U" is the upper side of the river and the "L" is the left and lower side of the river in Nyamira district.

Some 82% of total households chose land for land as the preferred form of compensation, whereas about 17% liked the combination of land and cash. On the other hand, only 0.4% preferred cash only.

This result is understandable taking into account the existing conditions in the reservoir and its vicinity areas delineated in Chapter 2. The people in the affected areas largely depend on agriculture, of which the first and the most important input is land. Besides, they are aware that it is getting difficult to purchase alternative land in Kenya due to the decrease in available land suitable for agriculture even if they obtain compensation grant in cash. Indeed, the resettlement through their own arrangement is supported by only 31%, whereas the resettlement that the Government takes initiatives by 83%.

Then, the attributes of the alternative land should be addressed. As depicted in the Sub-section 2.2.2, farmers have elaborated their production system fully making use of the advantages such as fertile soil, good climate and ample precipitation, despite the constraints of steep slope and acute population pressure on land. In other words, they have established the production system under which the maximum yield and risk avoidance can be achieved with limited land, and at the same time conserved the environment against soil erosion and others as much as possible. Their efforts are typically reflected in crop mixtures, inter-cropping, and hence crop diversification and mixed farming. Therefore, not only quality/carrying capacity of soil, but the environment or ecology which enable them to duplicate such a production system should be allowed for in the selection of alternative land.

Another important economic aspect is non-farm activities. About 27% of total working population in the areas are engaged in non-farm activities including wage employment in the agricultural sector. In addition, 28% of households earn their income mainly from non-farm activities, and 42% reported it as the secondary income source. These figures indicate the importance of non-farm activities in that a substantial number of people rely on them as occupations, and that there are many farmers who hold non-farm activities concurrently. Accordingly, after the evacuation, non-farm activities should be secured for those people since they are considered to be landless or those whose land is too small to live only on it.

(2) Social aspect

As delineated in the previous Sub-section, displacement of the people will bring about the disruption of communities. The impacts on the displaced people would be substantial because:

- the communities in the areas are still cohesive based on kinship ties, and
- almost all the people have no experiences in out-migration and living with a mass of different ethnic groups.

These impacts would be alleviated if the displaced people can continue to have close relations with their original communities, or live in the vicinity of them. Besides, the social affinity with host populations, or neighbours in resettlement sites will be important for the displaced people.

There must be sufficient social and economic infrastructures and facilities in the resettlement sites so that the displaced people will be able to rebuild their lives in the new environment. Above all, the educational and health services will be emphasized, since the young under 14 years old occupy 50% of total population. Also, the employment structure in the areas (Table 2.3) reveals that over 60% of total population either go to school or are young children.

3.3.2 Submergence of land, infrastructures and facilities

The impacts resulting from submergence of infrastructures and facilities can be alleviated by recreating them so as to recover the functions that they will have had before the submergence.

(1) Roads

As is often the case, the roads of which a portion would be submerged due to the impoundment would be recovered by identifying alternative routes, i.e. detour along, or bridging the reservoir whichever the least cost. In the identification of the routes, however, socio-economic aspects should be allowed for. Major considerations are as follows:

- To avoid isolating some areas in terms of socio-economic aspects, and
- To minimize the people to be displaced by the new construction of roads.

Even if some areas are not isolated from other areas physically, they could be from socio-economic point of view. As most of the people in the areas usually walk on roads, and the transport measures are scarce, their range of travel is very limited. Some of them may not be able to reach within permissible time their destinations essential for their daily lives: workshops, schools, dispensaries, places for village meeting, markets, etc. Thus, such situations should be avoided by selecting appropriate routes for recreation of the roads and building new roads as needed.

Misogwa village in Nyamira side may be one of those sufferers. After the submergence of the routes between it and Magwagwa village, it would be difficult for the population in the village to get the Magwagwa village due to the difficulty of constructing alternative roads, hindered by the reservoir with relatively substantial width and steep slopes. If the Misogwa becomes isolated from the Magwagwa, the villagers get into trouble since the latter is the centre of Magwagwa sub-location to which the former belongs.

(2) Trading centres

The development of the Magwagwa project with the proposed dam crest elevation results in building a saddle dam at the topographic depression in Magwagwa village, a large trading centre as well as Roret. Some device is made in the design of the saddle dam so as to avoid Magwagwa village from submergence. While, a part of the Roret trading centre may be displaced.

As mentioned in the Sub-section 2.2.3, the number of workers in commercial activities in the five trading centres is estimated at 344. As one among five trading centres is evacuated, the number of workers losing their job is roughly estimated at approximately 35, assuming the workers evenly distributed among five trading centres, and that a half of the establishments in the trading centre are displaced. That figure may include those who would be displaced. Besides, the displacement would be inconvenient for the remaining people if some important establishments are lost.

The above impacts can be avoided if the displaced establishments are resettled nearby, or some device is made for the construction of the same as mentioned above. However, it might be difficult to do the former one since there seems no land available for them.

(3) Public facilities

Although the number and types of the facilities to be submerged remain to be identified, there do not appear many facilities in the areas based on the 1 to 5,000 scale topographic maps newly prepared in this study.

For the recreation of the facilities, the following considerations should be taken into account:

- Number of users for each facility categorized by area: the reservoir area and its vicinity area,
- Whether the users among the remaining people will be able to utilize other facilities which would remain, or not,
- Whether the facilities will have to be recreated for the remaining people or not, and
- Whether the existing facilities can be moved into the vicinity area or new facilities should be constructed.

(4) Cultural/historical sites

The existence of cultural and historical sites has yet to be confirmed for both the public in general and the local people, especially the latter.

If there is, the transferability of the assets should be carefully examined, and the transfer implemented.

IV. COMPENSATION AND PROPOSED COUNTERMEASURES

Following the results of the socio-economic impact analysis, this Chapter deals with compensation and proposed countermeasures, except for the resettlement issues, which will be delineated in the next Chapter.

4.1 Compensation

4.1.1 Legal framework

In principle, compensation should be made for all the lost immovable assets, including housing, land (and improvements to both), access to economic opportunities and public services as well as non-economic assets such as cemeteries, social relations etc. On the other hand, specific legislation and regulation concerning compensation do not necessarily cover all the lost assets. Compensation for those left out from the legislation, however, can and should be made in any other measures.

The Constitution of Kenya states that one of the fundamental right that " every person in Kenya" is entitled to the protection from deprivation of property without compensation as shown below:

"no property of any description shall be compulsorily taken possession of, and no interest in or right over property of any description shall be compulsorily acquired" (P.36).

As mentioned in the Sub-section 2.2.2, almost all the land to be affected by the Project has been registered under Registered Land Act of the Laws of Kenya. Such land is private property and will be subject to the elaborate constitutional provisions guaranteeing the sanctity and inviolability of private property and the stringent exceptions to these provisions, specifically the Land Acquisition Act, cap. 295 of the Laws of Kenya and the Land Acquisition (Amendment) Act of 1990. The land held by the County Councils as " Trust land" will be subject to the Trust Land Act, cap. 288 of the Laws of Kenya.

According to the Land Acquisition Act, the amount of compensation to the land is based on the market value of the land at the publication in the Gazette of the notice of intention to acquire the land. In the assessment of the amount of compensation to the land, the following matters and no others shall be taken into account:

- The market value defined above,
- Damages sustained or likely to be sustained by reason of severance of the land,
- Injurious effects to property whether movable or immovable,
- Where persons interested are or will be compelled to change the place of residence or business, any reasonable expenses incidental to change, and
- Damage genuinely resulting from the diminution of profits of the land between the date of publication of the notice of intention to acquire the land and the date the Commissioner of Lands takes possession of the land.

Compensation is also made to the temporary occupation/possession of land caused by the Project. A sum equal to 15% of the land market value determined shall be added to the amount of compensation for disturbance.

Thus, not only the land in the reservoir area, but the one outside the reservoir which will be severely or injuriously affected should be compensated for. Interests or improvements to the land for the compensation include houses and other structures, standing crops and trees. For the people running business, the loss in profits (either permanently, if they cannot find reasonably convenient new business location, or temporarily, if although they can find alternative business locations, it will take time to rebuild the business to the levels existing before the acquisition) is in the form of expenses and/or damages incurred because of the change due to the land acquisition.

Under the legislation, on the other hand, landless workers, and those who live outside the reservoir and lose access to employment as well as non-economic assets may not be explicitly compensated for. In those cases, particular attention should be paid to the restoration of the rights and interests by re-establishment in resettlement sites or in the vicinity of the reservoir area, which will be described in the sub-section.4.2.

4.1.2 Rough estimate of the amount of compensation

In this Sub-section, the amount of compensation will roughly be estimated, although the data for estimating the amount of compensation for all the affected assets have yet to be collected, and hence the estimate is incomplete.

Table 4.1 presents a summary of rough estimate of compensation. The compensation would amount to at least, some KShs. 635 million. But, this excludes the amount of compensation for:

- Land affected by other structures than the reservoir of the Project,
- Land which is located outside the reservoir area, but severely and injuriously affected,
- Land of temporary possession/occupation,
- Damages of assets involved with relocation
- Trees except for perennial crops,
- Access to economic opportunities such as business and
- Non-economic assets.

There are some issues to estimate the compensation amount as shown below:

- 1) Additional estimate of compensation for the above items should be made;
- 2) Increase in population and property will boost the amount of compensation at implementation stage;
- 3) Land use pattern and properties should be checked by either a ground truth survey/spot-checks in representative samples, or full inventory surveys and
- 4) The cost associated with compensation, or relocation cost including dismantling cost of property, costs of transport, reconstruction cost, etc.

The amount of compensation would be the approximate base for acquiring alternative land for the evacuees, but not necessarily be equal (cf. Sub-section 5.2.3).

4.2 Proposed Countermeasures

4.2.1 Restoration around the reservoir

Public common areas, facilities and infrastructures may not normally be a subject of compensation in case of compulsory land acquisition in Kenya. The restoration of them, however, is a "must" for the remaining people around the reservoir to sustain their socio-economic activities, since the impacts of disruption mainly due to the emergence of the reservoir are expected to be substantial as assessed in the previous Section.

Although an inventory survey on public and communal assets to be lost has not been carried out yet, it was revealed from the map prepared by the Study team that at least roads will be disrupted and a school at Ngoina will be submerged due to the construction of the dam.

In planning the restoration of them (refer to Figure 4.1), with a careful inventory survey, not only engineering aspect, but socio-economic aspects should be taken into account, such that described in the Sub-section 3.3.2 and 4.5 of APPENDIX V NATURAL ENVIRONMENTAL ASPECT which specifically refers to health facilities. Consultation with the affected people is important in formulating an appropriate plan. Then, full costs of the plan should be estimated. In addition, the schedule of the restoration should be well coordinated with the construction schedule of the reservoir so as to avoid the discontinuity of the affected people's socio-economic activities.

4.2.2 Employment generation and regional development

Some measures should be taken to rescue those who are to be displaced but have to remain around the reservoir, and those who live outside the reservoir but lose their jobs due to the impoundment. The most promising way would be to provide them with permanent employment opportunities created by the Project, for instance, the tasks of operation and maintenance of the reservoir, if they agree. However, there are constraints: One is that they have to wait for obtaining the jobs until the operation stage of the dam, and the other is that the number of employment opportunities may not be large enough to absorb all of them. They may survive as casual labours for the construction of the dam, but most of them lose their jobs after its completion.

Thus, a long-range strategy from the regional development point of view is required for the generation of employment opportunities for them. Besides, the regional development is needed so as to provide the benefits of the Project for those remaining around the reservoir, who are facing increasing population pressure on land, partly for which the Project is responsible.

There would be some major components or bases of regional development which are provided by the Project, including:

- Fish industry or aquaculture using the reservoir,
- Provision of water supply, and
- Provision of electricity.

These benefits are highly expected by the local people and administration as mentioned in the Sub-section 3.2-(4), Operation stage. Some officials claimed that the grantee of such provisions should be the prerequisite to accept the Project.

Although the provision of water supply and electricity is not likely to be difficult in terms of technical and financial points of view, the fishery development would require relatively comprehensive and detailed studies from technical, financial and environmental points of view.

V. INVOLUNTARY RESETTLEMENT

5.1 Understandings of Involuntary Resettlement

5.1.1 Some features of involuntary resettlement

Involuntary resettlement is significantly different from voluntary resettlement such as settlement schemes in Kenya. Those displaced are indiscriminately evicted against their desire without their plans in future, whereas migrating people are self-selected and voluntary-moving segment of the population. In dam projects, the displaced people cannot return to their original home forever. Therefore, such differences call for different designs, approaches, institutional responsibilities and financing sources.

The displaced people encounter extraordinary difficulties mainly due to the setback of their living standards caused by the loss of principal productive assets and of communities. It should be noted that they lose not only visible assets, but invisible property or rights such as employment, business, rights vested in members of community etc. They are not guaranteed to regain such lost property needed for their livelihood. In addition, involuntary resettlement is a traumatic process for the affected people since they are compelled to leave behind their beloved land, relatives, neighbours etc. and not necessarily welcomed by the host population in new sites. The impacts of compulsory resettlement are more serious on vulnerable groups such as the poor, aged, women and children.

To deal with the involuntary resettlement in success is an integral part of projects, in particular those with a large scale of relocation. If considerable numbers of people are made homeless, the results are against the objectives of national socio-economic development and mean the loss for national economy. Moreover, as has been often the cases, the failure would delay the schedules of projects and hence lead to cost overrun in the shorter term, and shorten the economic life of projects in the longer term, as described in the following Sub-sections.

5.1.2 Land-based and non-land-based strategies

Compensation is usually rewarded in the form either of land or of cash in national projects which involve relocation of people and their property. In general, the latter form of compensation had been more preferred than the former by the implementing agencies and the officials concerned mainly owing to its simpler process for them. Apparently, however, the form of compensation in recent projects in the world have shifted from "cash

for land" to "land for land", especially in the case that the displaced people largely depend on land, typically farmers.

This change in the way of compensation reflects the lessons learned from the experiences in past projects with non-land-based strategy, and is attributable not only to disastrous impacts on the people evacuated, but to seriously negative effects on the projects as well as on the regional and national socio-economic development. The negative impacts become more substantial as the number of affected people increases in such projects as those with dam construction.

The causes of the negative impacts have been observed in many projects with compensation in cash, and can be summarized below.

(1) Negative impacts on the displaced people

The most serious case for the displaced people is that they fail to regain their bases for livelihood even if provided with a large amount of money. This failure may partly be attributable to their use of cash not for investment, but for consumption. More often than not, however, most of them cannot obtain their alternative socio-economic bases such as land, employment, communities etc. due to the hardship of living conditions surrounding them.

They often find it difficult to obtain, on an individual basis, the land in the same size and productivity as previous one, especially in the vicinity of the reservoir because of rise in land value induced by the projects, and more essentially less availability of such land resulting from high population pressure on land. Those who look for employment in non-agricultural sectors most likely fail to get prospective one since they usually have no requirement of skills and knowledges and often a few employment opportunities.

For social aspects, the evacuees would lose chances to resettle themselves in a group without finding land enough to absorb them. The resettlement on an individual basis would negatively affect their efforts to reconstruct their livelihoods, in particular if they have relied on social networks and on their own culture. "Cash for land" approach cannot take into account evacuees' invisible property including the above aspect.

(2) Negative impacts on the Project

The affected people know better than not to anticipate the hardship after the evacuation when provided with cash only. Therefore, "cash for land" approach sometimes brings about their resistance to move, resulting in delay in the schedule of projects and therefore cost over-run.

In the longer term, displaced people's failure to regain the bases for livelihood often result in their influx into urban centres in search for employment or their return to the vicinity of homeland inundated, where there are their relatives and social networks who can take care of them, to some extent.

Increase in population density around the reservoir area causes environmental deterioration by accelerating reclamation, encroachment of forest areas, overgrazing etc. As a result, soil erosion, and hence sedimentation is accelerated, so that the economic life of dam is shortened as compared to the designed one.

Taking into the above discussion, the Project should choose "land for land" approach, which is legally permitted in Kenya, because there are not a few conditions indicating a high possibility that the negative impacts would take place as shown below:

- large scale of displacement,
- almost all the local people prefer the "land for land",
- most of the displaced people are traditional farmers and agricultural labours, who are less educated,
- high population pressure on land and diminishing available land, and
- kinship systems and other socio-cultural factors still play important roles in communities.

5.1.3 Review of involuntary resettlements in other projects

As has been discussed, the land-based strategy is by far better than the non-land-based strategy, or the "cash for land" approach for those who largely depend on land. However, it is not an easy task to succeed in resettlement and restoration. In Kenya, there have been no projects which relocate considerable numbers of people like the Project. Therefore, it is worthwhile referring to the experiences in other projects in the world.

(1) Problems and impacts resulting from the failure of resettlements

The process of involuntary resettlement may be divided into four phases:

- 1) Preparation of resettlement,
- 2) Transfer (uprooting) of displaced people,
- 3) Transition for resettlement, and
- 4) Self-sustenance (rerooting) of resettlers.

It is at the self-sustenance stage that the displaced people have regained the bases for livelihood. There have been various problems during the stages from the preparation to the self-sustenance, so that it took longer time to reach the final stage. Such problems may be summarized as shown in Table 5.1

Failures of resettlements caused by the above problems have had negative impacts on the projects, regional and national socio-economic development as well as serious damages to the displaced people. Figure 5.1 schematizes the process of occurrence of such effects, together with the impacts resulting from unsuccessful restoration around the reservoir area.

Projects

Failure of resettlement sometimes has the same impact on projects in the longer term as non-land-based strategy does: decrease in economic life of dam by acceleration of sedimentation through displaced people's return to the vicinity of the reservoir.

Regional development

The areas affected by the failures comprise the project area and the resettlement sites. In the project area, both the increase in pressure on land and the deterioration of environment contribute to the depletion of resources, or decrease in access to economic opportunities for the local people in addition to the loss of land due to the inundation. Besides, the emergence of inconvenient areas in terms of socio-economic activities due to the failure of restoration (roads, facilities etc.) gets the affected people worse off. In the resettlement sites, the outflow of substantial number of resettlers from new sites disrupts their communities, and the remaining resettlers are likely to lose the social base for livelihood, resulting in the prolongation of transition period or abandonment of sites.

National development

Increase in unemployment and economic loss resulting from the failure of resettlement directly affects national socio-economic development. In addition, the prolongation of transition period increases government expenditures. Indirectly, the negative impacts on projects and regional development caused by the failures also affect national development.

(2) Major causes of failures in resettlement

It is important to clarify the major causes of failures in resettlement in order to avoid various negative impacts by fully reflecting the lessons in planning and implementing resettlements.

In many projects with severe experiences in resettlement, resettlement components were left out of major project design and concern, principally due to underestimate of its economic, socio-cultural and political consequences and less awareness of its complexity. As a result, this approach brought about incomplete design, underestimate of cost and underfinancing and institutional problems of implementation. Other major causes are summarized below.

Insufficient communication with, and involvement of, affected people

First, the lack of explanation of projects, relocation and resettlement to the affected people in advance causes social instability by getting them dreadful. Second, inadequate involvement of the affected people, including host population, in resettlement plans makes the plans less viable since planning with only "top-down" sometimes overlooks or cannot take into account some requirements for the affected people.

Organizational incapability

Another major cause is vested in organizational incapability to execute resettlements due to its weak authority, inadequate resources and staff resulting from the lack of awareness of its hard tasks. Even under the careful resettlement plans, there have been unforeseen difficulties. More often than not, however, the organization in charge could not flexibly cope with them.

5.2 Framework of Resettlement Plans

5.2.1 Objectives and principles of resettlement

Based on the aforementioned discussions, objectives and principles of resettlements are summarized as delineated below:

- 1) To maintain, at minimum, the displaced people's current standard of living and to provide the opportunities for them to achieve a higher standard of living after resettlement, whether they have land or not;
- 2) To minimize the socio-cultural and mental damages on the displaced people;
- 3) To involve the affected population and the officials concerned in planning and implementation of resettlement;
- 4) To minimize the transition period of resettlement with adequate provision and assistance of both the social and economic natures;
- 5) To avoid the drastic changes in the environment and bases of livelihood that hamper the smooth resettlement, and hence to minimize the distance between their homeland and the new sites as much as possible;
- 6) To make the financial/human resources and development proposal available when and where required;
- 7) To have adequate institutional arrangements to ensure effective and timely implementation and adequate monitoring/evaluation arrangements;
- 8) To ensure that there would be no adverse impacts of the resettlement, especially on the host populations and their environment; and
- 9) To allow for the "second generation" or predictable growth of affected households.

5.2.2 Approach to resettlement

(1) Legal framework

Resettlement is allowable in situations of compulsory land acquisition for the purposes of large development projects like the Project in context of the land-based (i.e., land for land) compensation strategies under the Land Acquisition Act and its amendment of 1990. This is particularly so in cases where land ownership is properly registered and land use and ownership rights are clear as in the case of the Project area(s). Even if land use and ownership are not clear, like in the cases of unregistered and/or customary/traditional-based land tenure (and hence the application of the Trust Land Act) and either squatters and/or landlessness, there is obligation on the part of the Government (along with the body that is initiating and

implementing any development project) to organize appropriate compensation especially in the form of resettlement.

A major issue in the acquisition of alternative land is a limitation that the new land should not exceed in value the amount of compensation which would have been awarded in cash. On the other hand, the main concern of the majority of the households in the areas was that whatever alternative land was provided, it should, at least, sustain their current livelihood.

(2) Government responsibility

Figure 5.2 presents the process of resettlement. Taking into account the principles and legal framework of the involuntary resettlement, and the nature of the Project as a national project, the Government of Kenya has the responsibility for the provisions and assistances to the displaced people from the preparation of resettlement to the transition period of resettlement. This is reasonable since the displaced people cannot be taken as recovered to the situations "without" project until they become self-sustained or rerooted in the resettlement sites, and since there have been many constraints to them according to the experiences of the similar projects as described before.

The resettlement component is as important as other components of the Project, rather an integral part of it. Involvement of the affected people is essential for the success in resettlement and avoids the excess in expenditure to it.

(3) Involvement of the affected people

Main reasons for the failures of resettlement can be attributable to less attention to the the displaced people's as well as of the host populations' ideas and preferences, and the ignorance of their socio-cultural and economic characteristics from the formulation of plans through implementation.

As far as verified so far, principal features of the displaced people may be summarized as follows:

Socio-cultural aspects

- Almost all of them belong to two ethnic groups: the Gusii and the Kipsigis,
- Population density is high, especially in the Nyamira side,
- The young and children occupy the largest share in the population,

- Literacy and education level among the household heads are not high,
- Majority of families appears to be nuclear, but polygamous ones still prevail,
- Kinship systems still play an important role in the ordinary life,
- Women's group is the largest socio-economic organization,
- They have little experience in out-migration and living with immigrants, and
- Almost all of them prefer "land for land" approach.

Economic aspect

- Majority of them depends on land as either farmers, especially mixed farmers, or agricultural labours,
- Earnings from non-agricultural sectors are important as first or secondary income sources,
- The imbalance in income distribution appears larger in the Kericho than in the Nyamira,
- Most of them do not seem to afford to spend for those other than requirements for their daily lives,
- Majority of them does not have debt and has not accustomed to borrow money from formal institutions,
- They have elaborated a sophisticated production system of high productivity and diversity with traditional skills, well suited to the specific environment and agro-ecological conditions,
- Land is getting diminished and fragmented,
- Most of all the households sustain self-sufficiency of food,
- Livestock rearing brings a variety of benefits to the farmers, and
- Commercial activities centred around the trading centres are a small scale, but provide essential requirements including employment opportunities for their ordinary lives.

(4) Development-oriented resettlement

Resettlement is not just a compensation, but a process of re-establishment and regional development. The government should give the affected people a set of provisions and assistances including housing, infrastructures, facilities, training and agricultural extension programme and so on so that they can get sufficient opportunities and resources for their social and economic re-establishment in the shortest possible period, taking into account their population growth in future. Among them, provision of land in sufficient quantity and quality is of significant importance for farmers. The efforts made for the development would be in vain if the land alienated is not suitable for them.

It is critical to involve the affected people so as to give them incentives for self-sustenance as well as to closely scrutinize their essential needs and to assess how their economic and socio-cultural characteristics will affect the response to relocation and ability to cope in the new environment.

5.2.3 Components of resettlement plans

Resettlement plans may be divided into 1) Compensation, 2) Resettlement preparation, 3) Development and 4) Management components. The key issues of each component are described below, based on the result of the field survey, experiences in resettlements and referring to the World Bank's policy guidelines for involuntary resettlement.

(1) Compensation

As the details of compensation were delineated in the preceding Section 4.1, Compensation, key issues in relation to resettlements are summarized here.

Compensation payment is important for the displaced people because it becomes the fund for re-establishing their socio-economic bases as well as for the Project to proceed on schedule. Therefore, careful attention should be paid to the fair and reasonable valuation of the lost rights to immovable assets and the appropriate timing of payment.

There are three major issues. One is the possibility for the evacuees not to acquire alternative land that has enough quality and size to regain, at least, the current living standards. This would be originated from the gap between unit values of inundated land and of alternative one, as the Land Acquisition Act stipulates that they can receive "a grant of land, not exceeding in value the amount of compensation which would have been awarded in cash".

If the unit value of alternative land is higher than the original one, for example, then the size of the former is smaller than the latter. In this case, incremental value of land should truly reflect increase in productivity, so that the potential return of land in total retains the same level before and after the relocation. Actually, however, this may not be often the case since the market value of land does not necessarily reflect its productivity.

Therefore, the selection of alternative land should be decided based on land productivity, taking into account soil quality, potential crops, labour availability and so on in order for them to regain their current living standards in the shortest possible period. The land should be developed by the Government to the extent that the evacuees can get sufficient return from the land as early as possible after resettlement, since land development cost is not usually inclusive in the compensation. Accordingly, in case of alternative land of higher value, priority must be given to satisfying the evacuees, and then some measures are taken to fill the gap in prices such as provision of concessional loan to them.

Second, there are some who would like to, or are forced to be compensated in cash, as revealed in the field survey. Land holders preferring compensation in form of cash would be dealt with as they want, but must be provided with sufficient information and appropriate guidance to decide on the selection. On the other hand, a different approach should be taken to the landless such as wage labours, businessmen etc. For those who would lose economic base, opportunities for alternative one have to be provided, like permanent employment with regard to the Project after its implementation, and provision of training and facilities/infrastructures needed for re-establishing the base.

Finally, it is noted that certain types of intangible assets are usually not taken into account in the compensation payment. They include proximity to kinship groups, access to places of cultural identification, access to resources used for the ordinary life and to economic opportunities and public services. The development-oriented resettlement should recover such assets, to some extent, with the detailed baseline information on them.

(2) Resettlement preparation

Resettlement preparation includes i) identification of resettlers and ii) of resettlement sites and iii) transfer arrangements.

Identification of resettlers

The people to be displaced by the Project would comprise those who will have lived in the reservoir area and those who will not have lived there. As described in the preceding Sub-sections 2.2.1 and 3.3.1, the number of displaced people is estimated at approximately 4,300 (over 700 households) with the proposed dam crest elevation of El. 1,670.0 m, including those to be affected by other structures

than dams. In addition, there would be those to be displaced by the recreation of roads and other facilities.

It is noted, however, that all the displaced people would not be willing to be compensated for by land (although very few) and/or move to the resettlement sites arranged by the Government as depicted in the Sub-section 3.3.1 (although the reasons have not been clarified and they had not have enough information to decide their preferences for the resettlements at the time when interviewed). Some people might try to remain in the vicinity of the reservoir area for some reasons: There could be some family members, probably the aged, who refuse to move to remote areas from the homeland, or some wives and children in polygamous families whose husbands(fathers) would have escaped from the displacement.

Among those who will not have lived in the reservoir area, on the other hand, there could be some people who have to leave their homeland for the following reasons:

- they lose their jobs or land to the extent that they cannot live on due to the submergence, and
- those on whom they largely rely are displaced: existence of polygamous families and aged households.

Such households and populations above have yet to be identified to formulate the resettlement and compensation plans. Even for the numbers of households and populations to be displaced, they will be changed from the obtained ones in 1990 at the time when the Project is implemented.

The population projection of the displaced people in the areas was tried to derive from the existing population and assumptions of demographic indicators such as fertility, mortality and migration, based on the data of 1979 population census and various demographic survey estimates since then. As a result, the population growth rates were estimated at 3.9% and 4.3% for the period from 1990 to 1995 and that from 1995 to 2000, respectively. According to the projection, the population of displaced people will increase to some 5,450 in 1995, and 6,700 in 2000, approximately 900 and 1,100 households in the respective year, assuming constant the average size of household of 6.1.

It should be noted that it is important to specify the sets of groups of the evacuees in which they resettle themselves by consulting with them and close scrutiny of their

socio-economic relations, especially kinship systems. This would be indispensable if there is no alternative land large enough to absorb them at once, resulting in separate resettlement of them.

Identification of resettlement sites

As mentioned before, the selection of resettlement sites is the most important clue for success in resettlement. The better sites the displaced people can obtain, the shorter time it takes them to regain their living standards and move to self-sustenance, and the more cheaper it costs the Project in the longer term. Therefore, it deserves being provided with adequate time, resources and staff/experts to conduct relatively comprehensive and detailed studies, which should begin far enough in advance of other components of the Project.

The studies will be carried out on the basis of the criteria delineated later. Among others, it is critical to carefully establish a basic indicator for availability of land: the amount of land necessary to re-establish the displaced people on a productive base, taking into account not only farming land, but grazing land and settlement sites. Then, availability of land in possible resettlement sites is evaluated, especially with its carrying capacity of existing resources and potential for intensification. Assessments will be made not only on resources, but on the suitability of residential sites and requirements of site preparation, new infrastructure and social services.

Some criteria for selecting possible resettlement sites can be derived from the results of socio-economic impact analysis, especially in Sub-section 3.3. Major criteria may be summarized as follows:

1) Preferences of the displaced people

This criterion is apparently critical because it is the displaced people that will live their new lives in the resettlement sites. Provision of adequate information on the sites and their own observation will be required to get them make an appropriate decision on the sites, free from biases against them.

2) Vicinity of the reservoir area

This criterion implies at least two kinds of benefits to the displaced people. First, resettlements in the vicinity of homeland can alleviate the impacts of the disruption of communities on both the displaced and the remaining people

since they can maintain social and economic ties to each other: Especially the displaced people can have permanent and satisfactory contacts with the remaining people, which could facilitate the recreation of their communities.

Second, the environment in the vicinity area, including climate, ecology and soil, is most likely to be the same as, or quite similar to, that in the homeland. This will enable the displaced people to avoid substantial changes in the conditions of socio-economic activities so that, in particular, the displaced people can sustain their original production system including crop diversification.

Indeed, some people in the areas, especially Kericho side, expressed their concern that they want to remain within the same district where they live at present, or in the vicinity.

3) Similarity of agro-ecological zone

This criterion was selected due to the same reason as described in the last half of the above 2). Some people in the areas also emphasized this requirement for the selection of resettlement sites. This is important because in the quite different agro-ecological zone, each household will not be able to produce the equivalent amount and kinds of products even if provided with the same size of land, resulting in the deterioration in their living standards.

4) Land conditions

One of the key factors in the selection of resettlement sites is land conditions, especially soil quality and size of available land, taking their future expansion into account. The experiences indicate that poorer quality and/or inadequate size of land are main reasons for unsuccessful resettlement. Land use conditions and topography are also important.

5) Availability of non-farm employment opportunities

This criterion is required since relatively substantial numbers of people/households in the areas owe their principal or secondary income source to non-farm activities. Although the opportunities can be boosted by enhancing their skills and capital, it will be better for the displaced people to

have more likelihood to obtain them in the new sites so as to regain their economic bases as soon as possible.

6) Suitability to host populations and environment

This criterion refers not only to the socio-cultural relationship between the displaced people and the host populations, but to the possibility of conflicts over the resources, especially land; socio-economic features that limit receptivity to the displaced people. The pressure on resources would also come to environmental deterioration. To assess the possibility, the ratio between the incoming population and the host population may be useful. In addition, careful attention should be paid to safety in terms of health, special characteristics of natural and of social environment

7) Availability of water sources and accessibility

This criterion was chosen since the water sources are the most geographically constrained among the basic human needs. The accessibility to the centres, markets and amenities is also important. The infrastructures and facilities such as schools and dispensaries could be relatively easily established, regardless of the endowment of resources in the new sites, although the availability of the space for them is one of the premises.

In addition to the above, the following criteria will be taken into account since they will be necessarily involved with the implementation of resettlements:

8) Land ownership

This criterion refers to actual possibility to obtain some land for the displaced people as resettlement sites. The land ownership can be roughly divided into government land and private land. In general, the former can be obtained more easily than the latter since the Project is a national project.

9) Value of lands

The value of land in the resettlement sites should be taken into consideration for acquisition of alternative land.

10) Side-effects of the resettlement

This criterion refers to the potability of negative impacts involved with the land acquisition for the resettlement sites. The evacuation of other people who would have lived in the sites or loss of their jobs as well as environmental problems should be avoided.

Transfer arrangements

Transfer arrangements aim to smoothly transfer the evacuees to resettlement sites, minimizing their hardship caused by the transfer and the time it takes to do it. Careful attention should be given to information dissemination among the displaced and the host people, maintenance arrangements during the transfer period and mobilization arrangements with full payment of costs incurred to the affected people.

Information dissemination at this stage includes the schedule of evacuation, transport means etc., while maintenance arrangements allow for food, shelters, fodder, fuelwood and medical arrangement for the "lag" time. Mobilization arrangements pay attention mainly to the schedule of and the form of movement, vehicles and logistics or routes to facilitate access and exit to new sites. In the planning stage, the schedule of movement should consider the harvest period so as not to waste their earnings. Also, volume of movable assets should not be underestimated.

Besides, it has been observed that enough time was not given for compensation operation of projects, causing delay of compensation and hardships of evacuees.

(3) Development

Development component aims to prepare the socio-economic base so that the displaced people can recover their prior living standards and have opportunities to improve them in the new sites. To achieve the objective, alternative development strategies for distinct characteristics of the evacuees should be established, taking into their economic and socio-cultural characteristics account. The strategies should allow for the host populations so as to avoid conflicts between the resettlers and the host populations, and include the strengthening of social organization/local institutions for self-sustenance and the environmental management. Then, proportions in which each alternative is likely to be selected will be assessed.

There is a major critical issue, which is related to the linkage between the evacuation and the resettlement. The preparation and development at minimum in the resettlement sites has to be completed in time before the impoundment of the reservoir so that the evacuees can continue to live their lives without disruption. It is indispensable to carry out additional and/or more detailed studies on new site suitability, as needed, and comprehensive and detailed studies for the site preparation with the involvement of the affected people. Thus, it should be noted that the preparation for the development of resettlement sites must be commenced far enough in advance of other project components with adequate resources and staff.

The development component may comprise i) Economic and ii) Socio-cultural sub-components. The former is directed to income-generating activities, whereas the latter to the other activities of ordinary livelihood.

1) Economic sub-component

Land

Land is prepared and alienated to the displaced people by main types of use; farm land, grazing land and settlement sites. The plot allotment is closely related to settlement patterns, determined on the basis of the resettlers' preference and socio-economic activities. It is important to prepare criteria for plot allocation, considering the predictable growth of the affected households in the next generation, inheritance system etc. If sufficient land is not available, some measures should be taken in order for the displaced people to regain their living standards, for instance, agricultural intensification, enforcement of zero-grazing and cash compensation for the "extra" land of large land owners with guidance of investment in other purposes.

Agricultural and other income-generating development plans

As mentioned before, majority of resettlers is traditional farmers. The more intense the changes in production system and conditions are, the more provisions and assistance of the Government are required. Thus, adequate availability of land in terms of quantity and quality and similarity of agro-ecological zones are quite important.

Agricultural development plans mainly comprise cropping pattern planning and agricultural supporting services planning. Taking the farmers' features and hardship due to the resettlement into account, it is better to avoid drastic changes such as introduction of modern technology which requires high skills, money for inputs etc.

For those who lost employment opportunities, plans for income generation should be formulated. The government would have to provide them with some types of training that they prefer, which may be a principal measure to master skills and know-how, but may need additional investments to create sufficient employment opportunities, including development of small industries etc.

While they cannot earn enough money to buy the basic requirements for livelihood, they should be provided with shelter, food, medical arrangements, etc.

Economic infrastructure

Construction of economic infrastructure such as roads and bridges would be required so that economic and social activities can be developed, taking habitat plans into account.

2) Socio-cultural sub-component

Habitat

This planning includes housing and settlement patterns, drinking water supply systems, sanitary facilities etc. It is directed to enhance the housing standards and physical infrastructure, allowing for the predictable growth of population. It is noted that successful resettlement has reflected the resettlers' preference and expectation in the planning and designing layout. Restrictions on their customary activities, which cause frustration and encourage to abandon the sites, should be kept to a minimum.

Social services

Provision of social services such as schools and health facilities is critical since the young and children occupy the largest share in the resettlers.

Strengthening the women's group would substantially contribute to the re-establishment of social base as well as of economic base.

(4) Management

Management component is an integral part of the resettlement plans. It comprises i) institutional set-up for implementing resettlements, ii) budgeting and establishing timetables and iii) designing monitoring and evaluation.

1) Institutional set-up

Experiences in resettlement show that its success has largely relied on organizational capability including adequate staff and budget to implement the complicated and difficult tasks. In the Project, the Kenya Power Company Limited (KPC), the implementing agency, would be responsible for executing the resettlement and in a position to take the initiative in integration and co-operation with the affected people and the line agencies and ministries concerned, including:

- the Lake Basin Development Authority that plays an important role in development of Western Kenya;
- the Office of the President that is in charge of administration in the nature of the Provincial, District and Locational Administration;
- the District Administration and County Councils in the affected areas: Kericho, Nyamira and others where resettlement sites are located;
- the Ministry of Lands and Housing, especially
 - Department of Lands that would be in charge of any government land/related issues, land valuation and compensation issues,
 - Department of Settlement that would actually manage any resettlement,
 - Department of Survey that would undertake any surveying for any identified resettlement,
 - Department of Housing that would assist the planning of new settlements,
 - Department of Physical Planning that would assist the planning of new settlements;
- Other ministries that assist in development in resettlement sites; and
- Non-governmental Organizations (NGOs), which could be a facilitator for communication between the affected people and the Government side, if possible.

The Government should establish a special unit within the KPC or in appropriate administration/agency, which is devoted to planning and implementing the compensation and resettlement as early as possible before commencement of planning. It is noted that the institution/regime should be so flexible as to cope with unforeseen difficulties and events. The tasks of the unit include:

- To disseminate information to, and communicate with, the affected people and involve them in the planning and implementation,
- To coordinate the participants' interests and ideas in resettlement: the affected people, the line agencies/ministries etc.,
- To formulate resettlement plans, and
- To supervise and monitor the implementation of the plans.

Thus, the tasks are so comprehensive and hard that qualified and sufficient numbers of staff and adequate resources have to be allocated to the unit.

2) Budget and Timetables

Budget for implementing resettlement should be based on full costing of all operations, including both investment and recurrent costs, and avoid underestimating cost required, as is often the case. Then, a financing plan will be formulated to secure funds for resettlement. The cost items would include the following:

Preparation and compensation

- Cost of census of affected population and inventory of properties
- Compensation for properties lost (Individual and Communal)
- Cost of public assets replacement (Government and Communal)
- Cost of site assessment in the resettlement area
- Land acquisition and reclamation/improvements cost in the resettlement sites

Transfer or relocation

- Cost of moving such as shelter and transport
- Cost of replacement housing
- Cost of infrastructure and facilities in the resettlement sites
- Subsistence packages such as food, fodder etc. due to temporary losses or reductions in production and income of the evacuees

- Special welfare services during resettlement, such as temporary health units etc.

Re-development

- Large-scale schemes
- Small-scale (household) schemes
- Incremental services such as extension, training, health education, etc.
- Setting up new industrial and commercial enterprises
- Environmental enhancement packages such as soil conservation etc.
- Mitigation of the impacts on host populations

Administrative overhead

- Physical facilities
- Vehicles
- Materials
- Operational staff
- Support staff
- Training
- Monitoring and evaluation
- Technical assistance.

A resettlement timetable should be coordinated with the chronogram of construction and other project features.

3) Monitoring and evaluation

No experience in the large-scale resettlement in Kenya increases the importance of monitoring and evaluation of the resettlement process and of whether or not the resettlement is heading towards its success. Real-time data acquisition for resettlement process will enable the executing organization to improve it and minimize the affected people's hardship due to delay and failures.

5.3 Result of Preliminary Investigation on Resettlement Sites

In the Study, inputs to the resettlement plans are confined to what has been mentioned so far. This is largely attributable to the fact that resettlement sites could not be identified. However, a preliminary survey was conducted for possible resettlement sites. The survey was carried out on ad-hoc basis, based on the information derived from

officials and local people. Therefore, what will be described below is intended only to provide some information on possible resettlement sites.

5.3.1 Possible resettlement sites

(1) Settlement Schemes

As described in the preceding Sub-section in 5.2.2, the Government of Kenya has promoted settlement schemes in rural areas, especially for the landless and those in unemployment, by providing them with some government land. In Kisii and Nyamira districts, eight settlement schemes have been completed and some 45,000 acres, which were divided into 1,221 plots, were already provided to Kenyan people. As of June, 1990, two more schemes were under construction, but those who would settle in the schemes were already determined. The location of sites is: Nyasiongo, Kitaro, Gesima, Mwongori, Manga, Isoge, Lietego, Matutu, Kineni (under construction) and Ekerbo (under construction).

In Kericho, eleven settlement schemes have been completed: Gelegele, East Sotic, Cheplewa, Manaret, Kipsonoi, Ngoina, Kuniyak, North Sotic, Chepsir, Chesirende and Koyet. In those districts, there are no plans of settlement schemes at the moment.

Swamp/marsh areas

There are swamp/marsh areas in Kericho, Nyamira and Kisii districts owned by the Country Council of each district. The total area of such land is estimated at some 37 km² and 15 km² for Kericho and Kisii/Nyamira districts respectively. Although some sites have already been developed through the reclamation for agriculture purposes, especially in Nyamira and Kisii districts, the rest of land in no use was considered as a candidate for possible resettlement sites.

With field excursion and interviews with the officials concerned, the following facts were found out:

- In Kisii/Nyamira district, most of the areas are under the integrated Kisii Valley Bottom Development Programme, which started in 1982;
- According to the experiences in the programme, land productivity tends to begin to decrease in some three years after the commencement of cultivation where plat soils due to the less nutrient contents;

- It is difficult to build structures on peat soil due to their sinking;
- Villagers tend to extend their cultivated land into those sites because of a high population pressure;
- Some swamp or marsh areas have provided the adjoining villagers with materials of housing and have functioned as communal grazing ground as well as a source of water during dry seasons; and
- Geographical configuration of swamp/marsh areas may prevent the resettlers from continuing important socio-economic activities.

Ngoina Tea Estate and other adjoining estates

The Ngoina tea estate is located adjacent to the reservoir site of the Project, bestriding Nyamira and Kericho districts. The tea estate is approximately 1,350 hectares in size and is owned by Brook Bond Kenya Ltd., a private tea growing company. The estate is a relatively new one and in the process of planting tea.

There are, at least, a school, a health facility, water and road-network connecting both Nyamira and Kericho districts, which were created mainly for the company, its employees and their families.

The company was said to rent some government land where it has recently planted trees as fuels for drying tea leaves.

Some of the community leaders prefer the Goina estate or other adjacent tea estates as one of the most suitable resettlement sites. This is quite understandable due to its vicinity to the reservoir:

- They could continue with their socio-economic/socio-cultural activities with relatively minimal interruptions
- They could still be in touch with the original communities.

However, the resettlement would force some employees of the company to lose their current jobs. Thus, some measures would have to be taken into account in the implementation of the resettlement.

Other adjacent estates to which some local people refer as possible resettlement sites are Sotic highlands, Keritor tea estate and Monire estate.

ADC farms in Trans Nzoia district

One of possible resettlement sites may be located in Trans Nzoia district, especially for the Gusii people. The district comprises land formally owned by colonial settlers which after independence was used to resettle landless people. They come from different ethnic groups including the Gusii who mainly settled in Cherangani, Goseta, Nyahomo and Kapomboi. Major agricultural products are maize, wheat, sunflower and livestock. Coffee and tea production is confined to relatively small areas.

The Agricultural Development Corporation (ADC) is a government agency, of which major task is to ensure that the farmers' requirements for improved crop seed and breeding stock for different types of livestock are met. The corporation has its farms of about 35,000 ha in Trans Nzoia district, where it mainly produces seed maize, citrus fruits and improved livestock.

It would be easier to get a part of ADC farms in Trans Nzoia district for the resettlement sites as compared to private land. The Gusii people to be displaced by the Project may not reject to move the area if they agree to the conditions involved with the resettlement. Due to the long distance between the resettlers' homeland and resettlement sites, however, socio-economic ties and contacts with the remaining people would be lost, and hence the damages on the resettlers more intense and rerooting more difficult. In addition, the resettlers could not grow all the crops they currently do, especially coffee and tea. Moreover, provision of parts of ADC farms to the resettlers may affect the existing workers at the farms in that some of them would lose their jobs.

Simbauti farm

The Simbauti farm is located in Borabu division of Nyamira district, some 40 km south of the Magwagwa village. It is approximately 300 hectares in size and owned by a cooperative union, an umbrella organization of a large number of cooperative societies in Kisii and Nyamira districts. Main economic activities carried on in the farm include cattle rearing, and maize and tea growing.

The District Environment Office of Nyamira district indicated that the farm is earmarked for a resettlement of people to be displaced.

Government land in Kericho district

Inquiries in Kericho district revealed that there is a possibility of some existing government lands in Kericho district, located around Londiani of Keperion, Bomet divisions as well as Soin location of Belgut division. However, most of them are said to be under forest.

5.3.2 Preliminary assessment of possible resettlement Sites

Table 5.2 summarizes a result of preliminary investigation on possible resettlement sites. This is mostly based on the impression without detailed survey, so that the assessment should be used just for reference.

VI. CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

It cannot be conclusive that the Project is socially acceptable and sound since resettlement plans including compensation, restoration plans and associated regional development plans in the affected areas have not been completely formulated yet. In other words, it can be when such plans or countermeasures are judged feasible from social, economic, financial, environmental and technical points of view.

However, it is expected that the results of this Study, especially Chapters 4 and 5, will be able to substantially contribute to getting the plans and countermeasures feasible.

6.2 Recommendations

The further studies mainly comprise 1) Resettlement Plan including compensation, 2) Restoration Plan around the reservoir area and 3) Area or Regional Development Plans, as countermeasures, around the reservoir area.

Among others, the following are recommended, in particular, for further studies:

- (1) Appropriate understandings of involuntary resettlements and other socio-economic impacts of the Project

It is quite indispensable to recognize the substantial impacts of the Project, especially due to the inundation of the reservoir area, the necessity of "land for land" approach, as well as the impacts of failure in resettlement and restoration not only on the affected people but on the Project, the regional development and national development. This component is an integral part of the Project and not taken as the secondary status.

Besides, it is not an easy task to succeed in the resettlement and restoration, which require careful and detailed planning in the comprehensive fields and areas.

- (2) Institutional set-up for formulating the required plans and countermeasures as early as possible

The institutional set-up is a prerequisite to carry out the further studies to formulate the required plans. The KPC is expected to establish such special unit or function

of which tasks include public relations with the affected people to smoothly carry out the studies and coordination with the required line agencies/ministries.

(3) Involvement of the affected people and the officials concerned

To get the plans feasible, it is essential to involve the affected people as well as the officials concerned in formulating those plans and countermeasures. Many resettlements in the past projects in the world have failed mainly due to less involvement of them and institutional/organizational incapability.

(4) Full costing of all the components of the plans and countermeasures

As underestimate of the costs required for the plans leads to underfinancing, all the costs required for implementing those plans and countermeasures should be estimated based on detailed surveys

(5) Commencement of the further studies as early as possible with adequate resources and experts

It will take time to carry out the further studies, especially the identification of resettlement sites, which will come the first among others in the resettlement plan and be the most important component, which will require qualified and sufficient number of experts. Also, comprehensive and detailed base-line information will have to be collected in both the reservoir and its vicinity and the resettlement sites. Thus, unlike other components of the Project, the further studies will need comprehensive fields of experts and details.

Tables

Table 2.1 Current Population in the Project Area by Age per District

Age Group	Kericho		Nyamira		Total		Accumulation, %
	Nos.	%	Nos.	%	Nos.	%	
0 - 4	615	18.4	275	18.6	890	18.5	18.5
5 - 9	549	16.4	263	17.8	812	16.8	35.3
10-14	493	14.8	233	15.8	726	15.1	50.4
15-19	417	12.5	192	13.0	609	12.6	63.0
20-24	302	9.0	121	8.2	423	8.8	71.8
25-29	256	7.7	101	6.8	357	7.4	79.2
30-34	155	4.6	53	3.6	206	4.3	83.5
35-39	123	3.7	66	4.5	189	3.9	87.4
40-44	106	3.2	52	3.5	158	3.3	90.7
45-49	60	1.8	35	2.4	95	2.0	92.7
50-54	93	2.8	38	2.6	131	2.7	95.4
55-59	18	0.5	12	0.8	30	0.6	96.0
60-64	43	1.3	12	0.8	55	1.1	97.1
65-69	25	0.7	5	0.3	30	0.6	97.7
70-74	41	1.2	4	0.3	45	0.9	98.6
75-79	16	0.5	5	0.3	21	0.4	99.0
80-	15	0.4	2	0.1	17	0.4	99.4
NS	16	0.5	9	0.6	25	0.5	100.0
TOTAL	3,341	100.0	1,478	100.0	4,819	100.0	100.0

Table 2.2 Number of Members per Household by District

Household Size (Nos)	Kericho (%)	Nyamira (%)	Total (%)
1-4	38.3	33.3	36.8
5-8	40.3	42.9	41.0
Over 8	21.5	23.8	22.0
Total	100.0	100.0	100.0
No. of total households	559	231	790
Total population	3,341	1,478	4,819
Average number per household	5.9	6.4	6.1

Table 2.3 Employment Structure in the Areas

(Unit: %)

Main Activity	Kericho		Nyamira		All	
	Total Pop.	Work Group	Total Pop.	Work Group	Total Pop.	Work Group
Mixed farmers	25.1	(63.7)	20.4	(57.3)	23.7	(61.9)
Crop farmers	3.5	(8.9)	2.3	(6.5)	3.1	(8.1)
Livestock farmers	0	(0)	0	(0)	0	(0)
Self employed in household business	2.4	(6.1)	2.0	(5.6)	2.3	(6.0)
Employed in household business	0.7	(1.8)	0.9	(2.5)	0.8	(2.1)
Wage employment	6.5	(16.5)	8.4	(23.6)	7.1	(18.5)
Unemployed	0.8	(2.0)	1.2	(3.4)	0.9	(2.4)
Sick/disabled	0.4	(1.0)	0.4	(1.1)	0.4	(1.0)
(Total)		(100.0)		(100.0)		(100.0)
Schooling	38.6		44.1		40.3	
Young Children	21.9		20.3		21.4	
Not Stated	0.1		0		0.1	
Total	100.0		100.0		100.0	
(N=	3,324		1,448		4,772)	

Table 2.4 Population of Wage Employment and Self-employment by Sector

Sector of Work	Kericho (%)	Nyamira (%)	All (%)
Agriculture and Forestry	36.9	28.7	34.2
Mining and Quarrying Construction	1.0	1.3	1.1
Wholesale, retail trade	5.0	6.0	5.4
Transport and Communications	6.0	8.7	6.9
Finance, Insurance and real estate	0.3	1.3	0.7
Services	40.6	40.7	40.6
Not Stated	5.7	8.7	6.7
Total	100.0	100.0	100.0

**Table 2.5 Proportion of Households in Various Income Groups
(Average Monthly Income)**

(Unit: %)

Income Group (KShs)	Kericho (%)	Nyamira (%)	All (%)
Up to 1000	14.1	10.2	13.0
1001 - 2000	21.7	18.1	20.7
2001 - 3000	17.6	15.5	17.0
3001 - 4000	11.0	16.8	12.6
4000 - 5000	7.1	10.6	8.1
5000 - 6000	7.8	9.3	8.2
6000 - 7000	3.6	3.5	3.6
7001 - 8000	4.1	3.1	3.8
8000 - 9000	2.2	3.1	2.5
9001 - 10000	1.4	1.8	1.5
Over 10,000	9.6	8.0	9.0
	100.0	100.0	100.0

Table 2.6 Ranking of Sources of Income

(Unit: %)

Source	Kericho (%)		Nyamira (%)		All (%)	
	1st	2nd	1st	2nd	1st	2nd
Livestock	9.8	22.4	2.2	17.3	7.7	21.0
Crops	42.3	20.0	62.0	16.4	47.8	19.0
Mixed (Crops/Livestock)	17.9	6.7	11.1	3.5	16.0	5.8
Salary/Wage	13.6	12.2	13.3	24.3	13.5	15.6
Trade/business	10.2	12.7	4.9	8.9	8.7	11.7
Others	5.9	13.3	5.3	14.2	5.7	13.6

Table 2.7 Mean Monthly Expenditure

Item	Kericho		Nyamira		All	
	Nos.	KShs	Nos.	KShs	Nos.	KShs
Food	561	750	215	799	776	763
Education	153	540	28	475	181	530
Recreation	307	405	113	425	420	411
Medical	297	334	82	405	379	350
Durable household goods	125	648	33	295	158	574
Donations	329	266	89	255	418	264
Transport	467	394	184	459	651	413
Savings	37	645	37	585	74	615
Others	278	1438	137	1090	415	1323
All	-	2619	-	2508	-	2588

Table 2.8 Production and Disposal of Main Crops

Crop		Amount Consumed/Stored (%)		Amount Sold (%)	
(a)	Kericho				
	Tea (kgs)	360	(0.2)	162,258	(99.8)
	Maize (bags)*	825,680	(29)	1,982,900	(71)
	Beans (bags)*	62,013	(26)	172,890	(74)
	Coffee (kgs)	400	(0.7)	56,946	(99.3)
	Bananas (bunches)	6,201	(28)	15,951	(72)
	Wheat (bags)*	123	(37)	212	(63)
	Vegetables/fruits (bags)*	2,410	(12)	17,631	(88)
	Sugar Cane (tonnes)	2,840	(47)	3,151	(53)
	Millets (bags)*	28,526	(40)	42,860	(60)
(b)	Nyamira				
	Tea (kgs)	2,000	(1)	151,206	(99)
	Maize (bags)*	372,420	(39)	573,720	(61)
	Beans (bags)*	50,805	(35)	94,530	(65)
	Coffee (kgs)	2,220	(1)	219,680	(99)
	Banana (bunches)	7,130	(20)	27,818	(80)
	Wheat (bags)*	273	(50)	270	(50)
	Vegetable/Fruits (bags)*	4,753	(29)	11,367	(71)
	Sugar Cane (tonnes)	94	(69)	43	(31)
	Millets (bags)*	5,497	(38)	8,887	(62)

* a bag = 90 kg.

Table 2.9 Earnings from Farm Produce

Crops	Kericho		Nyamira		All	
	No. of observ.	Earnings KShs. per Observa.	No. of observ.	Earnings KShs. per Observa.	No. of observ.	Earnings KShs. per Observa.
Tea	120	5,044	67	7,010	187	5,749
Maize	509	10,881	191	9,632	700	10,540
Beans	389	2,493	180	3,907	569	2,941
Coffee	58	2,585	162	4,268	220	3,825
Bananas	187	3,834	161	6,407	348	5,024
Wheat	2	2,640	1	3,000	3	2,760
Veg/Fruits	230	6,809	146	12,326	376	8,951
Sugar Cane	32	1,814	52	2,446	84	2,206
Millet	124	2,404	31	2,156	155	2,356
Gross Earnings					818	20,343

Table 2.10 Type of Business

Type	Kericho		Nyamira	
	Nos.	%	Nos.	%
Bar	2	2.8	1	2.7
Butchery	9	12.5	3	8.1
Carpentry	1	1.4	3	8.1
Hardware	4	1.4	1	2.7
Posho Mill	4	5.6	1	2.7
Retail Shop	24	33.3	18	48.7
Shoe Shop	3	4.1	0	0
Wholesale/Distributor	3	4.1	0	0
Tailoring	0	0	3	8.1
Tea kiosk	10	13.9	6	16.2
Water Mill	12	16.7	0	0
Others	3	4.1	2	5.4
Totals	72	100.0	37	100.0

Table 2.11 Marital Status of Head of Household by District

Marital Status	Kericho (%)	Nyamira (%)	Total (%)
Single	4.8	4.5	4.7
Married	84.9	84.6	84.8
Widowed	9.9	10.4	10.1
Divorced	0.2	0.0	0.1
Separated	0.2	0.5	0.3
	100.0	100.0	100.0
Base	523	201	724

Table 2.12 Religious Affiliation

Unit (%)

	Nos.	Total	Nyamira	Kericho
Catholic	2514	52.2	28.9	62.5
Protestant	2217	46.2	67.5	36.5
Muslim	2	0.0	0.5	0.0
Other	33	0.7	2.1	0.1
No Religion	24	0.5	0.9	0.3
No + Stated	29	0.6	0.5	0.6
Total	4819	100.0	100.0	100.0

Table 2.13 Educational Level of Head of Household by District

Educational Level	Kericho (%)	Nyamira (%)	Total (%)
No formal education	32.7	19.4	28.7
Std. 1 - 4	15.5	15.7	15.5
Std. 5 - 8	33.1	39.4	34.9
Form 1 - 2	5.9	10.6	7.3
Form 3 - 4	11.7	13.0	12.1
Form 5 - 6	0.8	0.9	0.8
Post-Secondary	0.4	0.9	0.5
	100.0	100.0	100.0
Total	511	216	727

Table 2.14 Participation in Socio-economic Group Activities (Number of members)

Type of Group	Nyamira		Kericho		Total Area	
	Nos.	(%)	Nos.	(%)	Nos.	(%)
Women Group	38	(43.2)	194	(59.9)	232	(56.7)
Co-operative Society	34	(38.6)	113	(34.9)	147	(36.0)
Christian Group	12	(13.6)	0	(0.0)	12	(2.9)
Other	4	(4.5)	14	(4.3)	18	(4.4)
Total	88	(100.0)	321	(100.0)	409	(100.0)

Table 2.15 Nature of Socio-economic Group Activities and Membership

Type of Group	Nyamira		Kericho		Total Area	
	Nos.	(%)	Nos.	(%)	Nos.	(%)
Self-help/Credit/Saving	30	(35.3)	67	(21.4)	97	(24.4)
Farming/Produce Marketing	37	(43.5)	108	(34.5)	145	(36.4)
Business/Income generating	6	(7.1)	128	(40.9)	134	(33.7)
Community Dev. Project	5	(5.9)	7	(2.2)	12	(3.0)
Training/Education	5	(2.4)	1	(0.3)	6	(1.5)
Other	2	(2.4)	2	(0.6)	4	(1.0)
Total	85	(100.0)	303	(100.0)	388	(100.0)

Table 3.1 Summary of a Result of Initial Screening for Socio-economic Impacts

Major Causes	Major Impacts	Number of People Affected	Intensity of Impacts	Difficulty of Prevention/Alleviation
I. Pre-construction Stage				
1. Land Acquisition	<ul style="list-style-type: none"> Displacement of people Loss of land 	<p>+</p> <p>?</p>	<p>++</p> <p>++</p>	<p>++</p> <p>++</p>
II. Construction Stage				
1. Influx of Labours	<ul style="list-style-type: none"> Social frictions Occurrence of diseases 	? (++)	++	+
(To be assessed in Natural Environmental Study)				
2. Generation of Job Opportunities	<ul style="list-style-type: none"> Improving living standards Influence on farming 	<p>? (++)</p> <p>?</p>	<p>+</p> <p>+</p>	<p>-</p> <p>++</p>
3. Increase in Traffic Volume	<ul style="list-style-type: none"> Disturbance of transportation 	? (++)	+	+
4. Reduction of Flow Downstream	<ul style="list-style-type: none"> Influence on water use 			
(To be assessed in Natural Environmental Study)				
III. Impounding of the Reservoir				
1. Displacement of the People	<ul style="list-style-type: none"> Decrease in living standards Damages on social aspects 	<p>++</p> <p>++</p>	<p>++</p> <p>++</p>	<p>++</p> <p>++</p>
2. Inundation of Land & Structures				
2.1 Roads	<ul style="list-style-type: none"> Disturbance to socio-economic activities 	? (++)	++	+
2.2 Trading Centres	<ul style="list-style-type: none"> - do - 	? (++)	++	++
2.3 Public Facilities	<ul style="list-style-type: none"> - do - 	? (++)	++	+
2.4 Cultural/Historical Sites	<ul style="list-style-type: none"> Spiritual damages on people 	?	++	? (++)
2.5 Lands	<ul style="list-style-type: none"> Rise in land value Shortage of agricultural products 	<p>?</p> <p>? (+)</p>	<p>++</p> <p>+</p>	<p>++</p> <p>+</p>
IV. Operation Stage				
1. Provision of Water Supply	<ul style="list-style-type: none"> Improving living standards 	? (++)	++	-
2. Provision of Electricity	<ul style="list-style-type: none"> - do - 	? (++)	?	-
3. Generation of Job Opportunities	<ul style="list-style-type: none"> - do - 	? (+)	++	-
4. Possibility of Fishery	<ul style="list-style-type: none"> - do - 	? (+)	?	-

Note: ++ = Significant, + = Not significant, - = No need to consider, ? = Unknown
Signs in parentheses stand for inference.

**Table 4.1 Rough Estimate of Land Acquisition Cost
(Portion of Total Compensation Cost)**

1. Estimate of Land Use in Reservoir Area		2. Land within Reservoir Area			
Land Use Type	Area (km ²)		Nyamira Side	Kericho Side	Total
Total*	26	1) Land Area (km ²)	7.8	18.2	26
River*	1.18	2) River Area (km ²)	0.2	1	1.2
Swamp*	0.66	3) 1) - 2) (km ²)	7.6	17.2	24.8
Scrub*	2.44	Average Land Value (Kshs. /acre)	30000	35000	-
Forest*	1.72	Average Land Value (Kshs. /ha)	74130	86485	-
Sub-total	6.00	Land Value (Kshs.1000)	56339	148754	205093
		3. Land outside Reservoir Area*			
Transport network/ 3%**	0.8	Land Area (km ²)	3.1	7.1	10.2
Homestead land/ Hedges		Average Land Value (Kshs. /acre)	30000	35000	-
Arable/pasture land 100%	19.2	Average Land Value (Kshs. /ha)	74130	86485	-
Arable land 56%***	10.8	Land Value (Kshs.1000)	22980	61404	84385
Cash crops [36%**]	3.9	* Excluding severely or injurily affected land			
Staple crops [54%**]	5.8	As average size of each household's land is 5 ha, total land of affected households amounts to some 3,500 ha. The balance between that and reservoir area excluding river is 10.2 km ² .			
Vegetables [4%**]	0.4				
Others [6%**]	0.6				
Pasture land 42%***	8.1	4. Houses*			
Other (waste land) 2%***	0.4		Nyamira Side	Kericho Side	Total
		Average Value (Kshs./household)	8130	6940	-
		Number of Households Affected (Reservoir + Other Structures)	430	320	-
		Total value (Kshs.1000)	3496	2221	5717
		* Excluding those which live outside the reservoir, but are forced to move			
		5. Perennial Trees			
		Area (km ²)*	Value (Shs./acre)	Total Value (Kshs.1000)	
		Tea	7.5	125000	233100
		* Assuming tea planted in all land for cash crops			
		6. Standing crops			
		Total Value* (Kshs.1000)	23773		
		* Estimate from Field Survey			
		7. Total			
		a. Total of 2 through 6 (Kshs.1000)	552068		
		b. Compensation for disturbance (15% of 7) (Kshs. 1000)	82810		
		9. Total (a + b) (Kshs. 1000)	634878		

Notes:

* Obtained from Map (1:5000)

** Based on Integrated Land Use Survey, 1983

*** Based on Household Survey for the Project

Table 5.1 Possible Problems with Regard to Involuntary Resettlement

Preparation for Resettlement	Transfer (Uprooting) Period	Transitional Period	Self-sustenance (Rerooting) Period
DISPLACED PEOPLE			
ECONOMIC ASPECTS			
<p>(1) Fear of losing property, jobs etc.</p> <p>(2) Uncertainty of establishing economic base</p> <p>(3) Suspicion whether the government accepts their claims</p> <p>(4) Existence of those who would be displaced, but without compensation</p>	<p>(1) Negative impacts on economic activities at home, in the case that they have to prepare living environment at resettlement sites by themselves: high "opportunity cost"</p> <p>(2) Existence of problems involved with the move: such as timing of move, underestimate of properties to be taken with the displaced people etc.</p>	<p>(1) No revenue due to preparation for establishing economic base (immaturity of crops, changes in occupations, etc.)</p> <p>(2) Burden of debts for housing, electricity, etc.</p> <p>(3) Insufficiency of land both quantitatively and qualitatively.</p> <p>(4) Existence of those who were displaced, but without compensation (landless, etc.)</p> <p>(5) Mismanagement/misuses of compensation grant</p> <p>(6) Constraints to economic activities due to insufficient economic structure</p> <p>(7) Government's failure to keep its promises</p> <p>(8) Delay of preparation in new sites</p> <p>(9) More hardship to low income households</p> <p>(10) Existence of those who had to leave from resettlement sites</p>	<p>(1) Insufficiency of land for "Second Generation"</p> <p>(2) Difficulty to live their lives on a self-help basis</p>
SOCIO-CULTURAL ASPECTS			
<p>(1) Sadness of their home land and holy places taking over from ancestors being submerged</p> <p>(2) Fear of destruction of communities</p> <p>(3) Uneasiness of beginning a new life</p> <p>(4) Existence of those who could not move to remote areas due to old age's preference, attachment to family, etc.</p>	<p>(1) Destruction of communities</p>	<p>(1) Difficulty of reconstructing viable communities (leadership, functions, necessity of non-farmers, etc.)</p> <p>(2) Frictions with host populations</p> <p>(3) Government's failure to keep its promises</p> <p>(4) Insufficiency of social infrastructure, including water supply, housing, etc.</p> <p>(5) Increase in stress for various reasons</p> <p>(6) Delay of preparation in new sites</p> <p>(7) Lack of experiences for adapting new environments</p>	
OTHERS RELATED TO DISPLACED PEOPLE			
<p>(1) More difficult situation to obtain land and increase in rent etc., due to rise in land value</p>	<p>(1) Difficulty of finding another job for those who lost their job due to inundation</p> <p>(2) Decrease in labours</p> <p>(3) Destruction of communities</p> <p>(4) Delay of reconstructing lost facilities</p>	<p>(1) Host population's frictions with settlers</p> <p>(2) Host populations' tendency to treat resettlers as unfairly privileged</p>	

Table 5.2 Summary of Preliminary Investigation on Possible Resettlement Sites

Criteria Areas investigated	(1) Displaced people's preference	(2) Vicinity of the reservoir areas	(3) Land conditions	(4) Similarity of agro-ecological zone	(5) Availability of non-farm employment opportunities	(6) Social affinity	(7) Availability of water sources and accessibility	(8) Land ownership	(9) Value of lands	(10) Side-effects of the resettlement	(11) Remarks
1. Settlement schemes in Kericho and Nyamira/Kisii districts	-	-	-	-	-	-	-	Government	-	-	No plans both in Kericho and Nyamira/Kisii districts.
2. Swamp/Marsh areas in Kericho and Nyamira/Kisii districts	?	Δ	X	○	?	○	○	County councils	?	Negative effects on those living around the areas	Soil and topographic conditions are not good.
3. Ngoma and other adjacent tea estates in Kericho and Nyamira districts	●	●	?	●	?	●	○	Private company (Partly Govern- ment land)	?	Negative effects on some workers at estate	1,350 ha (Ngoina estate)
4. Simbani farm in Nyamira district	○	Δ	?	○	?	○	?	A Co-operative union	?	?	The land appears earmarked for other use. 300 ha
5. Government land in Kericho district	?	Δ	?	○	?	○	?	Government	?	?	No investigation was carried out.
6. ADC farms in Trans Nzoia district	Δ	X	?	○	?	Δ	?	Government	?	Possible negative effects on some workers at farms	Some 35,000 ha

Notes : ● = Excellent
○ = Good
Δ = Fair
X = Bad
? = Unknown
- = No need to assess

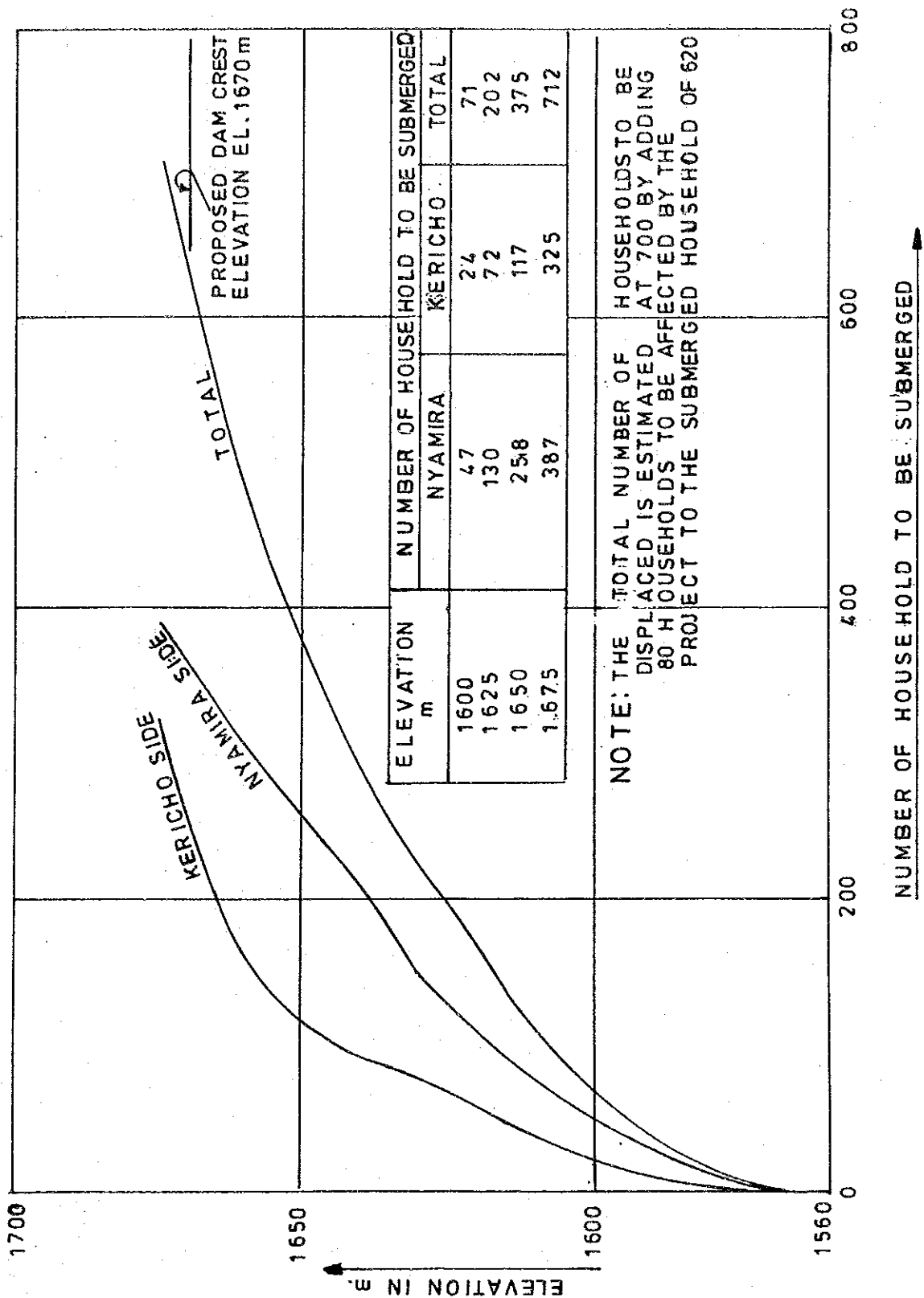


Figure 2.1 Number of Households in the Reservoir Area

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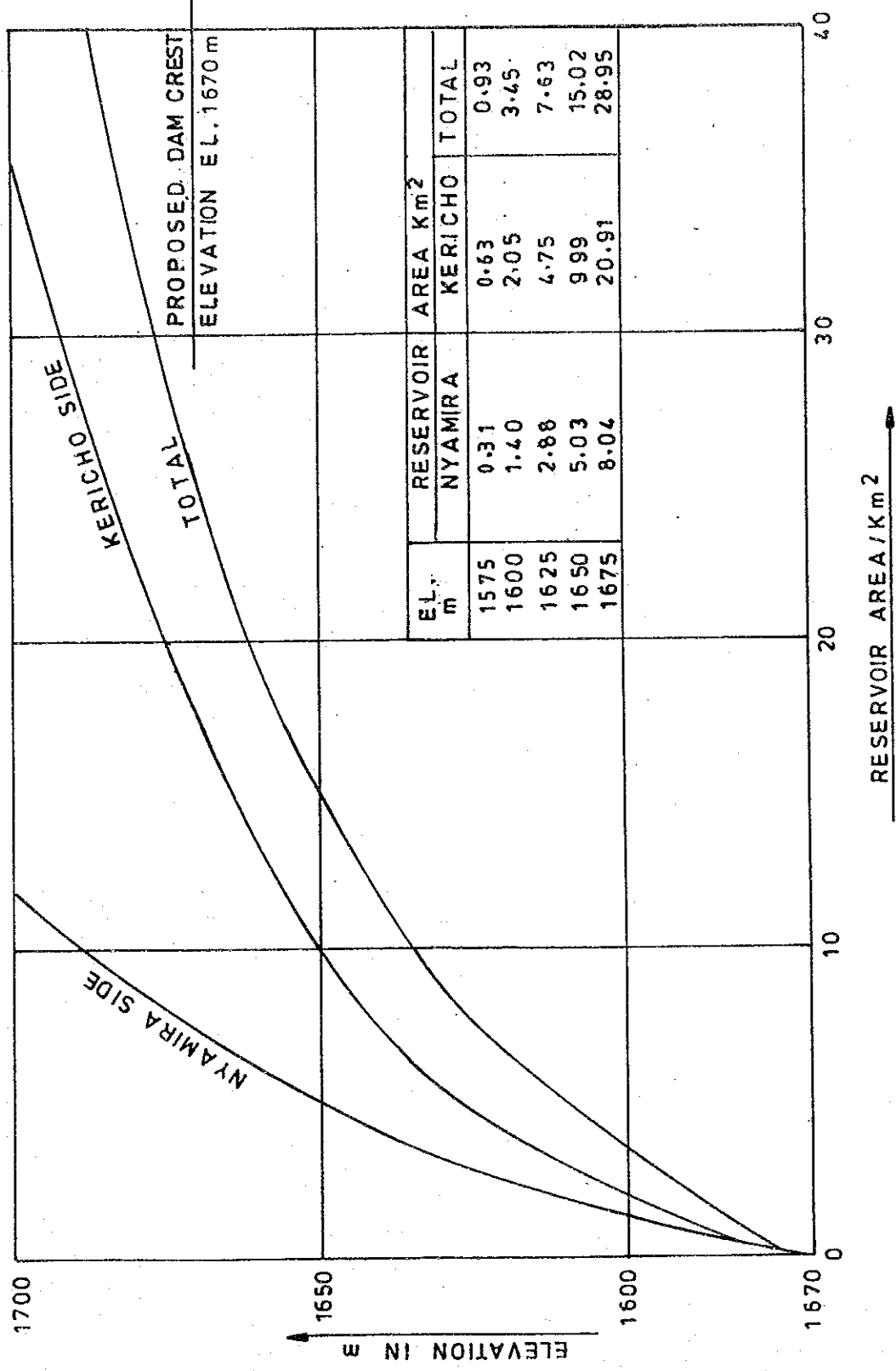


Figure 2.2 Reservoir Area Curve

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