

## 7.11 Overall Evaluation and Problem Analysis for Marketing

The problems in marketing are broadly connected with the road improvement situation, disorganized farmers' groups and also poor farming techniques. The summary of constraints from the viewpoint of farmers and buyers are shown in Annex in Figure N.1-2 and N.1-3, respectively Annex N.

### 7.11.1 Regional Marketing Aspects

#### 1) Nyeri District

##### Kieni East & Mathira Divisions

Organizations of farmers and women are promoting in this area. If there are chances to store in cold temperature, the organizations shall benefit to meet seasonal gluts in Karatina Market for white Irish potato, cabbage, onion and kale together with provision of market information. Currently, the price information in Karatina and Nyeri Markets are not announced through newspapers and radio, though these data are collected by district marketing officers. Production of green beans (French bean and snow pea) and roses for export have been started in some farms managed by local people.

##### Other Divisions

Local demand, especially for potato, dry beans and cabbage are higher in these areas due to high population pressure, but this produce is inadequately delivered. Simple storage for facilities for mwaitemania beans on the farms are required. Ripe banana is cheaper in Karatina market, but there is no marketing chance to Nairobi and Eldoret due to large production volumes in Kisii and Kisumu, but red banana have a market chance in Nairobi. Avocado is still expensive in EU markets.

#### 2) Kirinyaga District

##### Mwea Division

In rice production, there is problem in marketing to urban areas, and lots of Basmati rice is imported from India and Pakistan. Since an increase in income from rice production is difficult, crop diversification has been focused upon. This area produces Asian vegetables (aubergine, capsicum and karella) and French beans, but the market window for these crops is becoming narrow. Therefore, careful cropping with provision of market information and seed supply and crop introduction such as melon, curry leave, parsley and other minor crops, which are increasingly exported recent years, are important. Precooling facility at Kimbimbi (Mwea) for auction will contribute to more transparent transaction.

##### Ndia & Gichugu Divisions

This area has high potential for horticultural production. Especially tomato distribution to Nairobi and Mombasa are quite high, and also contract farming for French beans with exporters are becoming active, but transaction relations are very sensitive due to price fluctuations caused by outside factors of local currency exchange rates or production of other competitive African countries; Zimbabwe,

Ethiopia and Gambia. Actually, this partnership was broken in Machakos District in 1994. At Sagana, where connection to productive areas A2 (from Karatina), C73 (from Kutus) and C71 (from Muranga), a precooling facility for auction is going to be constructed, but the most important matters for farmers are now hygienic assurance for grading and clearance of MRLs in EU markets. For domestic consumed produce, cold storage for cabbage, kale, carrot, mango and tomato at Karatina and storage for mwitemania bean at farm level could help to increase farmers' incomes.

### 3) Embu District

In this area, mango and French bean for export are produced, but crop production for local consumption such as cabbage, carrot, kale and dry beans does not meet demands, it means that there are marketing chances in the Embu Market. But, most farmers were discouraged from establishing large scale cooperatives for horticultural produce. A transparent pricing and transaction system is an important and urgent matter, since vegetable production is reduced because of this.

### 4) Mbeere District

#### Areas along B7 road

Horticultural production is concentrated only in the areas along B7 road in Gachoka division. Therefore, shortage of produce happens frequently in this District. The main reasons are undeveloped road infrastructure and irrigation system. But, if improved, there are good marketing chances for potato, cabbage, onion, kale, maize and tomato. Asian vegetables, mango and melon can also be marketable by participation of auction system destined to Mwea or Yatta Satellite Depot.

#### Other Areas

It is difficult to develop marketing without road system improvement. Storage for dry beans and dry maize can improve farmers' food security. The local markets in Siakago and Ishiara are points from which to distribute produce from outside of the district to local consumers. Increase of produce in this district is the most attractive for local consumers to reduce prices, besides water availability is high.

### 5) Tharaka Nithi District

#### Areas along B6 Road

The access to Chuka and Chogoria markets and other districts is comparatively fair due to lower altitude in the district. However, lots of produce such as dry maize, dry beans, cabbage and potato are imported from Meru, Nyeri, Kirinyaga, Nyandarua and Laikipia Districts. Only cooking banana are produced in sufficient volume. Though two horticultural cooperatives are functional in Muthambi and Chuka Divisions, most farmers are not organized.

#### Other Areas

The shortage of maize and dry beans is a serious problem. Durable produce in times of drought

such as dry maize, pigeon pea, cow pea, njahi bean, sorghum, gram and millet should increase. Since the people of North, Central and South Tharaka Divisions have very low incomes, the storage of their produce at the farm level is required. Marketing chances for Asian vegetables are lower than Mitunguu produce in Meru District due to poor road infrastructure. There are available water resources.

## 6) Meru District

### Timau Division

The productivity for export of green beans such as French bean, snow pea and sugar snap is quite high due to cool temperature, irrigation and road accessibility. Attempts by the exporters of Homegrown, Sunripe, Vegpro, KHE, Everest and Wiliham to organize farmers had been attempted, however, farmers are dishonest as they terminate contract with buyers. They sell produce to exporters or middlemen who offer higher prices, and are likely to make superficial decisions based on short-term gain, which leads to collapse of organized groups. The improvement method will be to make provision for prevailing prices, fluctuations and market trends. Participation auctions through precooling facility at Nkubu can also prevent unreliable transaction.

### Areas along B6 Road

The domestic and export crop productivity is good. However, higher areas (tea zone) suffer from poor road conditions. For export produce there are market opportunities to the EU in October to January, but it rains in these areas. For domestic produce the market facilities at Gakoromone (Meru) and Nkubu limit the trading volume and spoil the quality as well as prices. Farmers are needed for direct or consigning sales in the market in order to increase their margin and to create transparent pricing. The resources in marketing opportunity are the high population growing in Meru town for local consumption, precooling facility for auction at Nkubu and brand of Meru produce for root crops, though not yet well-perceived in Nairobi retailer markets. Besides, the seed production of red Irish potato is important for these areas.

### Other Areas

The lower areas of Nkuene, Abothuguchi East and Miriga Meru East Division are not developed, because the main constraint is poor road improvement. In the rainy season, the roads of Nkubu-Mitunguu become impassable. The Asian vegetables in Mitunguu irrigation scheme are produced, but middlemen of exporters collude in the buying prices. Farmers can not refuse the offered price, since they do not know the prevailing prices. Only provision of market prices information for export produce will help to organize the farmers and strengthen their power in transaction vis a vis middlemen.

## 7) Nyambene District

### Igembe East Division

Farmers prefer to plant marginal produce; miraa herb, besides produce for self-sufficiency. The marketing of miraa herb is perfectly arranged by the private sector, and the government does not intervene

or collect data.

### Other Areas in Nyambene Hills

The inhabitants of Maua town have comparatively high incomes, and most produce is brought from Meru District. Therefore, farmers have marketing opportunities in Maua. Areas along road C91 would have marketing opportunities in Meru markets, but it is difficult to increase the yields due to lower water availability. The durable produce in times of drought is notable especially finger millet, which, in Meru market was 1.7 times the annual average price of Nairobi. The County Council projects are leveling and fencing the market centers at Kianjai, Laare, Kangeta, Kipkona, Karama, Mulika and Kagiene. The Plan International (NGOs) is planning to improve the hygienic and environmental conditions around markets through the installation of incinerators at Muringene and Laare markets.

### Northern Grazing Areas

These areas are utilized for pasture activities shared among the pastoral people. The potential for agricultural production and marketing opportunities are quite low.

#### **7.11.2 Global Marketing Aspects**

The Kenya government has lunched the reform on agricultural sector policy due to the past fostering market distortion and loose of competitiveness, and most of regulated barriers between parastatals and private enterprises have been almost removed.

Between the streamline of marketing liberalisation and self-sufficiency of foodstuffs as the governmental policy, there are partly existing contradictions. The marketing liberalisation conducts to increase maize, wheat or rice import due to cheaper international prices, which means grain farmers will discourage to produce those crops, and also to increase maize export to El-Nino rain attacked neighbouring areas, e.g. to Dodoma, Tanzania in 1998, which means famine areas in Kenya could not be supported by Kenyan produce due to lower purchasing power and the prices of maize increased in Kenyan markets. The control in terms of food self-sufficiency become very difficult and the bans of export during certain period may be required though against the liberalisation only for maize.

In order to encourage smallholder farmers under liberalised marketing system, the following approaches must be considered; 1) improvement in collection and dissemination of agricultural information, 2) promotion of functional and sustainable farmers' marketing groups and training of the leaders, 3) improvement of structure of core markets with introduction of auction system, 4) release of public lands along main roads for road side shop, 5) improvement of road conditions, 6) improvement of governmental network in seed sub-sector, 7) earlier supply and storage of cereals for market price stability, 8) countermeasures on high transportation costs. Those relations are shown in Figure 7.11-1.

##### **1) Improvement in Collection and Dissemination of Agricultural Information**

The information can be categorized into two kinds; current situation and near-future trend.

Firstly, the current situation can be described by commodity market prices, trading status,

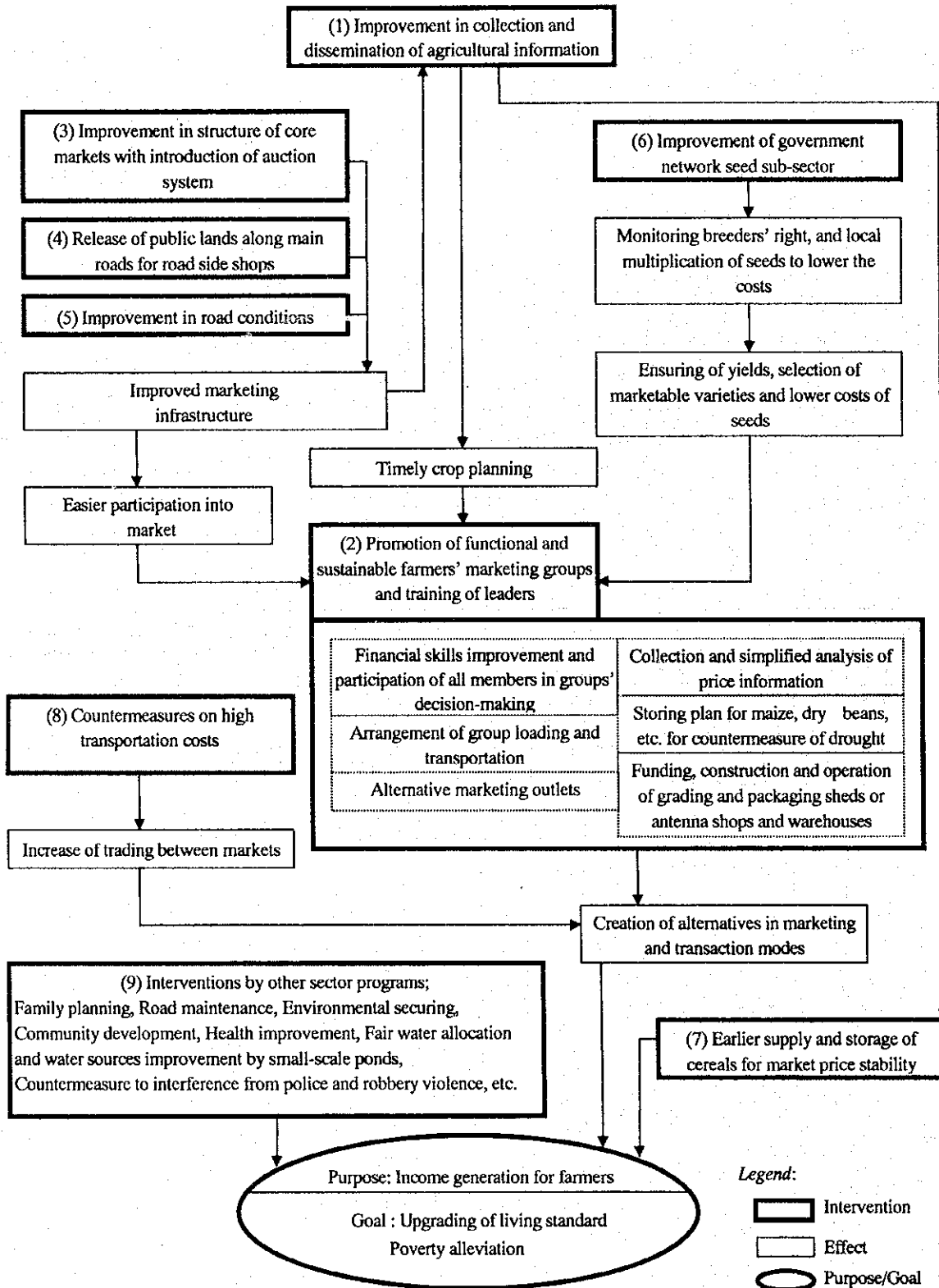
marketable varieties and flow of produce. Regarding produce prices, Market Information Branch (MIB) of MOALD has a significant role to collect and dissemination of these information and are planning to expand in numbers of markets and commodities including farm inputs on the newspaper. The radio program is also desirable to expand for farmers in isolated areas, where the newspaper can not be delivered. The trading status information classified such as glut, scarce, high/low demands by crop in major markets; Gakoromone, Embu, Kutus, Karatina and Nyeri wholesale markets, which information may help to connect between other markets; Nairobi, Mombasa, Nakuru and Kisumu. Only in Kirinyaga district, this information is collected by Divisional Agricultural Extension Officer and this activity and report are highly appreciated. The buying prices of maize, rice sugarcane and auction prices of coffee and tea can be also collected by each marketing board.

Secondary, the future trend can be estimated by i) database of past monthly fluctuation of prices, ii) "Crop and Weather Review Bulletin" issued by The Kenya Meteorological Department through Drought Monitoring Center and collected data at Agro-Meteorological Stations, which weather conditions of inefficient rainfalls, drought or El-Nino heavy rain are the most influenced factor in pricing at markets, iii) famine early warning system (FEWS) bulletin issued by USAID, and iv) the crop situation index, which can be researched by KARI or MOALD District Agricultural Officers in test fields or contract fields and described in percentage comparing with normal year averages. These predictions are recommended to collect by MIB and inform to the media and front-line extension workers through District Agricultural Office. That index can be measured the following ingredient, but further examination is required.

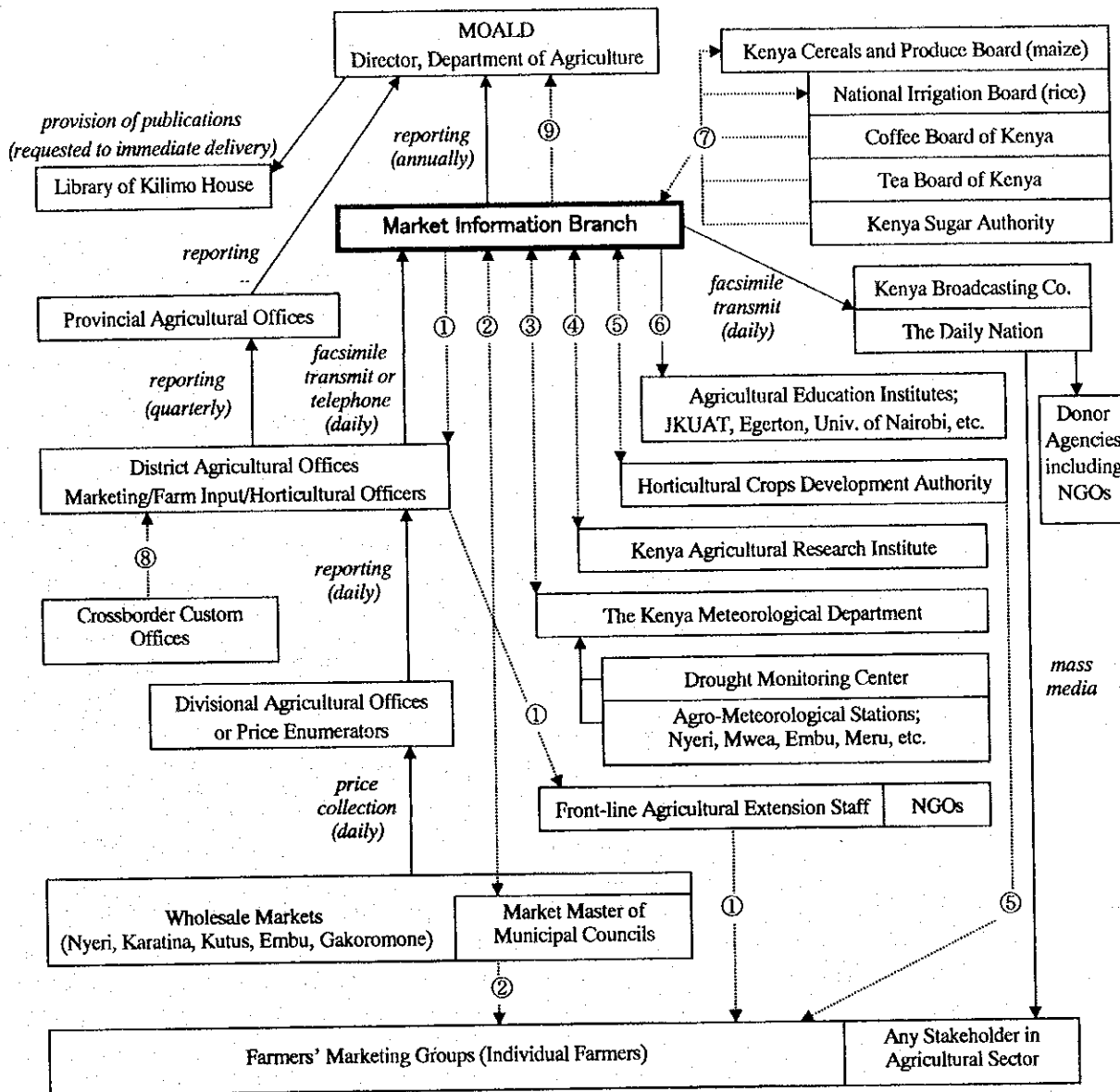
Major Crops	Period	Ingredient of Yield Prediction Index
Grains (maize, millet, sorghum)	30 days after coming ear out	number of ears per unit area, number of grains per ear, ripening rate and 1000pcs weight
Dry beans	30 days after blooming	number of pods per unit area, number of ripening beans per pod, ripening rate and 100pcs weight
Irish potatoes	60 days after planting	number of cluster of roots per unit area, grown potato ratio above 20g and average weight

Considering the exiting and desirable sources of relating institutions in agricultural information, the linkage can be summarized in Figure 7.11-2;

**Figure 7.11-1 Proposed Marketing Improvement Framework in Post-Liberalisation Era**



**Figure 7.11-2 Desirable Integrated Agricultural Information Linkage**



**Legend:**

—————> Current flow      .....> Desirable flow

- ① Feedback of prices information at other markets, provision to extension staff and advisory services to farmers.
- ② Provision of prices information at other markets and set up a notice board, and from market master provision of data of market gate fee collection amounts.
- ③ Provision of situation of impacts of weather on crops.
- ④ Provision of crop situation index of major crops with cooperation of DAO and, from MIB, provision of 'Monthly Market Bulletin'.
- ⑤ Provision of auction results for export produce from Nairobi Horticultural Center and, from MIB, provision of 'Monthly Market Bulletin'. Feedback to farmers' groups through Satellite Depots at Nkubu, Sagana, Mwea, Limuru, Yatta, Machakos & Kibwezi.
- ⑥ Provision of 'Monthly Market Bulletin' and dispatch of lectures.
- ⑦ Provision of industrial crops prices; auction results for coffee and tea or depot buying prices for maize, rice and sugarcane.
- ⑧ Monitoring imported/exported produce from Uganda and Tanzania at Namanga, Taveta, Busia, Malaba, Nyabikaye, etc.
- ⑨ In terms of blooming famine, prior suggestion of purchase from farmers to the state agencies of National Cereals and Produce Board in Kenya or import/export of maize, millet, and potato from/to Arusha, Mwanza, Tororo, etc.

## 2) Promotion of Functional and Sustainable Farmer's Marketing Groups and Training Leaders

The Farmers in Study Area can be categorized into the following types according to main produce;

### Categorization of Farming Type

Farming Type	Main Produce	Relative Income Level	Current Marketing Status	Possible Alternative of Market Outlets	Major Areas
A	Self-consuming produce (maize, millet, sorghum + cassava, dry beans, kale)	lower	mainly for self-consumption	local or wholesale markets through antenna shop for surplus	Mbeere, Lower part of Tharaka Nithi, Nyambene and Meru (Rungu/Karocho)
B	Domestic marketed produce + Self-consuming produce (tomato, cabbage, onion, carrot, potato, kale banana, mango + maize)	slightly higher	local market, middlemen	direct-sale or auction at wholesale market, roadside shop	Kirinyaga except Mwea, Nyeri, Embu, Upper part of Meru (Rupingazi and some farmers in Ngomao/Nyangati)
	Domestic marketed produce (rice)	slightly lower	National Irrigation Board, roadside	the Board or private sector	Mwea of Kirinyaga (Mwea Irrigation Scheme)
C	Permanent produce + Self-consuming produce (coffee, tea + maize + limited bulk of horticultural produce)	middle, fluctuated by year	Coffee board of Kenya, Kenya Tea Development Authority	the Boards or private sector + shifting to horticultural produce	Upper part more than 1,500m altitude of Meru and Embu (Nkunjomo and some farmers in Rupingazi)
D	Export produce + Self-consuming produce (french bean, chilli, okra, avocado, asian vegetables, macadamia + maize)	higher, fluctuated by season & year	middlemen, exporter	exporter under contract farming or HCDA for auction	All irrigated areas, Kirinyaga, Timau of Meru (some farmers in Ngomao/Nyangati)

The marketing groups can be enforced by formation of small size and functional structures. The past collapse of large-scale horticultural cooperatives had been caused by financial and communication matters described in paragraph of 7.5, 4) Farmer's Group. In terms of finance, the records of contribution and disbursement conduct to creation of reliance among members with provision of perusal right anytime to members. Most of the farmers in the Study Areas seem to have strong conscious of independence in newly-settled areas and benevolent mind to neighbors based in harmony with native Bantu tradition and Christianity in the old trust lands. According to areas, the formation of the marketing groups may be required different approaches, but this financial transparency is the most important factor and the participation of members into decision-making of the marketing group operation can be second key factor in any case to sustain the operation. The activities by farming type are recommended as the following table;



### Proposed Activities by Farming Type for Formation of Farmers' Marketing Groups

No.	Activities	Farming Type				Agencies Concerned
		A	B	C	D	
1	Financial record and book-keeping of the balance of groups' operation, budget preparation and reimbursement and provision of perusal right to members	+++	+++	+++	+++	Educational Institutes, NGOs
2	Confirmation of decision-making procedure, conducting meeting, its agreement among members and training of the selected group leader	+++	+++	+++	+++	- ditto -
3	Selection of transaction modes: direct-sale at market, auction at market, trader	++	+++	++	+++	Municipal council, HCDA, private trader
4	Dispatch of price enumerator to markets (with quick transmitting to the group, if telephone is available)	++	+++			Extension staff
5	Collection of price and market status from DAO officer or HCDA experts	+	+++		+++	DAO, HCDA
6	Plotting of market prices referring to 'commodity prices' in the daily newspaper or radio programs	+	+++			MIB-MOALD
7	Cropping selection for group loading	++	+++		+++	Extension staff
8	Information collection of weather forecast especially for drought	+++	+++	++	++	Kenya Meteorological Dept., Drought Monitoring Center
9	Utilization of network of the existing groups; women groups, youth groups, coffee cooperatives, self-help groups, water users' union, etc.	+++	+++	+++	+	NGOs
10	Transportation arrangement as a group loading	+++	+++	+++	+++	Extension staff
11	Fund for construction of grading shed using local materials		++		+++	HCDA
12	Fund for construction of antenna shop with warehouse and its operation (if possible, soft lease of public lands)	+++	+			Municipal/ county councils
13	Household level storing plan for maize, dry beans and millet	+++	+++	+++	+++	DAO, NGOs
14	Collection of seed information	++	+++		+++	DAO, KARI, private stockists
15	Group purchase of farm inputs	++	+++	+++	+++	DAO-farm inputs officer, private stockists, other seed suppliers,
16	Opening bank account to clarify the groups' balance and for contract farming				+++	Bank
17	Recording of chemicals and fertilizer application		++	+	+++	HCDA, exporters
18	Promotion of organic fertilizers	+++	+++	+++	+++	Educational Institutes, Extension staff, NGOs

Remarks; +++ the most effective impact, ++ the important impact and + the future impact in formation of farmers' marketing groups.

### 3) Improvement in Structure of Core Markets with Introduction of Auction System

Unimproved market facilities in core wholesale markets are causing difficulties to participate into market for small-scale farmers, spoiling and damaging commodities, inefficient loading system, lower trading volume between markets or between growers and markets, unfair collection of market gate fees. The points of improvement can be summarized as follows;

### Market Facilities Improvement for Core Markets

Major Markets	Hard Component Improvement	Soft Component Improvement
Nyeri Wholesale Market (Nyeri)	<ul style="list-style-type: none"> <li>- Relocation of market due to quite limited space</li> <li>- Roofing, concrete flooring, store</li> </ul>	<ul style="list-style-type: none"> <li>- Deferring market gate fee even after improving the facility funded by World Bank</li> <li>- Introduction of auction system for small-scale farmers</li> <li>- Data collection by market officer of DAO for market gate fees collected by municipal council and for market status by main crops</li> </ul>
Karatina Wholesale Market (Nyeri)	<ul style="list-style-type: none"> <li>- Roofing</li> <li>- Enlarging wholesale section and concrete flooring</li> <li>- Construction of cold storage; which can be easily utilized by small-scale farmers' groups for cabbage, potato, green maize, onion, etc.</li> </ul>	<ul style="list-style-type: none"> <li>- Introduction of auction system</li> <li>- Utilizing system for cold storage</li> <li>- Including in 'commodity price' in the daily newspaper for this market</li> <li>- Data collection by market officer of DAO for market gate fees collected by town council and for market status by main crops</li> </ul>
Kutus Wholesale Market (Kirinyaga)	<ul style="list-style-type: none"> <li>- Pavement the access road from main truck to the market</li> <li>- Water distribution for sanitary purpose</li> <li>- Roofing</li> </ul>	<ul style="list-style-type: none"> <li>- Including in 'commodity price' in the daily newspaper for this market</li> <li>- Data collection by market officer of DAO for market gate fees collected by municipal council and for market status by main crops</li> </ul>
Embu Wholesale Market (Embu)	<ul style="list-style-type: none"> <li>- Enlarging trading space for farmers surrounding the existing market facility with roofing and concrete flooring</li> </ul>	<ul style="list-style-type: none"> <li>- Including in 'commodity price' in the daily newspaper for this market</li> <li>- Data collection by market officer of DAO for market gate fees collected by municipal council and for market status by main crops</li> </ul>
Gakoromone Wholesale Markets (Meru)	<ul style="list-style-type: none"> <li>- Land levelling</li> <li>- Efficient use of the space or separation of retailers, wholesalers and hawkers</li> <li>- Roofing and concrete flooring</li> <li>- Water distribution for sanitary purpose</li> <li>- Easy utilization of warehouses for traders and farmers</li> <li>- Power distribution for early morning trade</li> <li>- Walling for fair market gate fee collection</li> <li>- Pavement of access road from the trunk to the market</li> </ul>	<ul style="list-style-type: none"> <li>- Introduction of auction system for small-scale farmers</li> <li>- Installation of public telephone for communication for farmers' groups and other market traders</li> <li>- Including in 'commodity price' in the daily newspaper for this market continuously</li> <li>- Data collection by market officer of DAO for market gate fees collected by municipal council and for market status by main crops</li> <li>- Budgeting for the costs of maintenance of facilities</li> </ul>

#### 4) Release of Public Lands along Main Roads for Road Side Shop

Individual farmers normally do not have any cheaper transporting means. The costs if used public transport can reach at 20-40 percent of selling prices at distance of 10 km, therefore, it makes difficult to sell produce at markets. The areas along tarmac roads are recommended to install their selling shops, but release or lease in cheaper prices of the government land is required. The proposing areas are along roads of A2 from Sagana to Naromoru, B6 from Embu to Meru, C74 from Karatina to Kutus, C70 Marketing arrangement and improvement in tarmac road network are much closely related. In Kirinyaga District, the local markets are located in expansively due to network of tarmac roads of A2, from Nyeri to Othaya. County Councils are mandated to collect license fees, but the prices must be less than 20-50 Ksh/month/shop only in case of lease. The Market Information Branch (MIB) is going to coordinate with local authorities for this arrangement.

#### 5) Improvement in Road Conditions

Marketing arrangement and improvement in tarmac road network are much closely related. In kirinyaga district, the local markets are located in expansively due to network of tarmac roads of A2, B6,

C73 and C74; which markets are in Maktano, Sagana, Kerugoya, Wanguru, Kagio, Kimbimbi and Kutus. In Meru district, the tarmac roads are only B6 and C91, which create only three markets of Nkubu, Gakoromone and Timau. The improved road network obviously conducts to more efficient distribution system of agricultural produce in volume and prices. The higher priorities are given the following roads by viewpoint of production areas to the markets;

#### Prioritization of Road Network

Districts	First Improvement Priority for Tarmac Roads (major distribution routes of agricultural produce following the current trunk roads)	Second Improvement Priority for Weather Roads (major lifeline routes for the farmers in areas or minor distribution routes of agricultural produce)
Nyeri District	D450, D451, D429, D449	D431, D432, D433, D434, D446, D452
Kirinyaga District	D455 (Kagio-Kerugoya), D456	D453, D455 (from B6 to Kagio), D457, D458, D459, E628, E659
Embu District	D467, C92, E633	E629, E630
Mbeere District	D469 (from B7 to Siakago), C92	D467, D468, D469 (Siakago-Kiambere-B7)
Tharaka Nithi District	C92, D474, D483	D471, D472, D473, D587
Meru District	D476, D481, D482 (Chuka-Meru), D483, C92	D480, D482 (Meru-Mikinduri), E804, E781
Nyambene District	E800, D482 (Maua-Mikinduri), D484 (Maua-Kianjai)	D486, E816

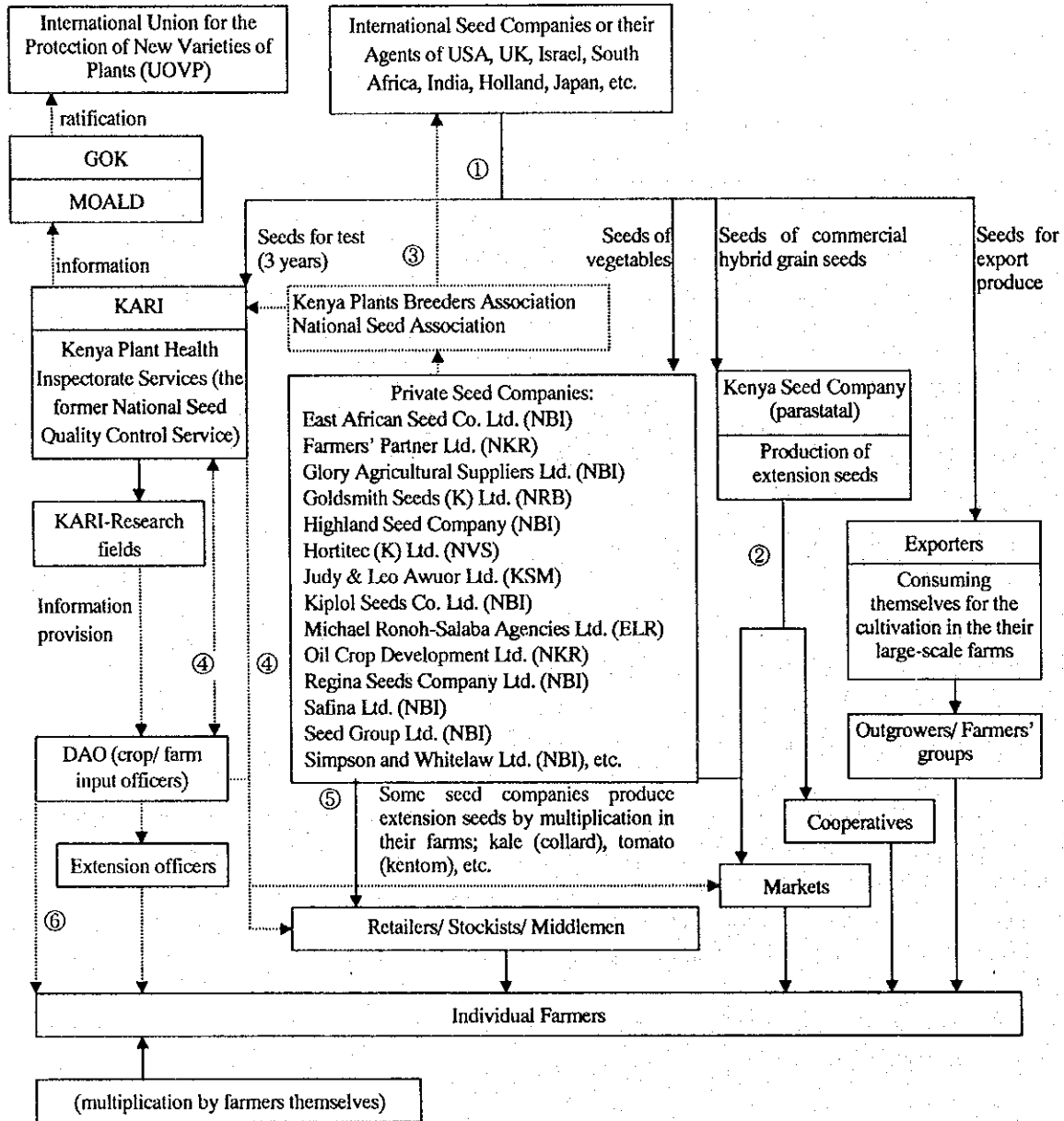
Note; Please refer to Figure M.1-2, Annex M for location of roads.

The costs for maintenance are mainly bared by users, but installation of tool stations and its fares are required by a local referendum; says at more than 80 percent of agreement.

#### 6) Improvement of Government Network Seed Sub-Sector

The farmers in Study Areas are complaining the high costs of seeds, which consisted at high percentages of production costs. According to gross margin analysis in 1998 "Farm Management District Guideline of Kirinyaga District", the rate of seed costs in total variable amounts including labor costs account at 24 percent in maize and bean of intercrop in coffee zone and 25 percent in cotton zone in medium class of farming skills. Lowering of the seed prices can be one of the basic strategies for food self-sufficiency as the national policy. Therefore, the research and production of extension seeds in low costs with promotion of private sector must be considered. The current and desirable distribution system can be summarized Figure 7.11-3.

**Figure 7.11-3 Existing Marketing Outlets and Improvement Points in Seed Sub-Sector**



**Legend:**

—————▶ Existing Distribution Routes of seeds      - - - - -▶ Other relations

Numbers in circles shows subjects to be improved and please refer to the text.

① Import of seeds  
 ② Maize seeds development and distribution  
 ③ Organization for seed breeders or seed companies  
 ④ Monitoring system of extension seed markets  
 ⑤ Extension seed production  
 ⑥ Seed multiplication program utilizing existing resources

Abbreviations in private seed companies show their headquarters; NBI-Nairobi, NVS-Naivasha, KSM-Kisumu, ELD-Eldoret and Kenya Seed Company has the headquarter at Kitale.

The following interventions are required to tackle on improvement in seed sub-sector:

a) Import of seeds

Currently, over 80 percent of vegetable seeds are imported according to HCDA. As the legal matter, the Government of Kenya had initiated with the council of the International Union for the Protection of New Varieties of Plants (UPOV) to protect the patents of breeders, and then it is under the progress becoming a member as of January 1999. The legal protection for seed growers are going to improve. In order to achieve the national strategy as food self-sufficiency, the remission of custom duties/VAT on imported seeds are needed like that application to exporters' importing farm inputs. Commercial hybrid grain seeds are required to be evaluated for a period of three years by KARI, but only the Kenya Seed Company was permitted to import maize seeds without that inspection till 1995. It is also needed to continue the same regulating level for local seed companies and the parastatal in terms of import of maize hybrid seeds, otherwise, the international competitiveness of the Kenya Seed Company will loose in prices and quality improvement to meet to agro-ecological conditions in Kenya.

b) Maize Seeds Development and Distribution

The extension seed production by domestic companies at least for maize is deeply related with food self-sufficiency. The Kenya Seed Company Limited is mandated to develop and distribute medium and late maturing maize hybrid seeds. The parastatal has been initiated a breeding program to develop maize seeds for the extensive semi-arid areas where 50 percent of population are occupied, and targeted to develop maize varieties for the areas of about 900 to 1,800 m altitude receiving 250 mm to 500 mm precipitation under low levels of fertilizer application. In 1995 two hybrids were released as Dryland Hybrid 01 (DH01) and 02 (DH02), which varieties had been tested over six years at 36 locations and 48 and 41 percent higher than the commercial seed of Katumani Composite B. Since the seed development is required vast investment and time, it can be a strategic option to release the company's stock up to 49 percent to international seed companies or international trading firms for efficient management system and short developing periods. In connection with the evaluation of seeds, KARI has the capability of the said seeds and DAO also can help the dissemination.

c) Organization for Seed Breeders or Seed Companies

The organization establishment of the seed related private sector is being supported by MOALD and USAID. The organization will cope with short-term evaluation of imported seeds to coordinate with KARI, protection of breeders' right, dissemination of available seed information and lobbying such as free trade without any duties/VAT.

d) Monitoring System of Extension Seeds

This is critical matter to secure farmers' livelihood and protect breeders' right. In fact 1998, the fake maize seeds were sold in markets, which was labelled as '614D' of Kenya Seed Company had investigated. The liberalisation of the seed industry seems to have caught the company and the regulatory authorities completely off guard. That mandated authority of Kenya Plant Health Inspectorate Services under KARI is mandated to monitor and check fake or illegally copied seeds, and charged registering seed

growers, merchant, seed crops, processing procedures for seeds, lot examination, sealing, labelling, laboratory analytical tests, however, wide network is needed the expose this kinds of crimes. Therefore, the Inspectorate must closely exchange registered seed information with DAO field officers, market masters of local councils, proposed seed companies association mass and media.

e) Extension Seed Production

Public or private institutes can also be authorized to carry out seed breeding programs and to receive royalties from seed companies that utilize their product, provided that the breeders' germ plasms are registered under the Plants Breeders Rights and Regulations. The farms input officers of DAO will have more significant role in collection and dissemination of seed information.

f) Seed Multiplication Program Utilizing Existing Resources

The local authorities and DAOs are also permitted to multiply seeds. In fact Meru district has a plan to produce seed red potatoes. This kind of activities will conduct to lower the prices of seeds. Farmers' training centers, prisons and KARI fields may have opportunities, but the distribution is recommended direct sale to registered farmers' groups or cooperatives, not through markets due to prevention from fake seeds distribution.

7) Storage and Earlier Supply of Cereals for Market Price Stability

Kenya is deficit country in maize production as main stable foods.

National Balance in Maize

	(unit : ton)						
Year	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
Production	2,289,000	2,340,000	2,430,000	2,089,000	3,060,000	2,699,000	2,160,000
Import	0	0	415,932	80,104	651,546	41,014	148
Export	159,885	20,549	38,701	52,243	97,274	139,835	179,077
Available Food* <sup>1</sup>	1,969,360	2,122,404	2,311,477	2,196,026	2,658,264	2,612,774	2,529,300
Demands* <sup>2</sup>	2,655,000	2,736,000	2,781,000	2,835,000	2,916,000	3,015,000	3,105,000

Note; \*<sup>1</sup>; Considered feed, seed, waste and processing volumes from total availability.

\*<sup>2</sup>; Source Economic Review of Agriculture, Division of Planning & Information Services, MOALD

Source ; From FAOSTAT except the demands.

The Kenya Cereals and Produce Board (KCPB) becomes to limit in 3.0 million bags in 90 kg/bag or 270,000 ton in marketing volume to promote private sector under the liberalisation since spelled out in the Sessional Paper No.2 of 1994. As the result, the import of maize has increased in drought years, KCPB's export has increased to maintain their working capitals, and then the Kenya citizen become to purchase maize in nearly or more than international market prices. As the role of KCPB, it is very strategic matter to plan suitable storing volume and releasing time to the markets in high price duration, not for export. It can be one measure to nominate third person from foreign private sector to the Board for restructuring. In January 1999, the Board does not have the working capital, 2.3 billion Ksh was recommended, to purchase harvested maize from farmers due to heavy import by private sector in April to June in 1998, which lesson was proofed the importance of strengthening the function of Market Information Branch. Beside the MOALD is needed to campaign to store cereals in household level in advance with

warning of looming drought and diversification of diet sources from over-dependence on maize.

The MIB is going to expand market price information even in semi-arid areas and needed to exchange of looming drought information with the Drought Monitoring Center (DMC) issuing "Crop and Weather Review Bulletin" through E-mail addressed at "director@lion.meteo.go.ke" and with USAID "Farming Early Warning System Bulletin" through internet addressed at "<http://www.info.usaid.gov/fews/>". And then the closed information exchange with the NCPB and monitoring maize importation and international maize prices can be very significant tasks for the MIB.

#### 8) Countermeasures on High Transportation Costs

The transporting costs in Kenya are in high level. The reasons are high duties/VAT on vehicles, high prices of fuels and poor road infrastructure. The markets of second hand vehicles are still undeveloped. These negative conditions make difficult to access between markets. For example, the prices in Mombasa Market are higher than 10-20 percent than Nairobi prices in most of agricultural products. Establish of logistic information centers operated by private transporters association at major towns of Nairobi, Eldoret, Nakuru, Kisumu and Mombasa may help to reduce the costs. Normally, transporting volume from Mombasa to Nairobi are grater than from Nairobi to Mombasa due to imported goods, but agricultural produce are flowing from west to east. The Kenya Railways can be also one of alternatives for fresh vegetable transportation to introduce cold containers.

#### 9) Interventions by Other Sector Programs

For the improvement in marketing sector, the various factors are closely related. Kenyan people must understand widely and deeply that the limited arable lands of Kenya can not feed all population anymore toward 21st century and permeation of family planning conscious can be a key factor to suppress the increasing demands.

## **CHAPTER VIII.**

# **ASSESSMENT OF AGRICULTURAL AND SUPPORT SERVICES AND DISTRIBUTION SYSTEM**



## **CHAPTER VIII. ASSESSMENT OF AGRICULTURAL AND SUPPORT SERVICES AND DISTRIBUTION SYSTEM**

### **8.1 Introduction**

There are a number of factors that constrain performance of irrigation schemes at the community and individual farmer level. These factors can be summarized as follows;

- Low capacity for irrigation water management and system maintenance
- Inadequate use of improved seed material and other farm inputs
- Inappropriate crop husbandry practices
- Failure to match choice of cropping pattern with market prospects
- Inadequate capacity for negotiating with produce buyers on favorable produce prices

Agriculture and other support services are aimed at assisting the smallholder farmers to address the above factors. Commenting on the institutional framework for the agricultural sector, the draft report on "Agricultural Sector Development Strategy" (MOALD, 1996) notes that there are some nine ministries as well as 50 parastatals and boards charged with providing agriculture and rural development services. The strategy report further states that owing to their high overheads coupled with overcentralization, these agencies tend to dilute the rural development effort.

In this regard, the Study Team focused only on those agencies (in the public and private sector) which are presently offering or have the potential to offer significant support services to smallholder farmers. The main support services that farmers require and agencies that are providing or can provide them are hence discussed below.

### **8.2 Agencies Providing Support Services for Agricultural Inputs**

There are five broad categories of agencies providing in-puts support to smallholder farmers.

#### **8.2.1 Ministry of Agriculture and Livestock Development**

Among other responsibilities, the MOALD is expected to teach smallholder farmers about agricultural inputs and their beneficial effects on crop production.

##### **Inputs Service Support**

- Technical advice on available agricultural inputs, recommended application rates and staging of on-farm demonstrations and field days
- Provision of inputs, as grants, direct to farmers particularly in semi-arid famine-prone areas
- Formulation of policy guidelines on importation and domestic production of inputs with special attention to standards and safety aspects

### Constraints in Providing Inputs Service

- Insufficient budgetary allocation for movement and for holding demonstrations and field days on a regular basis
- Front-line extension staff not sufficiently skilled in demonstration and marketing techniques

### **8.2.2 Kenya Seed Company**

Kenya Seed Company is a parastatal which controls more than 70 percent of domestic production of certified seed market. Working closely with Kenya Agricultural Research Institute (KARI) the company produces a range of certified seed which it sells to farmers through a network of distributors in the country

#### Inputs Service Support

- Produce ranges of certified seed which include maize, beans, and a wide range of horticultural seeds
- Makes seed available at rural stores through the company's comprehensive distribution network

### Constraints in Providing Inputs Service

- Over the years, the quality of seed produced by the company is said to have declined owing to poor quality control and imprudent criteria in selecting farmers who bulk commercial seed on behalf of the company
- High company operational and overhead costs which make the certified seed too expensive thus reducing potential demand by farmers

### **8.2.3 Large Scale Private Sector Firms and Business People**

The inputs sub-sector is only partially liberalized. The fertilizer market is wholly liberalized with more than 20 bulk importers. No licensing is required to import fertilizer although the quality and packaging must meet the standard specifications of the "Kenya Bureau of Standards". However, the market for seed is still controlled with the "Kenya Seed Company" enjoying a near monopoly since there are no more than five, relatively small, private certified seed producers.

#### Inputs Service Support

- Bulk importation of agricultural chemical inputs such as fertilizers, insecticides and fungicides and re-packaging them into conveniently sized containers for distribution to rural retail shops and stockists (e.g. Nord Hydro, Twiga Chemicals, Hoechst, Ciba-GiGy, etc.)
- Local production and packaging of agricultural inputs mostly seed for distribution to rural stockists (e.g. Horti Seed, East African Seed Co. etc.)
- Direct supply of inputs package consisting of seed, fertilizers and crop protectants to farmers (e.g. BAT, Master-Mind and horticultural firms buying farmers' produce on contract)

### Constraints in Providing Inputs Service

- Insufficient knowledge of the precise use required by smallholder farmers

- Fluctuating demand for agricultural inputs depending on the price pattern of agricultural products and rainfall or irrigation prospects
- Poor roads communication network in rural areas
- Relatively low demand of in-puts by smallholder farmers (as compared to large scale) and tendency to buy in small quantities at a time

#### **8.2.4 Small Scale Private Sector Firms and Individuals**

##### Inputs Service Support

- Setting up of inputs stores and shops in rural areas
- In the case of fertilizers, selling small quantities measured in kilograms as preferred by smallholder farmers
- Giving advice, when asked, on input application at the time of sale

##### Constraints in Providing Inputs Service

- Lack of sufficient capital to maintain an adequate range of inputs
- Insufficient awareness of types and timing of inputs required by farmers
- Inadequate technical knowledge on input application methods
- Poor roads which occasionally hamper procurement of inputs
- High cost of inputs which suppress demand from farmers

#### **8.2.5 Agricultural Cooperative Societies**

Within the Study Area, there are agricultural cooperative societies which are mainly associated with coffee and dairy industries. Most of these cooperatives operate inputs stores from which farmer members may obtain farm in-puts on credit.

##### Inputs Service Support

- Maintenance of input stocks in cooperative stores
- Giving limited advice, when asked, at the time of sale

##### Constraints in Providing Inputs Service

- Cooperative stores often located in high potential rainfed areas away from irrigation areas
- Range of available inputs influenced by crops grown by cooperative members i.e. coffee and maize and hence failure to cater for a broader range of crops such as horticulture

### **8.3 Agencies Providing Support Services for Agricultural Extension**

#### **8.3.1 Ministry of Agriculture and Livestock Development**

Under the on-going agricultural structural adjustment programme, the activities of the Ministry of Agriculture are being streamlined to reflect a group of core functions one of which is provision of agricultural extension services. The main beneficiary of this service is the smallholder sector. In

providing extension services, MOALD has in place an organizational structure that stretches from the headquarters in Nairobi down to the farmer level. Since the location and sub-location agricultural extension assistants are the ones in daily contact with the farmer, they are the principal carriers of extension messages. They, therefore, constitute the cutting edge of MOALD.

Also known as front-line staff, the extension assistants obtain technical back-up support from specialized officers (crops, livestock, horticulture etc.) located both at the divisional and district headquarters. Owing to the technical nature of organized smallholder irrigation, staff of the District Irrigation Unit play a relatively larger role in giving back-up to the front-line extension staff. The type of extension support services given by MOALD to smallholder farmers is summarized below.

#### 1) Extension Services Provided by Frontline Staff

##### Extension Support Services

- Providing general advisory messages on agriculture and livestock production (including horticultural production and marketing)
- Assisting farmers to prepare farm plans, farm budgets and cash flows which are often required as a pre-condition for loan procurement
- Staging demonstration plots and organizing field days for in-put applications as well as other improved farming techniques
- Assisting in farmers organizations particularly for community-based irrigation and produce marketing
- Acting as intermediary between outside agencies and farmers (NGOs, buyers)

##### Constraints in Providing Extension Services

- Large numbers of scattered farmers per extension assistant coupled with inadequate transport arrangements
- Range of extension messages required to be carried too much and at times overwhelming (maize, beans, irrigation application, coffee, pests, diseases markets etc.)
- Staff disorientation after termination of T&V approach and reversion to "contact groups" as the new extension method
- Inadequate skills in organization and participatory approaches
- Remuneration, promotion or other incentives not always linked with field performance thus leading to reduced staff morale

#### 2) Extension Services Provided by District and Divisional Irrigation Unit

##### Extension Support Services

- Assisting farmers in irrigation scheme identification and appraisal
- Assisting in farmers organization, registration and procurement of water abstraction permit
- Assisting in technical design (engineering and agronomic) of irrigation scheme
- Assisting in negotiation between outside credit agency and farmers for long term infrastructure loan
- Supervising irrigation works implementation
- Training front-line extension staff (location and sub-location level) and farmers on irrigation

- water management as well as system operation and maintenance
- Provision of post-implementation follow-up support for technical and organization matters

### Constraints in Providing Extension Services

- Inadequate budgetary allocation for capital and operation expenditure (offices and office equipment, transport, training materials, fuels, field allowances)
- Insufficiently developed training modules on farmers organization and participatory approaches for use by DIU and frontline extension staff (locational and sub-location level)
- Transfer of frontline staff who have been trained in irrigation management to rainfed areas
- Insufficient capacity for developing and updating extension service packages on a continuing
- Inadequate linkage with NGOs and Private sector firms engaged in providing irrigation extension support

### 3) Other Branches of the Ministry of Agriculture

MOALD has an organizational structure that is intended to provide advisory services on all aspects of agricultural production and marketing. In this regard, at Nairobi headquarters, as well as at the provincial, district and divisional levels, there are specialized personnel for giving technical support on crop production, horticulture, farm in-puts, crop protection, livestock production, farm-management, extension etc.

During the time of T&V extension approach, specialized personnel at the provincial and district level acted as subject matter specialists for the fortnightly training sessions attended by divisional and location staff. With the recent conclusion of the World Bank funded T&V programme, the ministry is working on alternative arrangements that will enable specialized staff to systematically train and up-date the frontline extension personnel.

### Extension Support Provided by Specialized Staff

- Organizing training of divisional and front-line staff
- Assisting in preparation of field days, demonstrations and agricultural shows
- planning and facilitating farmers training at Farmers' Training Centers (FTCs) and through education tours to different parts of the country
- Coordinating visits of "very important persons" (VIPs) to farmers' fields
- Providing technical and coordinating back-up to special projects e.g. smallholder irrigation, small livestock, dairy projects etc.

### Constraints in Providing Extension Service

- Inadequate budgetary allocation particularly for transport
- Inadequate technical field support

### 8.3.2 Parastatal Organizations

#### 1) Horticultural Crops Development Authority (HCDA)

HCDA is a parastatal established with the objective of promoting horticultural development and

marketing. In pursuing this objective, HCDA occasionally provides extension services to both large scale and smallholder farmers.

#### Extension Services Support

- Organizing field days for training farmers on post-harvest horticultural crop handling and packaging particularly for export
- Organizing demonstrations of pesticide application with a view to meeting "Maximum Residue Level" standards as required by the European market
- Assisting in arranging exhibitions of packaging of export horticultural produce
- Assisting farmer-groups in concluding production contract agreements with horticultural exporters
- Collecting and analyzing price information on export crops

#### Constraints in Providing Extension Service

- Insufficient funds for operational activities
- Inadequate capacity for disseminating market information to smallholder farmers particularly to guide them on cropping and planting patterns

#### 2) Regional Development Authorities

There are two Regional Development Authorities operating within the Study Area. These are Tana and Athi Rivers Development Authority (TARDA) and Uaso Nyiro North Development Authority. In the past, TARDA was instrumental in identifying smallholder irrigation activities in Kirinyaga and Meru districts (Kibirigwi and Mitunguu schemes respectively) but now appears to be concentrating on hydropower development only. The relatively new Uaso Nyiro North River Authority covers part of Nyeri and Meru districts. Since its mandate includes planning and implementing water-based projects, it is likely to be involved in smallholder irrigation in the near future.

#### 3) National Irrigation Board (NIB)

The National Irrigation Board was established with the aim of managing large-scale irrigation schemes consisting of tenant farmers under a centralized management system. During the field survey, it was understood that NIB will be re-structured with land ownership being transferred to the present tenant-farmers and the NIB itself being re-oriented to provide irrigation extension services to smallholder farmers (1997-2001 Development Plan).

### **8.3.3 Non-Governmental Organizations (NGOs)**

Over the last 10 years, a host of NGOs has sprung to life, largely with external donor support, with a view to providing agricultural extension and other support services to rural communities.

### Type of Extension Services Support

- Provision of general agricultural extension including livestock (e.g. Protestant and Catholic churches, Plan International)
- Assisting in farmer group formation for production and marketing (Kenya Smallholder Farmers Association and Kenya National Farmers Union)
- Identification and appraisal of smallholder irrigation scheme (Catholic Church, Plan International)
- Coordination of irrigation scheme implementation with assistance of consultants and contractors (Catholic Church, Plan International)
- Introduction of alternative soil fertility maintenance methods (Kenya Institute of Organic Farming)
- Training in post-harvesting horticultural handling and packaging as well developing a code of ethics for exporters and growers (Fresh Produce Exporters of Kenya (FPEAK))

### Constraints in Providing Extension Service

- Extension outreach not general but limited to location or crops of special interest to the NGOs
- Technical capacity of extension staff relatively low (staff often assigned other non-agricultural tasks) and hence unable to up-date extension messages on a timely basis (e.g. Plan International)
- Tendency to take short term view in designing extension strategy because time frame is influenced by availability of external funds (all NGOs)
- Inadequate liaison staff

### **8.3.4 Private Sector Firms**

#### Extension Support Services

- Staging demonstrations on input use and application techniques (suppliers of farm inputs)
- Provision of regular extension support on specific crops grown on a contract basis (horticultural exporters e.g. Everest)

#### Provision of Extension Service

- Extension coverage is narrow and confined to areas either growing crops on contract or areas where a particular farm input is being used widely
- Interest in extension support is limited either to crops grown specifically under contract or to a specific farm input being promoted by a particular supplier
- Planning and operation horizon is short-term and is highly influenced by a company's profit prospects

### **8.3.5 Ministry of Culture and Social Services (MOCSS)**

The Ministry of Culture and Social Services is charged with promoting cultural and social activities in the country. Among other things, the ministry promotes formation of self-help development groups and associations (men, women and youth) so that they can pursue objectives beneficial to their members. The ministry is legally mandated to register such groups so that they can be recognized as "corporate bodies" for the purpose of opening a bank account as well as when applying for loans, trading licenses and water permits.

### Extension Support Services

- Informing local communities on the possibilities and benefits of forming self-help groups
- Giving members, intending to start a self help group, advice on how to prepare a group's constitution and procedures for electing office bearers
- Registering self help groups and giving general advice on formalities for dealing with banks and possible credit providers

### Constraints in Providing Extension Service

- Like other government ministries, the available funds are insufficient for transport thus making contact with communities difficult.
- The Ministry's staff are not extended to the divisional and locational level thus further reducing contacts with local communities.
- At the divisional and local level, social services activities support is provided by employees of the County Council who are supposed to liaise with MOCSS's staff at the district level for professional direction. However, these county council employees are often not paid in time and are hence highly demotivated.

## **8.4 Agencies Providing Support Services in Agricultural Research**

### **8.4.1 Kenya Agricultural Research Institute (KARI)**

Kenya Agricultural Research Institute (KARI) has the national mandate for conducting general agricultural research with the exception of tea, coffee and tobacco. Over the last six years, KARI has been adequately funded by bilateral and multilateral aid agencies in planning and implementing the first National Agricultural Research Project (NARP-I) which featured infrastructure development and a programme of research activities. The recently inaugurated NARP-II is aimed at consolidating the gains of NARP-I and lays particular emphasis on -farmer-centered research.

Within the Study Area, KARI operates a regional station at Embu which addresses regional agricultural problems for major crops including horticulture.

#### Research Services offered by KARI

- Conducting soil fertility tests on request
- Carrying out surveillance on crop pests and outbreaks of disease
- Conducting on-station and on-farm trials for crop spacing, fertilizer use and crop protection applications
- Introducing new crop varieties and screening them for adaptability in the various Agro-Ecological Zones of the region

#### Constraints in Providing Research Services

- Although an independence parastatal, KARI still depends on the Government for its operational budget. Hence KARI is, at times, unable to execute some of its field activities owing to lack of funds for fuel and field allowances. Under the current situation, when the Government is



- reducing its overall expenditure, KARI is finding it difficult to implement its research work plan.
- Loss of professional staff to other institutions such as Universities and U.N. organizations owing to KARI's inability to pay competitive salaries.
- Weak linkage between extension and research in solving smallholder problems. This is so in spite of an existing Research/Extension Liaison Division in the Ministry of Agriculture and Livestock Development.
- Lack of a section for addressing special research problems of smallholder irrigated horticulture. Although, KARI has an irrigation research section, it is more concerned with fundamental research on irrigation and drainage rather than the practical problems faced by smallholder irrigated horticultural farmers.
- The horticultural research station at Thika is largely oriented towards general and rain-dependent horticultural production and does not focus on problems of smallholders as a special category.

#### 8.4.2 Private Sector

The only private sector known to offer limited research services within the Study Area is British-American-Tobacco Co. (BAT). Although it does liaise with KARI on matters relating to plant quarantine, the company's research effort is independent and is largely aimed at achieving the long-term commercial interests of the company.

##### Research Services offered by BAT to Farmers

- Soil testing on farms growing tobacco on a contract basis
- Surveillance growing for pests and diseases on contracted tobacco farms
- Introduction and testing of new tobacco varieties on contracted farms
- Introduction and testing of tree varieties (required for tobacco curing wood fuel)

##### Constraints in Providing Research Services

- Services available only to a few contracted farmers
- Research attention limited to a single crop i.e. tobacco and not other crops within the farm
- Research service not long term and unavailable if BAT withdraws from an area because of overriding commercial considerations such as better and cheaper alternative sources of tobacco

### 8.5 Agencies Providing Support Services for Agricultural Credit

#### 8.5.1 Agricultural Finance Corporation

Agricultural Finance Corporation (AFC) is a parastatal organization with the responsibility for providing development and inputs credit to the agricultural sector. However, over the years, AFC has been putting more lending emphasis on medium-scale (2-25 ha) and large-scale (over 25 ha) farmers who are able to borrow more than Ksh 100,000 at a time. Smallholder farmers, cultivating less than 2.0 ha, are seen by AFC as of secondary importance. The reason for this bias against small-scale farmers is their perceived high unit lending cost as well as difficulties in either recovering the loan or foreclosing on the collateral. In spite of these reservations about smallscale farmers, AFC has established offices in all the district headquarters with the exception of the newly created districts of Mbeere and Nyambene. Those borrowing from AFC, within the Study Area, usually have to produce evidence of permanent employment

in addition to offering land as collateral.

In the past, AFC received loan funds from GOK as well as bilateral and multilateral aid agencies for on-lending to the agricultural sector. It was initially anticipated that the recovery of relented money would go into a revolving fund that would sustain development and input credit within the agricultural sector. However, repayment of AFC loans has been poor, with, for instance, only 50 percent of large-scale farmers repaying their loans (World Bank, 1995). This, coupled with excessive overhead costs, has resulted in a situation where the corporation's capacity to lend is severely limited.

#### Credit Services to Farmers

- Field inspection of agricultural land offered as security (collateral)
- Processing of land development or in-put loan application forms, including appraisal of farm plan and cash flow projections
- Charging of land, offered as security, at the local Land Control Board giving AFC the right to sell the land (foreclose) if a borrower defaults in loan repayment
- Disbursement of loans in kind i.e. in the form of in-puts or services required for crop production and farm development respectively
- Some times, training of loan beneficiaries in farm management skills
- Granting of one year grace period when neither principal nor interest is paid
- Recovery of loans over a one year period in case of in-put credit (excluding grace period) and between 3-15 years for farm development loan

#### Constraints in Offering Credit Services to Farmers

- Requirement for land title as security/collateral which puts off many smallholder farmers who are reluctant to risk the loss of the land whose ownership could be vested in several family members
- Considerable paper work involved in filling the application form, preparing a farm plan and cash flow projections. These procedures tend to discourage illiterate and semiliterate farmers
- Need for the prospective borrower to present him/herself to the AFC office at the urban district headquarters, a simple requirement but one that could be quite intimidating to a village-based smallholder farmer
- Severely limited stock of loanable funds at present, and what there is being rationed to people with good connections and national status (attributes that a smallholder farmer certainly does not have)

### **8.5.2 Commercial Banking System**

All commercial banks in Kenya indicate their interest in lending to the agricultural sector. With a few exceptions, however, the commercial banks have a preference for lending to the business sector and large-scale farmers and not to smallholder farmers. This is so because the banks regard smallholder farmers as having a low credit rating and hence unacceptably risky.

Where lending does take place, the lending pattern is similar in nearly all the banks. In order to hedge their perceived risks, the banks normally charge smallholder farmers comparatively higher interest rates. This situation prevails even when such farmers are already long term savers with a particular bank. The irony is that commercial banks effectively mobilize smallholder savings for subsequent re-lending to other sectors such as urban-based business and construction firms or individuals.

### Credit Services to Farmers

- Opening of a bank account by the prospective borrower
- Issuing and preliminary assessment of a loan application form
- Field inspection of agricultural land offered as security for and intended to benefit from the loan
- Processing of land development or in-put loan application forms including appraisal of cash flow projections
- Charging of land offered as security, at the local Land Control Board giving the bank the right to sell the land if a borrower defaults in loan repayment
- Loan disbursement by directly crediting the borrower account with the loan funds
- Recovery of loans over a one-year period in case of in-put loans (excluding three month grace period or less depending on the bank) and between two to three years for farm development loans with only a three to six months grace period depending on the negotiating skills of the borrower

### Offering Credit Services

- Requirement for land title as security/collateral which keeps away many smallholder farmers
- Considerable paperwork involved which discourages illiterate and semi-illiterate farmers
- Need for the prospective borrower to present him/herself in person to the Bank where the surroundings are formal and somewhat overwhelming to smallholder farmers from simple rural back-ground
- Short term grace period which allows little time for funded agricultural enterprises to service the loan
- Repayment period relatively short which again puts funded enterprises under immense pressure thus denying them a period for consolidation
- High interest rate

### **8.5.3 Cooperative Bank of Kenya**

The cooperative bank functions both as a normal commercial bank as well as a specialized institution for lending to the cooperative sector. The bank is jointly owned by cooperative societies from all over the country, both agricultural and non-agricultural. Normal saving, checking and deposit accounts can be opened by cooperative societies, companies or individuals. However, only registered cooperative societies can borrow from the Cooperative Bank of Kenya.

It is nevertheless the case that individual cooperative societies do borrow from the Cooperative Bank for on-lending to their members through their local "Saving and Credit Cooperative" (SACCO) section. The Cooperative Bank has advanced rural co-operatives its own money for buying urban property as well as for constructing storage facilities.

For Smallholder farmers, who are not members of a cooperative society, they can only borrow using a special scheme where their borrowing is guaranteed through a deposit equivalent to the loan. This special scheme, has been the principal means of channeling donor supported credit to smallholder farmers. Indeed SISDO is using the special scheme method to provide infrastructure and in-put credit for smallholder irrigation schemes.

### Credit Services to Farmers

- Opening of a bank account by the borrowing cooperative society or guarantor (in case of special scheme lending)
- Preliminary assessment of loan application form or in case of special lending scheme signing and exchange of a Memorandum of Agreement
- Field inspection of an asset offered as security (land and buildings) or in the case of special scheme request for a deposit to be offered as security for the loan
- Processing of loan including preparation of cash flow projections
- Charging of land, offered as security, at the local Land Control Board giving bank the right to sell the land if the co-operative society defaults in loan repayment
- Processing of individual loan agreement at the local Cooperative Bank Branch as indicated in the Memorandum of Agreement with the donor/guarantor (in the case of SISDO, requirement for group borrowers to open security fund account amounting to 15 percent of loan)
- Loan disbursement by directly crediting the borrowing society or, in case of special scheme, by paying to suppliers of inputs or services on behalf of group borrowers as per guarantor's instructions
- Recovery of loans over a one to six years period with a six to twelve months grace period depending on the type of loan and in case of special scheme depending on the provisions of the Memorandum of Agreement.

### Constraints in Offering Credit Services

- Fairly lengthy paper work which takes a considerable amount of time between loan initiation and disbursement at the farmer level.
- In the case of special loan scheme, individual farmers have still to make a visit to the local Cooperative Bank office which is located at the District headquarters.

### **8.5.4 Development Bank of Kenya (DBK)**

DBK was established in 1963 but was operating as a Finance Company until March 1997 when it commenced offering full commercial banking services. As well as other commercial banks, DBK offers credit services. Currently there are three types of loan, that is production loan, short term, medium term loans. Credit service's condition by type are as below;

#### Credit Service's Condition

Types	Period (year)	Interest (%/year)
Production loan	5 to 8	12 to 22
Short-term loan	1 to 3	23 to 32
Medium-term loan	3 to 7	25 to 32

The subject to credit are; production loan to purchase seeds, fertilizer and agricultural chemicals, short term loan for working capital and business expansion, and medium term loan for financing new production project, respectively. Collateral for credit is required when applying loans. For example, land and premises on the land for the production loan, residential, and industrial properties, debenture on company's assets etc. for short and medium term loans, respectively.

Special credit is available for smallholders and its conditions as that already extended to SISDO. The DBK started their work for financing for small scale irrigation project since August 1998 in cooperation with SISDO and annual interest for small scale irrigation project was relaxed from previous 30 percent to current 16 percent.

Currently, DBK has only a head office at Nairobi, however, no branch office in the seven districts of the Study Area. This might be a constraint for smallholders when applying credit although SISDO staff at districts would provide supporting services for financing procedure for farmers.

#### **8.5.5 Agricultural Cooperatives**

Coffee and dairy cooperatives maintain input stores from which members can take farm inputs on credit. The loan is then recovered later from the produce sales account which is managed by the same cooperative society. Some of the societies have progressed to a level where they operate a separate "Savings and Credit Cooperative" (SACCO) section. This section manages members' savings and credit accounts in close reference with the members sales account handled by the main cooperative society.

These rural cooperative societies also obtain loans from the Cooperative Bank, in which they own equity, for infrastructural development (stores, coffee factory etc.) or for on-ward lending to members in respect of farm inputs. In principle, then, a cooperative society whose members are keen on installing an irrigation system can borrow the necessary funds from the Cooperative Bank. Apart from lending for agricultural related infrastructure, the Cooperative Bank has liberally lent these rural cooperatives funds for acquiring urban properties e.g. Imenti House in Nairobi.

#### Credit Services to Farmers

- Opening of produce sales account
- Opening of saving and credit account if a SACCO already exists
- Issuing of farm inputs and debiting either a produce sales account or a savings and loans account
- Recovery of loan from sale of proceeds

#### Constraints in Offering Credit Services

- Loanable funds insufficient in relation to demand
- Credit restricted to cooperative members only
- Loan processing and accounts reconciliation done manually thus affecting the speed at which a loan request can be finalized
- Inadequate management and organizational skills

#### **8.5.6 Smallholder Irrigation Scheme Development Organization (SISDO)**

SISDO is a relatively new credit agency, having been started only in 1991. Within the Study Area, SISDO is the only agency dedicated to providing in-put and infrastructure credit to smallholder irrigation farmers. The organization has fairly elaborate procedures for handling loan requests, preparing farmers and managing loan recovery.

### Credit Services to Farmers

- Information on SISDO credit programs given in a meeting with smallholder farmers (at a venue near or within the community ) particularly on group lending, security funds, and mutual group guarantee
- Assistance in group and association formation as well as in opening group and association accounts with local banks to accommodate security guarantee funds (targeted at 15% of intended loan)
- Follow-up meeting every month to monitor progress on security fund payments
- Provision of assistance to farmers during design and cost estimate meetings in case of infrastructural loans or in preparation of production budgets for input loans
- Placing of guarantee deposit with the bank through which loan funds are channeled and at same time opening an operational account for receiving loan repayments
- Advising the bank on how to disburse loan funds to suppliers of inputs or contractors in case of irrigation works loan .
- Supervising loan repayments which are payable over 12 months for inputs and four years for irrigation works
- Provision of a grace period of 6 months for inputs and 6 months after irrigation commences in the case of main works. During this grace period, neither principal nor interest is paid
- Giving assistance in identifying prospective buyers of irrigated produce as well as in negotiating and preparing a production contract

### Constraints in Offering Credit Services

- Lengthy process between loan initiation and loan disbursement particularly when a collaborating bank is not quick in taking decisions. For instance, at Ruungu Irrigation Scheme, disbursement period for an irrigation works loan is in its second year because the Cooperative Bank branch at Meru has delayed release of funds to the contractor
- Loanable funds presently inadequate since initial funds provided by the Netherlands Government are tied in long-term irrigation loans or are used in meeting operational expenses
- Insufficient capacity for monitoring and evaluation of loan activities (lending and repayment) leading to delayed action on loan repayment
- Inadequate skills in analyzing marketing prospects with the aim of preparing realistic cash-flows for lending decisions
- Insufficient knowledge of marketing issues when helping farmers to negotiate a fair production contract with buyers (e.g. the case of Kagati Scheme where the farmers bore all the risks of production when the contract buyer failed to collect the produce)
- Relatively high level of chief executive turn-over (three general managers in four years) which has led to disorientation and loss of morale on the part of field staff
- High overhead costs both at the head-office and at regional operational centres
- A relatively high interest rates (about 30%) for both in-put and infrastructure loans which serves to reduce demand from prospective smallholder borrowers

### **8.5.7 Private Sector**

#### 1) Agricultural Produce Buyers

Buyers of agricultural produce are known to offer credit support to smallholder farmers with whom they have concluded a production contract. The standing crop, which is the basis of the agreement, acts as security. Within the Study Area, BAT offers all farm inputs (seed, fertilizers, insecticides,

fungicides, barn construction materials) to its tobacco growers on credit (e.g. in Kiorimba Irrigation Scheme). Other buyers giving credit are the horticultural exporting firms such as Everest, and East African Growers who provide a package of farm inputs to their contracted farmers.

#### Credit Services to Farmers

- Informing farmers about available credit package in an informal field meeting
- Compiling a list of members willing to enter into a production contract agreement
- Signing of a production contract agreement that specifies the price, supply and timing of horticultural produce on an exclusive basis
- Provision of production inputs on credit to individual farmers
- Recovery of input costs from sales of produce

#### Constraints to Offering Credit Services

- Credit limited to commodity of the buyers choice
- Operational area limited to a zone of interest to the buyer only
- Availability of the credit is not long term and is influenced by such factors as the commercial fortunes of a company and incidence of endemic diseases that can force the firm offering the credit to move to other areas

#### 2) Agricultural Input Stockiest

Within the Study Area, there are more than 200 small scale stockists who provide inputs to surrounding local farmers. Such stockists are located in major urban centres (district and division headquarters as well as at fairly local small trading centres where farm inputs are sold alongside other consumer groceries. While large-scale companies are responsible for importing, packing and distributing farm inputs, the small scale stockists ensure its availability in the rural areas. It is at this local level that availability of agricultural inputs is critical.

#### Credit Services to Farmers

Apart from making the inputs available, smallscale stockists also provide a credit service by permitting some farmers to take farm inputs in the expectation of later payment when the farmer sells his/her crop. Since there is no tangible security, the stockist bases his/her decision on trust and knowledge of the borrower. The prevalence and efficiency of this type of credit is dependent on existing marketing situation as well as on reliability of agricultural production.

When general price levels are stable and profitable at the farmer level and rainfall or irrigation sufficient, stockists are more willing to give inputs on credit. On the other hand, the stockists are reluctant to give out inputs on credit when markets are depressed or volatile, and rain-fall or irrigation water inadequate.

During the field visits, informal discussions with stockists near Nkui Irrigation Scheme (at Mitunguu Trading Center), indicated that, although not widely recognized, this form of informal credit may constitute a significant component of rural credit system.

## Constraints in Offering Credit Services

- Input stockists are, at times, located too far from irrigation schemes while access roads are impassable particularly during the rains.
- Stockists may be holding the wrong types of agricultural inputs in relation to what irrigation farmers are growing. This is particularly true if the stockist is located in an area growing crops other than horticultural ones.
- The price of inputs is regarded by the farmers as very high and they therefore choose either not to use them at all or to use them in low (sub-optimal) quantities.
- Demand for inputs is limited by poor or unstable produce markets as well as unreliable rainfall or irrigation.
- Insufficient knowledge of how to use some farm in-puts which may result in adverse crop performance thus making a farmer reluctant to re-use the same input again.

## **8.6 Overall Evaluation and Problem Analysis**

### **8.6.1 Overall Evaluation**

On paper, there is a considerable number of agencies that are expected to provide a wide range of services to the rural farming community. In practice, however, the required services are rarely given and when they are given, the quantity or quality is such that the impact is not appreciable.

### **8.6.2 Problem Analysis**

The problems constraining provision of agricultural and other support services may be summarized as follows:

- Insufficient operational funds for government and parastatal agencies in providing support services
- Lack of coordinated approach on part of government and parastatal agencies which results in their efforts being spread too thin while at the same time confusing farmers regarding which agency to approach for support
- Inappropriate intervention methods by government or NGOs that have led to reduced farmers and local community's initiative as well as willingness to assume responsibility for their development
- Low capacity of local communities to organize themselves for joint action aimed at solving their problems including collective demands for improved support services from the government agencies or "better terms" of trade from private sector agencies

The above four problem categories are fairly broad and embrace a far much wider range of problems that constrain provision of support services to the farming community. A more comprehensive treatment of problem analysis is presented in Chapter X.



## **CHAPTER IX.**

### **FORMULATION OF PROBLEM AND OBJECTIVE ANALYSIS AND PREPARATION OF PROJECT DESIGN MATRIX**

## RESEARCH DESIGN

### STUDY 1: PRELIMINARY TEST

### STUDY 2: MAIN EXPERIMENT

## CHAPTER IX. FORMULATION OF PROBLEM AND OBJECTIVE ANALYSIS AND PREPARATION OF PROJECT DESIGN MATRIX

Prior to discussion of the formulation of Basic Development Plan of the Project, the results of participatory rural appraisal (PRA) surveys, which have been undertaken throughout workshop seminars during the periods from Phase-I Study to Phase-II Study will be summarized hereinafter. The attendance of the workshop seminars are of the related government staff at both central and provincial levels, Study Team, JICA experts, NGOs, and public sectors such as Cooperative Bank of Kenya and Kenya Broadcasting Corporation (KBC). The details of these workshop seminars are given in Annex C.

### 9.1 Stakeholder Analysis

Using the participant's (beneficiary farmers) background knowledge of the Study Area, they identified types of organizations and individuals who are likely to have a stake or interest in the proposed irrigated horticultural project. These stakeholders were then grouped into five categories i.e. government agencies, farming community, private sector, NGO's and public groups. The likely impact of the project (positive, negative or neutral) on each stakeholders was then assessed and marked on the card. In addition, the relative priority of interest likely to be shown by each stakeholder was also assessed. The identified stakeholders are summarized as follows, and details are given in Table C.1-1, Annex C.

#### Government Agencies

- District Irrigation Office
- MPWH
- MOALD
- IDB, MOALD
- Agricultural Extension Officers
- Market Information Branch
- MOALD Land Development Division
- Division Irrigation Unit
- District Office
- Provincial Government
- Provincial Agricultural Office
- District Agricultural Office
- District Country Council
- District Water Office
- District Work Office
- National Environmental Secretariat

#### Farming Community

- Farmers
- Farmers' Marketing Group
- Water Users' Association
- Irrigated Smallholders
- Women's Groups

#### Private Sector

- Farmers
- Local Consumer
- Households
- Local Private Credit Providers
- Input Stockists
- Middlemen
- Wholesalers/Retailers

#### NGOs

- SISDO

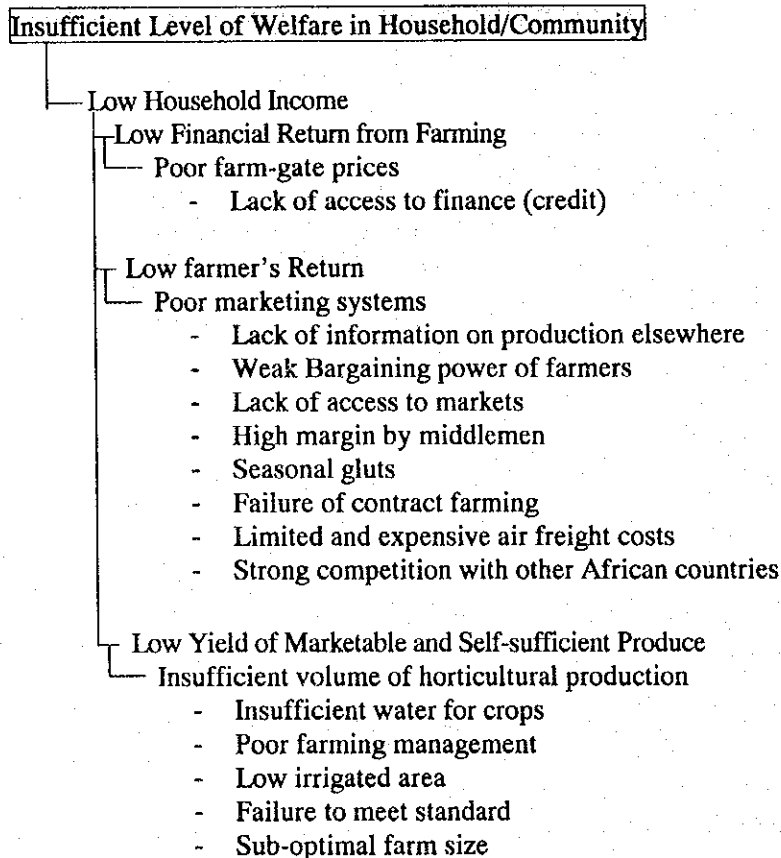
### Public Groups

- Markets
- Cooperative Bank of Kenya (CBK)
- Kenya Broadcasting Corporation (KBC)

## 9.2 Problem Analysis

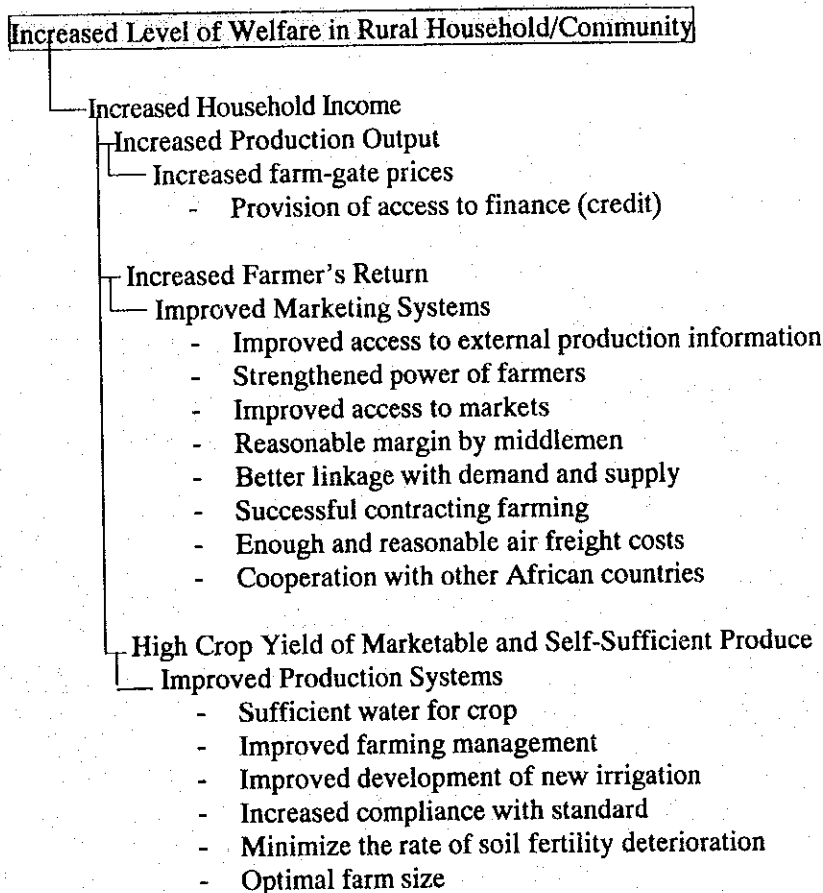
The participants engaged in a brainstorming exercise where they identified problems facing the communities of the Study Area by writing one problem in each card. The problem cards were then re-arranged to reflect a pattern of relationships e.g. problems related to marketing or production etc.

A core problem was then identified with a view to constructing a problem tree. The logical relationships among the identified problems were examined and re-examined in terms of causes and effects and the cards re-arranged in order to form a problem tree. Thus a problem lying at a lower level on a branch was a contributing cause of the problem above in the same branch. The outline constructed problem tree is presented below, and details are shown in Figure C.1-1, in Annex C.



### 9.3 Objective Analysis

An objective tree was obtained by re-phrasing the problem cards to indicate a future desirable condition once the problems have been solved. Hence the objective tree became a mirror image of the problem tree, but reflecting a positive desirable situation. The relationship between cards on the same branch was therefore transformed to that of “ends and means”. The outline of objective tree is presented below, and its details are shown in Figure C. 1-2, Annex C.



### 9.4 Formulation of Project Design Matrix

Through the above mentioned studies, project design matrix (PDM) for the Study was formulated, and its result is shown in Table 9.1-1.

**Table 9.1-1 Project Design Matrix (PDM) for the Project**

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p><b>Overall Goal</b></p> <ul style="list-style-type: none"> <li>- Improvement of socio-economic well-being of Communities around Mt. Kenya</li> <li>- Sustainable regional development of Communities around Mt. Kenya</li> </ul>	<ul style="list-style-type: none"> <li>- RGDP increase by 10-20 %.</li> </ul>	<ul style="list-style-type: none"> <li>- Record /Statistic of DAO</li> </ul>	<ul style="list-style-type: none"> <li>- EU will not legislate in ways that significantly alter the possibility of export production by smallholder.</li> <li>- Kenya will maintain or expand its share of the EU horticultural market.</li> <li>- Promotion of Kenya produce in Middle East markets.</li> </ul>
<p><b>Project Purpose</b></p> <ul style="list-style-type: none"> <li>- Small farmer development in the rural Communities around Mt. Kenya.</li> </ul>	<ul style="list-style-type: none"> <li>- Farm household income increases by 10 % at least</li> </ul>	<ul style="list-style-type: none"> <li>- Financial analysis by sampling household</li> <li>- Economic survey</li> </ul>	<ul style="list-style-type: none"> <li>- Production for local market will continue to be competitive and profitable vis-a-vis alternative production areas within Kenya and neighboring countries, i.e. the demand will continue.</li> </ul>
<p><b>Results/Outputs</b></p> <ol style="list-style-type: none"> <li>1) Active community</li> <li>2) Improved irrigation, planning, development and operation</li> <li>3) Improvement in allocation of water resources</li> <li>4) Effective water management on-farm level</li> <li>5) Sufficient supporting services to farmers</li> <li>6) Increased production of crops by smallholders</li> <li>7) Improved linkages between supply and demand in the Study Area</li> </ol>	<ol style="list-style-type: none"> <li>1)-1 Number of registered water user's association increase by 50 %.</li> <li>1)-2 Zero percent increase of water related diseases.</li> <li>2)-1 4,300 new hectares of irrigation in the Study Area after 15 years.</li> <li>3)-1 Over 80% of new water permits per year will be given on the basis of proper water assessment situation.</li> <li>4)-1 Increase in irrigated area of existing schemes of 20 percent.</li> <li>5)-1 Prices and availability of inputs in the rural area improve against base yearly data.</li> <li>6)-1 Irrigated production increases by 100 % in the Study Area over the life of the project.</li> <li>6)-2 Average yields in the Study Area increase by 5-10 %.</li> <li>7)-1 Trading volume in the largest market in district increase 10 %.</li> <li>7)-2 Coefficient of variation of target produces prices decrease from 0.5 to 0.4.</li> <li>7)-3 Amount of horticultural crops dealt with Exporter increase 10 % at least.</li> </ol>	<ol style="list-style-type: none"> <li>1)-1 Records of Ministry of Culture and Social Services</li> <li>1)-2 District Health Office</li> <li>2)-1 District Profile Survey</li> <li>2)-1 District Irrigation Unit Record</li> <li>3)-1 District Water Office Records</li> <li>4)-1 District Irrigation Unit Records</li> <li>4)-2 IDB district profiles and Crop Statistic of Horticultural Officer</li> <li>5)-1 Data from DAO and Annual Report</li> <li>6)-1 Statistics of DAO</li> <li>6)-2 Baseline Survey followed by Mid-Term End of Project Survey</li> <li>7)-1 Amount of Cess Levies of Market/County Council</li> <li>7)-2 Data from Market Information Branch</li> <li>7)-3 Record of Exporters/Traders</li> </ol>	<ol style="list-style-type: none"> <li>2) NGOs will provide resources for irrigation development.</li> <li>7) The exporters will continue to purchase the output of small farmers.</li> </ol>

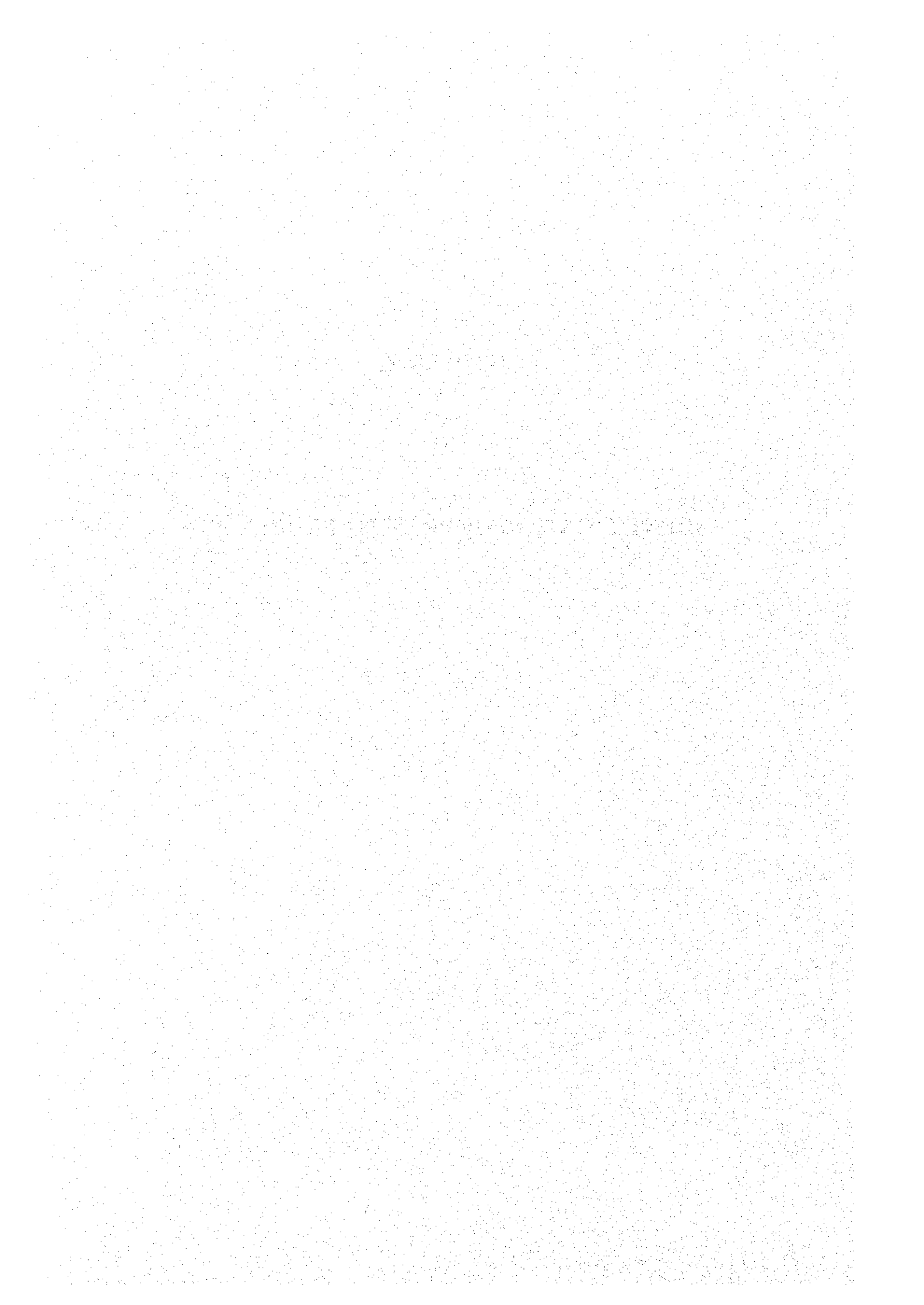
Activities	Inputs	
<p>1) Active Community</p> <ul style="list-style-type: none"> <li>- Identify communities to participate in project</li> <li>- Activities</li> <li>- Conduct community preparation sessions using PRA methods</li> <li>- Train community leaders</li> <li>- Train community members (males and females)</li> <li>- Facilitate study tours for community leaders both male and female within Study Area</li> <li>- Organize communities to avoid and control water born diseases</li> <li>- Train farmers committee on maintenance</li> <li>- Organize bulk purchase of inputs by communities</li> <li>- Promote marketing groups in each scheme</li> <li>- Promote saving groups within Study Area</li> <li>- Train women's groups for business</li> </ul>	<p>1)-1 Training program for government staff, NGOs and farmers/farmers' representative, 1)-2 Community development program, 1)-3 Gender issue program in the community, 1)-4 Population control program,</p> <p>2)-1 Effective implementation of Government Structural Adjustment Program, 2)-2 Promotion and motivation program to Smallholder Irrigation Scheme(SIS), 2)-3 Rural infrastructure improvement program (rural water supply, rural electrification, telephone, education, health, etc.,</p> <p>3)-1 Water resource allocation program in the basin,</p> <p>4)-1 Water management program at on-farm level in Smallholder Irrigation Scheme,</p>	<p>2) Prepare EIA for the project. 3) Water demand for other uses such as domestic large flour farms, industrial, etc. will not replace irrigation 7) Private sector works actively in marketing produce and inputs.</p>
<p>2) Improved irrigation, planning, development and operation</p> <ul style="list-style-type: none"> <li>- Examine and determine appropriate roles for the Public and private sectors in smallholder irrigation</li> <li>- Streamline number of agencies/organization</li> <li>- Involved in irrigation schemes</li> <li>- Survey existing irrigation schemes in Study Area</li> <li>- Hold workshops at district level during project implementation</li> <li>- Prepare design standard for irrigation facilities</li> <li>- Select implementing partners for each district Schemes</li> <li>- Undertake O&amp;M works</li> </ul> <p>3) Improvement in allocation of water resources</p> <ul style="list-style-type: none"> <li>- Develop strategy for water resources allocation and use in the area</li> <li>- Produce district level irrigation profiles based on Available water by sub-basin</li> <li>- Promote establishment of coordinating mechanism for irrigation water use at district level.</li> <li>- Strengthen monitoring and training section of IDB</li> <li>- Assist government to monitor water abstraction</li> </ul> <p>4) Effective water management on-farm level</p> <ul style="list-style-type: none"> <li>- Prepare guideline for water management</li> <li>- Develop water management groups in each scheme</li> <li>- Train extension staff on irrigation water Management</li> <li>- Train NGOs staff in water management techniques</li> <li>- Train farmers on water management</li> <li>- Coordinate water use within sub-basin between Schemes</li> </ul>	<p><b>Killer Assumption</b></p> <p>2) Irrigation development in the Study Area will be controlled. 2) Government avails fund for extension support services 2) The GOK will devolve the responsibility and the funding for maintenance to the local level. 2) Political stability will continue. 3) The available data regarding the water resources is correct. 5) Decrease in high interest. 5) Provide farm inputs at lower price under subsidized system. 7) The exchange rate will not significantly change, and the price of imported inputs will not increase.</p>	

<p>5) Sufficient supporting services to farmers</p> <ul style="list-style-type: none"> <li>- Support and encourage NGO involvement in Irrigation by smallholders</li> <li>- Provide NGOs with access to crop and price Information for distribution to smallholders</li> <li>- Arrange easier access to credit</li> <li>- Strengthen operational procedures of SISDO on Credit</li> <li>- Initiate on-farm demonstrations</li> <li>- Organize with KBC an improved horticultural news Programme</li> <li>- Provide vehicles and motorcycle for extension Service use</li> </ul> <p>6) Increased production of crops by smallholders</p> <ul style="list-style-type: none"> <li>- Review irrigated horticulture and identify key Constraints by crop, develop and disseminate solutions</li> <li>- Develop crop production guidelines for use in Study Area</li> <li>- Develop soil conservation afforestation programme for irrigated areas</li> <li>- Train crop and farm budgeting to smallholders</li> <li>- Develop profitable models of farming and Encourage young people to adopt</li> </ul> <p>7) Improved linkages between supply and demand in the Study Area</p> <ul style="list-style-type: none"> <li>- Train smallholders in grading, post-harvest and marketing</li> <li>- Demonstrate on farm storage for key crops</li> <li>- Review opportunities for processing in Study Area</li> <li>- Improve access road network in the irrigated areas</li> <li>- Strengthen the price collection and dissemination systems in the area</li> <li>- Expand market information branch activities</li> <li>- Coordinate with OECF horticulture produce handling facilities projet, and new irrigation is developed.</li> <li>- Train export produces in safe pest control and MRLs</li> <li>- Reduce chemical hazard</li> <li>- Improve facilities of major markets at Nyeri and Meru</li> </ul>	<p>5)-1 Training program for government staff, NGOs and farmers/farmers' representative, 5)-2 Agricultural support services/extension and credit services program,</p> <p>6)-1 Farm management and crop production increase program,</p> <p>7)-1 Marketing system improvement program for horticultural crops, 7)-2 Access and farm-to-market road improvement program, 7)-3 Rural environment improvement program,</p>
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## **CHAPTER X.**

### **IDENTIFICATION OF PRESENT PROBLEMS**



## CHAPTER X. IDENTIFICATION OF PRESENT PROBLEMS

### 10.1 Identification of Core Problem Areas

The problems and constraints related to the implementation of smallholder irrigation schemes are identified, which were clarified through the field survey, data collected, and results of socio-economic survey, PRA and PCM conducted during the field works of phase-I to phase-III. These problems and constraints can be categorized into the following core areas;

#### A. Institutional Aspects;

- 1) Policy of MOALD's future direction
- 2) Policy of SIS development
- 3) Policy of basin water management
- 4) Institutional management of agricultural support services

#### B. Financial Aspects;

- 1) Allocation of government budget
- 2) High cost of farm inputs
- 3) Accessibility to credit for smallholders

#### C. Rural Community Aspects;

- 1) Capability of farmers and lack of harmony in community
- 2) Poverty
- 3) Famine and unhealthy situation of farmers
- 4) Poor rural infrastructure
- 5) Gender (overdependence on female etc.)

#### D. Organizational Aspects;

- 1) Training of farmers/farmers' leader
- 2) Strengthening of water users' association and cooperative society
- 3) Agricultural extension services

#### E. Technical Aspects;

- 1) Training of government staff and farmers
- 2) Crop husbandry and farm management
- 3) Marketing and quality control

#### F. Environmental Aspects;

- 1) Soil conservation
- 2) Pollution of drinking water
- 3) Chemical residue on horticultural produce

### 10.2 Diagnosis of Problems with Planning Consideration

The diagnosis and countermeasures to cope with these problems and constraints are given in Table 10.2-1.

**Table 10.2-1 Core Problem Areas and Their Diagnosis and Countermeasure for Implementation of SIS**

Core Problem Areas	Diagnosis and Countermeasures															
<b>A. Institutional Aspects</b>																
1) Policy of MOALD's Future Direction	<p>MOALD's new structure was approved by the Cabinet in March 1997. Under the new structure, the vision of the Ministry is to facilitate the production of sufficient food and other commodities in an ecologically sustainable way with specific goals of poverty alleviation and employment creation. Emphasis is put on effectively facilitating the private sector initiatives, liberalization of marketing, and participation of farmers to project implementation, especially in case of smallholder irrigation schemes with cost sharing concept.</p> <p>The following key initiatives will be required to be undertaken;</p> <ul style="list-style-type: none"> <li>- To provide the necessary socio-economic enabling environment to facilitate widespread and free participation by the private sector,</li> <li>- To prioritize and rationalize public sector involvement in agriculture for greater efficiency in resource allocation, which calls for acceleration of the parastatal reform programme to reduce budgetary constraints and to facilitate increased private sector participation in agricultural production, marketing and processing,</li> <li>- Stimulate private sector investment in agriculture through improved rationalization and increased investment including rural access roads, rural water supply, rural electrification, marketing facilities and information, agricultural credit, research and extension,</li> <li>- To put in place support mechanisms and policies that will enhance the development of a strong and vibrant sector in agriculture,</li> <li>- To maintain effective and efficient coordination systems within the government, and between the various agencies of the government, farmer/farmers' organizations, women/women's organizations, private sectors, donors and NGOs through intensive and regular consultation.</li> </ul>															
2) Policy of SIS Development	<p>Farmers' participation is essential to proceed SIS development, and its concepts are of cost sharing and cost recovery of the project costs with high interest rate (30 %) and short repayment period of 48 months. These conditions are very severe for farmers. Therefore in the study, some alternative plans for amortization should be studied taking into consideration the existing credit system and its conditions. As the results of the alternative studies on credit conditions in each Model Area, followings are recommendable;</p> <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th style="text-align: center;">Interest (%)</th> <th style="text-align: center;">Repayment Year (year)</th> </tr> </thead> <tbody> <tr> <td>- Rupingazi Ngerwe</td> <td style="text-align: center;">12</td> <td style="text-align: center;">6</td> </tr> <tr> <td>- Ngomano/Nyangati</td> <td style="text-align: center;">12</td> <td style="text-align: center;">6</td> </tr> <tr> <td>- Nkunjumo</td> <td style="text-align: center;">8-10</td> <td style="text-align: center;">10-5</td> </tr> <tr> <td>- Ruungu/Karocho</td> <td style="text-align: center;">8-10</td> <td style="text-align: center;">10-5</td> </tr> </tbody> </table>		Interest (%)	Repayment Year (year)	- Rupingazi Ngerwe	12	6	- Ngomano/Nyangati	12	6	- Nkunjumo	8-10	10-5	- Ruungu/Karocho	8-10	10-5
	Interest (%)	Repayment Year (year)														
- Rupingazi Ngerwe	12	6														
- Ngomano/Nyangati	12	6														
- Nkunjumo	8-10	10-5														
- Ruungu/Karocho	8-10	10-5														
3) Policy of Basin Water Management	<p>The MLRRWD has a role of proper water management in each sub-basin. Water users are requested to apply water permits as per the Water Act. However, the activity for strict enforcement of the law on users is poor which results in many illegal abstractions, ineffective water use and usage conflicts. An assessment study of available water resources in sub-drainage basin should be examined.</p>															

Core Problem Areas	Diagnosis and Countermeasures
4) Agricultural support services by MOALD	Farmers are strongly requesting horticultural farming, water management, and marketing techniques to be carried out by MOALD. However, due to shortages of both the necessary budget and staff, effective supporting services for these purposes have not been given to farmers. Consequently, MOALD should make effort to increase recurrent and development budgets by means of appropriate ways. And also, it will be essential to increase the numbers of technical staff to implement the smallholder irrigation schemes, especially front-line extension workers (FEW) (basically one FEW per one scheme).
<b>B. Financial Aspects</b>	
1) Allocation of Government Budget	MOALD's annual budget for the last three years (1994/95-1996/97) has increased from 213 million Kenyan Pound to 341 million Kenyan Pounds. Out of these annual budgets, about 47 percent of the budget is utilized for development expenditure on an average and the rest is for recurrent expenditure with 150 million Kenyan Pound, equivalent to 53 percent of the total budget. The rate of annual budget allocated for irrigation development work is so low with about a few percent of the total budget, which amounts at 3.1 million Kenyan Pound. Of the budget for irrigation development, about 47 percent is occupied by the fund obtained through an aid assistance (AiA) from the related donors. Therefore, necessary procedures to allocate more budgets to the irrigation sector should be recommended for the request to the Ministry.
2) Increase of Farm Input Costs	Recently, price of farm inputs has been increasing, resulting in no profits to farmers. Therefore, establishment and strengthening of cooperative society should be proposed to procure inputs in lower prices by purchasing them in bulk by group basis.
3) Accessibility to Credit for smallholders	80 percent of horticultural crops for export and domestic market is from small farmers. However, only farmers dealing with cash crops such as coffee, tea, and tobacco benefit from institutional credit services. Smallholders who are the major producer of horticultural crops should be covered by those institutional credit service to encourage them in farming activities. Banks request land as a collateral for loan. However, most of smallholders have not certificate for land holding. In order to improve current condition, therefore, the Study Team proposed to promote land survey in earlier stage by the Ministry of Land and Settlement in cooperation with a local government to issue a certificate by identifying area and owner of the individual land. Another proposal is to study possibility for financing for the group basis on the basis of collective responsibility. The government and bank are required to have initiative in this matter. Similarly to the current full cost recovery policy on the small scale irrigation project, government has enough responsibility to study and improve current credit system for the smallholders.

Core Problem Areas	Diagnosis and Countermeasures
<b>C. Community Aspects</b>	
1) Capability of Farmers and Lack of Harmony in Community	The main constraints facing farmers organization are; a) inadequate farmers capability to organize themselves with a view to harnessing available irrigation resources and potential support services from external agencies, b) poor leadership resulting in cohesive groups, lack of common purpose as well as discipline, c) lack of general and financial management skills on the part of the management committee. In order to enhance success of a community-based irrigated horticultural programme, it will be important to raise participatory willingness of beneficial farmers through social preparation works for rural community, which should be undertaken by hired consultants and NGOs, at the beginning stage of project implementation
2) Poverty	Smallholders are predominant and live on lower income in the Study Area, so that to alleviate the poverty, financial analysis should be made taking into consideration promising crops, its profitability and security of the staple foods.
3) Famine and poor health of farmers	Famines are occurring in some areas, especially Nyambene and Tharaka Nithi districts, which are located in isolated areas far from main roads, and these situations cause the poor health of rural people. In these areas with shortage of food crops, supply of food crops such as maize, beans, etc. should be stabilized by increasing the production, and self-sufficiency for food crops should be raised, in addition to the introduction of irrigated horticultural crops in the areas.
4) Agricultural & Rural Infrastructure	The agricultural and rural infrastructure in the Area, that is, rural water supply, access and farm roads, rural electrification, public health and school, etc. have already been provided. However, due to lack of related services such as construction equipment and budgets for operation and maintenance, etc., current rural life faces a under severe situation. Especially, access roads utilized for connecting villages and also for marketing of agricultural production are very hard to pass during the rainy season. Therefore, improvement of these access roads is essential to encourage marketing and rural communication.
5) Gender	All the communities in the Study Area have a patri-lineal system which has a strong influence on the status of women. Traditionally, land ownership is inherited from father to son, but women (wives and daughters) only have right to use agricultural land, not own it. Women are presently responsible for providing about 70 percent of agricultural labor. In addition they are responsible for the bulk of domestic tasks, e.g. cooking, fetching water and firewood, child care etc. In order to improve women's status in the community, they should have an opportunity to join the rural society activities.
<b>D. Organizational Aspects</b>	
1) Lack of Training of Farmers/ Farmer Leader	Organizing farmers is the core issue of the community-based irrigation projects. Therefore, training programme should be studied to organize beneficiaries.
2) Lack of Training of WUA and Cooperative Society	Training programme and procedure to organize WUA and cooperative society should be studied.
3) Inadequate Extension Services	Extension programme covering on-farm water management and crop management and marketing of crops, etc. should be studied with some alternative programme.

Core Problem Areas	Diagnosis and Countermeasures
<b>E. Technical Aspects</b>	
1) Training of Staff and Farmers	The technologies on irrigation and water management are extended by agriculture staff such as DIE, DIO, DAO, etc. However, the knowledge of most front-line staff is inadequate with regard to providing proper solutions to farmers' problems relating to farmers participation procedures, e.g. project identification/ planning/design /implementation and O&M work. Training programs covering O&M of small-scale irrigation facilities, water management, crop management, environment management and so on should be proposed for both farmers and district staff.
2) Farming Management	Intensive farm management should be proposed to produce horticultural crops and staple food crops in the current small farm sizes.
3) Marketing and Quality Control	Awareness of crop quality to earn higher income should be fully understood through the proposed marketing plans.
<b>F. Environmental Aspects</b>	
1) Soil Conservation	There is a considerable risk of soil erosion on farmland in the foothills of Mt. Kenya. Many farmers have knowledge on soil and water conservation methods through the training by MOALD. Planting of Napier grass and trees (mainly <i>Grevellia rubusta</i> ) around the farm, and along the contour and roads should be promoted.
2) Pollution of Drinking Water	Resources of domestic water for farmers in the Study Area are rivers, springs, wells and rain water. River water in particular is also used for irrigation purposes. In some areas, piped water is connected in the house though it is not sterilized. Many rivers and springs including protected springs are contaminated by coliform. Water borne diseases are Malaria and Amoebiasis. Therefore, plan of irrigation facilities considering the improvement of water quality such as construction of drinking places for livestock should be made in order to prohibit their being close to water sources. Furthermore, minimum water treatment applying chemicals such as chloride should be examined.
3) Chemical Residue on Horticultural Produce	Suitable use of fertilizer and agro-chemicals (timing, quantity, number of times etc.) should be studied in the proposed extension programme to avoid chemical residue on horticultural crops to be exported and consumed in local markets.

## **CHAPTER XI.**

# **ESTABLISHMENT OF DEVELOPMENT GOALS AND STRATEGIES FOR FORMULATION OF BASIC DEVELOPMENT PLAN**



## **CHAPTER XI. ESTABLISHMENT OF DEVELOPMENT GOALS AND STRATEGIES FOR FORMULATION OF BASIC DEVELOPMENT PLAN**

### **11.1 Establishment of Future Socioeconomic Framework**

#### **11.1.1 Target for the National Economy**

##### **1) Earning Foreign Currency**

Export of horticultural produces contribute 12 percent to the total export value in 1996. The export of horticultural crops earned about 7.7 billion Ksh in 1996 including vegetables, fruits and cutflowers. The target for the national economy will be earning more foreign currency through an increase of exports of horticultural produce which will be attained by implementing small-scale irrigation in the Study Area and other areas in which the same type of irrigation project could be introduced. In order to attain this target, export destination countries such as EU have to continue to import Kenya's horticultural produce in the future too, which will be the assumption or hypothesis.

##### **2) Food Security**

When investigating current land use for crops, it is noted that planting food crops such as maize takes up most of the cultivated areas in the Study Area. In addition, planted area with export-oriented horticultural crops accounts for only 0.6 percent of the total planted areas of the Study Area. There are some districts in the Study Area, which import maize from neighboring districts. Food security is also one of the aims because once drought occurs, though it does not happen every year, food shortage might be expanded.

##### **3) Positioning of the Agricultural Sector for the National Economy**

Though the contribution to the national economy by the agriculture sector has been declining, agriculture is still the major industry in Kenya, contributing 25 percent of GDP. It is considered that growth in the secondary and third sectors affects the first sector (agriculture etc.) but the agricultural sector will keep its top position as the major industry in the national economy accounting for 70 percent of employment opportunities, contributing 60 percent to foreign currency earnings and producing food for the people.

#### **11.1.2 Target for the Regional Economy**

##### **1) Position of the Agricultural Sector in the Regional Economy**

Some 3.15 million people, (11.9 % of the national population) are living in about 50 thousand farm households, 98.7 percent of which is classified as smallholders, exist in the Study Area. As at the national level, the agriculture sector provides employment opportunities for many people in the Study Area and this sector will retain its importance in the regional economy in the future too, and maintain its position as the most productive area for agriculture because of its favorable climate.

## 2) Estimate of Population, Number of Farm Households, and Farm Labor

Based on the data and statistics available, population, number of farm households and farm labor in each five-year period are estimated as shown below;

Estimated Population, Farm Households and Farm Labor

Year	(unit:1,000)		
	Population	Farm Households	Farm Labor
1999-2004	3,778	603	1,146
2005-2009	4,297	688	1308
2010-2014	4,909	789	1,499

## 3) Irrigable Areas

According to the result of the District Profile Survey updated, 6,019 ha is currently irrigated in the Study Area and the area will be increased in accordance with potential water resources in the basin as shown below;

Irrigable Area

District	(unit : ha)	
	Present Irrigated Area	Rehabilitated and Newly Developed Area
Nyeri	1,381	2,755
Kirinyaga	750	1,455
Embu	56	837
Mbeere	175	1,792
Tharaka Nithi	189	1,149
Meru	3,889	3,050
Nyambene	479	445
Total	6,019	11,473

## 4) Improvement in Farm Economy

The averaged monthly income of the farm households in the Study Area is estimated at 6,891 Ksh, and this income level will be improved by the implementation of the Project. As farm incomes will differ among regions depending on cropping and land use, actual farm budget will be calculated based on the proposed land use.

## 5) Needs of the Farm Households in the Study Area

The most important need of the farm households in the Study Area is irrigation water, which is also the result of PRA conducted, because current farming depends on rainfed conditions under an unpredictable climate. Though the need for domestic water supply is also higher, irrigation facilities will have dual functions to improve domestic water supply and irrigation. Improvement of rural and farm roads will be one of the project components in considering muddy conditions during the rainy season which cause difficulty in crop marketing for both farmers and trade trucks. There are also needs for rural infrastructure such as school and clinic facilities.

## 6) Community Development

Irrigated production is only one of the many activities that may be undertaken by a community. Once irrigation is introduced, it can be expected to compete with such other household and community obligations as rainfed cultivation, looking after livestock, fetching water and firewood, attending school meetings, going to the market, taking the sick to the hospital etc. Furthermore, because of the opportunities it creates, irrigation also attracts into the community people and agencies from the outside world such as government officers, NGOs, produce buyers, input suppliers, general traders and even politicians.

Hence, introduction of irrigation to a socio-economy, predominantly based on rainfed agriculture, because irrigation is not just an exercise in engineering and agronomic design but also a significant community event with far-reaching social and cultural implications. At the household level, the nature and distribution of roles within and among households is likely to change while the community as a whole will need to adjust the way it deals with the outside world.

## 7) Necessity for Monitoring

Monitoring of the target and planned objectives in the logical framework are considered an important procedure to lead the Project to successful sustainable horticulture farming and to use those results for other similar areas in the country. The components of the monitoring covers many items not only agricultural benefits but also O&M of water users association, participation of farmers, equitable water distribution, change in marketing and improvement in farm economy and so on.

## 11.2 Establishment of Development Goals and Strategies for Basic Development Plan

### 11.2.1 Expected Overall Development Strategies and Intervention for Basic Development Plan (Master Plan)

Through the careful review of the formulated development strategy mentioned above and also based on the results of additional workshop seminars held at the selected four Model Areas during Phase-III field works with the participation of beneficiary farmers in the Areas, following overall development strategy for Master Plan was expected (refer to Table 9.1-1).

#### Overall Goal

- Improvement of socio-economic well-being of community around Mt. Kenya
- Sustainable regional development of community around Mt. Kenya

#### Project Purposes

- Small farmer development on the rural communities around Mt. Kenya through the promotion of irrigated horticultural development

### Expected Results and Outputs

As a development strategy to realize project purposes mentioned above, following results and outputs will be essential and prerequisite for the project (refer to Figure 11.2-1);

- Strengthening of related government agencies in term of technical and financial view points,
- Training of related government staffs and farmers representative,
- Development and strengthening present community organization,
- Planning, designing, construction and operation for improved irrigation system,
- Establishment of water resources allocation in the basin,
- Effective water management on farm level under equitable water distribution among farmers,
- Efficient supporting services to farmers, including credit system and loan repayment condition,
- Increased crop production for small farmers for both home consumption and income generation,
- Improvement of farm-to-market roads in the vicinity of areas,
- Improvement of gender issues in rural community,
- Improvement of marketing system and supply of marketing information to farmer,
- Improvement of rural infrastructures of village water supply health, education, rural electricity,
- Improvement of environmental situations, and
- Population control in rural community.

### Expected Intervention for the Project

The expected intervention for the development of smallholder irrigation schemes, which will be consistence with the above mentioned results and outputs are as follows;

1. Effective implementation of Government Structural Adjustment Program
  - Implementation and monitoring of Agricultural Sector Investment Program (ASIP) by relevant government agencies and other stakeholders
  - Strengthening of government budgets with support by donor's countries
2. Training program for government staff, NGOs, farmers/farmer's representatives
  - Training needs assessment and formulation of training strategies for GOK staff
  - Training for production technologies e.g. irrigation and water management, use of fertilizer as well as pesticides, marketing, farm budgeting, and post-harvest handling
  - Training on maximum residue levels (MRLs) and pesticide use by HCDA, KEPHIS, MOALD, NGOs
3. Community development program
  - Undertaking of social preparation of community by mean of PRA workshop with participation of beneficiary farmers by Irrigation and Drainage Branch (IDB), Department of Culture and Social Services and the private sector
  - Undertaking of capability building for farmers' organizations e.g. water user's association, cooperative society, women group, production/marketing group by MOALD, Department of Culture and Social Services, MLRRWD and NGOs/private sector
  - Undertaking of development and capacity building of relevant agencies at district level government staff and NGOs by MOALD and other agencies



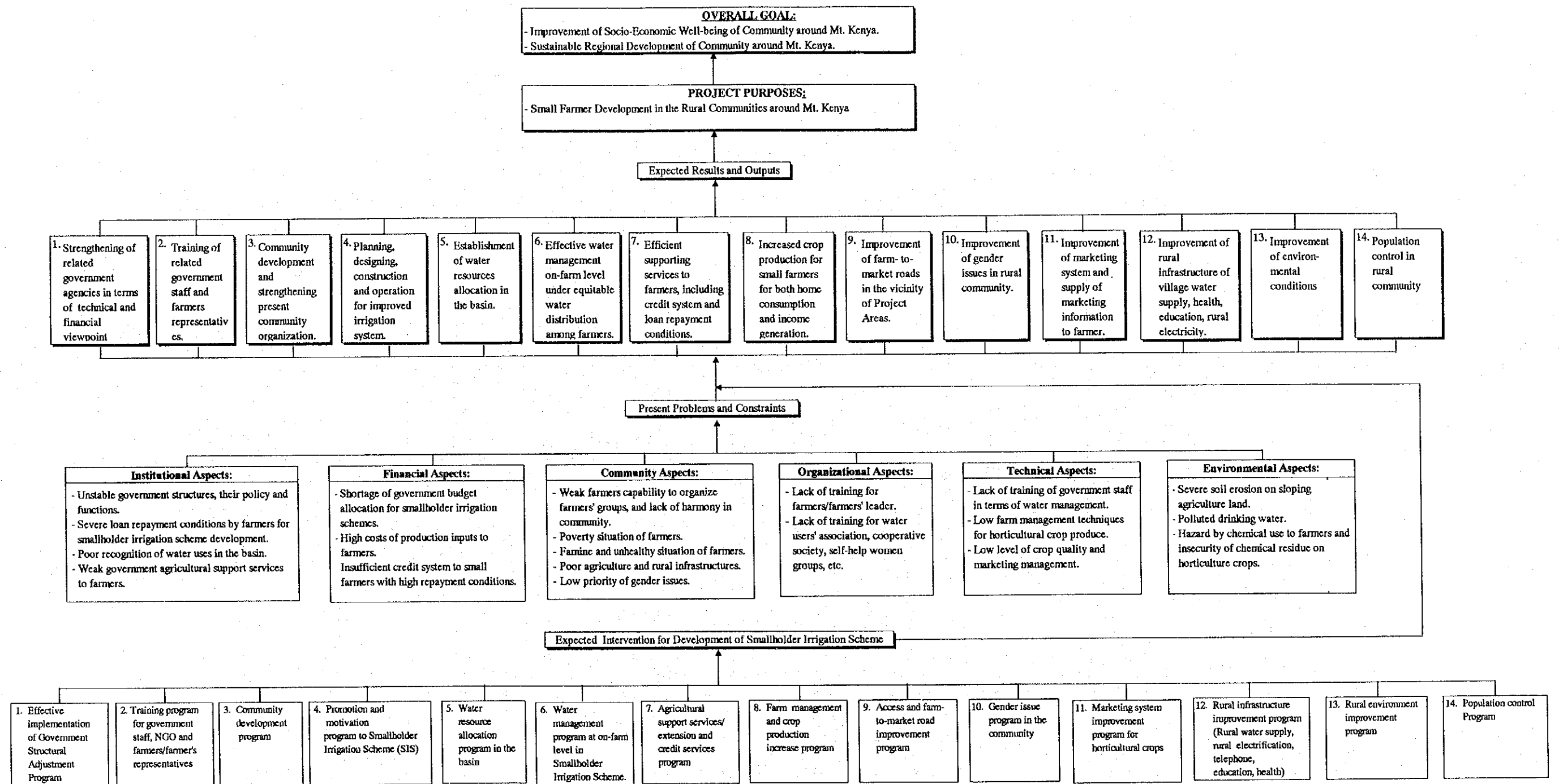


Figure 11.2-1 Expected Overall Development Strategy and Intervention

