No.

MINISTRY OF PLANNING AND NATIONAL DEVELOPMENT
THE REPUBLIC OF KENYA

THE DEVELOPMENT STUDY FOR REGIONAL DEVELOPMENT PROGRAMME IN NYANDO AND HOMA-BAY DISTRICTS IN THE REPUBLIC OF KENYA

FINAL REPORT
APPENDIXES VOL.2/2

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JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
SANYU CONSULTANTS INC., TOKYO, JAPAN

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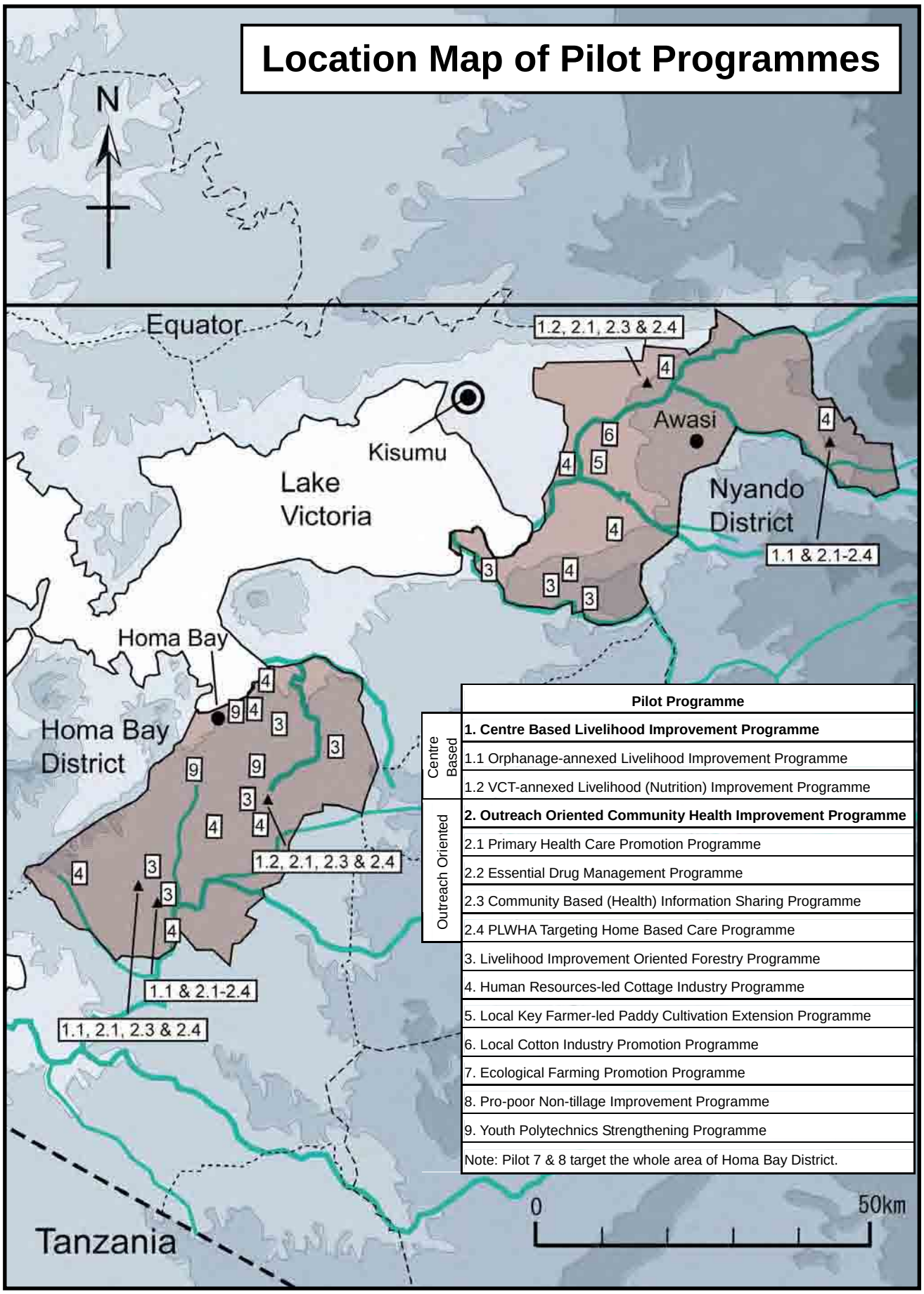
PILOT PROJECT IMPLEMENTATION



	Pilot Programme
Centre Based	**1. Centre Based Livelihood Improvement Programme**
	1.1 Orphanage-annexed Livelihood Improvement Programme
	1.2 VCT-annexed Livelihood (Nutrition) Improvement Programme
Outreach Oriented	**2. Outreach Oriented Community Health Improvement Programme**
	2.1 Primary Health Care Promotion Programme
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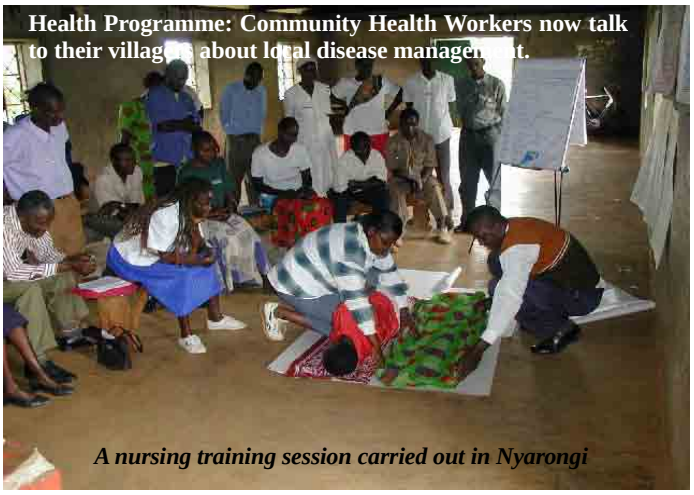
	2.3 Community Based (Health) Information Sharing Programme
	2.4 PLWHA Targeting Home Based Care Programme
	3. Livelihood Improvement Oriented Forestry Programme
	4. Human Resources-led Cottage Industry Programme
	5. Local Key Farmer-led Paddy Cultivation Extension Programme
	6. Local Cotton Industry Promotion Programme
	7. Ecological Farming Promotion Programme
	8. Pro-poor Non-tillage Improvement Programme
	9. Youth Polytechnics Strengthening Programme
	Note: Pilot 7 & 8 target the whole area of Homa Bay District.

ACTIVITIES UNDER PILOT PROGRAMME IMPLEMENTATION

Health Programme :
Primary health care training at a church

Health Programme
Training on Essential Drug Management

A trainer who is actually a local lead farmer, teaching how to cultivate passion fruit.



Health Programme: Community Health Workers now talk to their villagers about local disease management.

A nursing training session carried out in Nyarongi

Livelihood Improvement programme:
Practicing nursery establishment

Health Programme:
A Community Health Worker talks about community health.

Health Programme:
A Community Health Worker talks about community health.

Cottage Industry Programme:
Training on baking technology

Cottage Industry Programme:
A lead farmer trains villagers about improved livestock management.

Local Cotton Industry Promotion:
Trainig of Hand Weaving

Paddy Cultivation Programme;
Ttansplanting in Line

Forestry Programme:
Nursery is established and now sowing neem tree seeds.

Forestry Programmes: Neem seedlings have been transplanted in plastic pots.

APPENDIX-VII PILOT PROJECT IMPLEMENTATION

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CHAPTER 1 INTRODUCTION

1.1 Rationale

This Study contains two new elements apart from conventional plan formulation: 1) a participatory planning approach and 2) implementation of pilot programmes/ projects before the finalization of the district development plan. Implementation of the pilot programmes/ projects is a key to formulating the development plan that could really work on the ground. This Study is composed of two phases, Phase I and Phase II; during Phase I, a draft development plan was prepared and a number of pilot programmes/ projects were identified, and Phase II of the Study put some of the identified programmes/ projects into practice. The lessons and experiences were fully utilized in converting the draft development plan into the final District Development Plan. Also, suggested through the implementation of the pilot programmes was a sound mechanism of implementing the Plan; so-called implementation disciplines. This Appendix discusses the implementation of the pilot programmes/ projects.

1.2 Selection of the Pilot Programmes/ Projects

During the district level planning workshop held in late 2005, the participants identified some programmes/ projects which had higher priority, could be implemented without much input from outside and therefore could be placed as short-term development programmes. These programmes were considered to try out as pilot programmes under this Study. Also, the Study Team gave some criteria in selecting the pilot programmes as follows:

- Select projects from strategies with higher priority in each development approach,
- Select projects which are considered to be effective in view of extension when implemented together with other projects, even if their priorities by their own are low,
- Consider implementing one as a part of suggested programmes in the District Development Plan, because of the limited implementation period,
- Do not select projects for which technology has already been established even if it has higher priority than others (e.g. water supply etc.), as it does not require the piloting of new ideas but mainly budget only,
- Do not, in principle, select projects which are being implemented by other programmes (e.g. Agriculture and Livestock Extension Programme supported by SIDA) in order not to duplicate taking into account scarce resources,
- Do not select large-scale public works or structures (e.g. flood mitigation project, road/ hospital construction, etc.), which are basically dependent on outside resources and therefore difficult to implement in this pilot period, and
- Try to apply new technologies which have already been established but not yet familiar in the Study area (e.g. push-pull methodology to combat striga weed and maize stalk borer).

Taking into account the above criteria, the following pilot programmes shown in Table 1.2.2 wereidentified. There are 9 major types of pilot programmes or 13 pilot programmes in total including sub-programmes under the No.1 Centre Based Livelihood Improvement and No.2 Outreach Oriented Community Health Improvement Programme. Under this pilot implementation, the centre based approach was tried with the outreach oriented programmes hand in hand in order to create synergy effect. The relation to the overall development framework from which the pilot were curved out is shown in Figures 1.2.1 and 1.2.2 for each of the two districts.

Table 1.2.1 Overall Schedule of the Pilot Programmes

		Pilot Programme	Nyando (places/batches)	Hama Bay (places/batches)	Location in Nyando District / Location in Homa Bay District	Year / Month
						2006 / Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec / 2007 / Jan Feb Mar
						200mm Rainfall 1,156mm (Homa Bay Town) 0mm Long Rain Short Rain
Centre Based	1.	**Centre Based Livelihood Improvement Programme**				
		1.1 Orphanage Annexed Livelihood Improvement Programme	○ (1 place)	○ (2 places)	Tonde S/L, God Nyithindo L., Muhoroni Div.	Prep'n
					North Kaganda S/L, South Kaganda S/L, Central Kanyadoto L., Nyarongi Div.	Implem'n
		1.2 VCT Annexed Livelihood (& Nutrition) Improvement Programme	○ (1 place)	○ (1 place)	Wangaya II S/L, North East Kano L., Miwani Div.	Prep'n
					Konyango S/L, Central Kabuoch L., Riana Div.	Implem'n
Outreach oriented	2.	**Outreach Oriented Community Health Imp't Prgrm**				
		2.1 Primary Health Care Promotion Programme	○ (3 batches)	○ (4 batches)	at same places of above 1.1 & 1.2	Prep'n
					at same places of above 1.1 & 1.2	Implem'n
		2.2 Essential Drug Management Programme	○ (1 batch)	○ (1 batch)	Tonde S/L, God Nyithindo L., Muhoroni Div.	Prep'n
					South Kaganda S/L, Central Kanyadoto, Nyarongi Div.	Implem'n
		2.3 Community Based (Health) Information Sharing Programme	○ (2 batches)	○ (3 batches)	at same places of above 1.1 & 1.2	Prep'n
					at same places of above 1.1 & 1.2	Implem'n
		2.4 PLWHA Targeting Home Based Care Programme	○ (3 batches)	○ (4 batches)	at same places of above 1.1 & 1.2	Prep'n
					at same places of above 1.1 & 1.2	Implem'n
	3.	**Livelihood Improvement Oriented Forestry Programme (Neem and Moringa)**	○ (3 places)	○ (5 places)	Upper Nyakach Div.	Prep'n
					Rangwe Div., Asego Div., Ndhiwa Div.	Implem'n
	4.	**Human Resource-led Cottage Industry Programme (Training Provision)**	○ (5 places)	○ (6 places)	4 reps. of one community each for all the 5 division	Prep'n
					4 reps. of one community each for all the 6 division	Implem'n
	5.	**Local Key Farmer-led Paddy Cultivation Extension Programme**	○ (3 places)		Nyando Div., Lower Nyakach Div.	Prep'n
						Implem'n
	6.	**Local Cotton Industry Promotion Programme (hand weaving and spinning)**	○ (1 place)		Ahero town (participants fr. Nyando div., L/Nyakach div., Siaya dis., Suba dis., Kajiado dis.)	Prep'n
						Implem'n
	7.	**Ecological Farming Promotion Programme (push-pull, etc)**		○ (6 places)		Prep'n
					all the 6 divisions in Homa Bay	Implem'n
	8.	**Pro-poor Non-tillage Improvement Programme**		○ (6 places)		Prep'n
					all the 6 divisions in Homa Bay	Implem'n
	9.	**Youth Polytechnics Strengthening Programme**		○ (3 places)		Prep'n
					Homa Bay YP(Asego Div.), Sero YP (Asego Div.), Langi YP (Ndhiwa Div.)	Implem'n
		Pilot Programme	Nyando (23)	Hama Bay (41)	Location in Nyando District / Location in Homa Bay District	Month / Year
						Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec / 2006 / Jan Feb Mar / 2007

Figure 1.2.1 Nyando District: Pilot Programmes in relation to the Development Framework

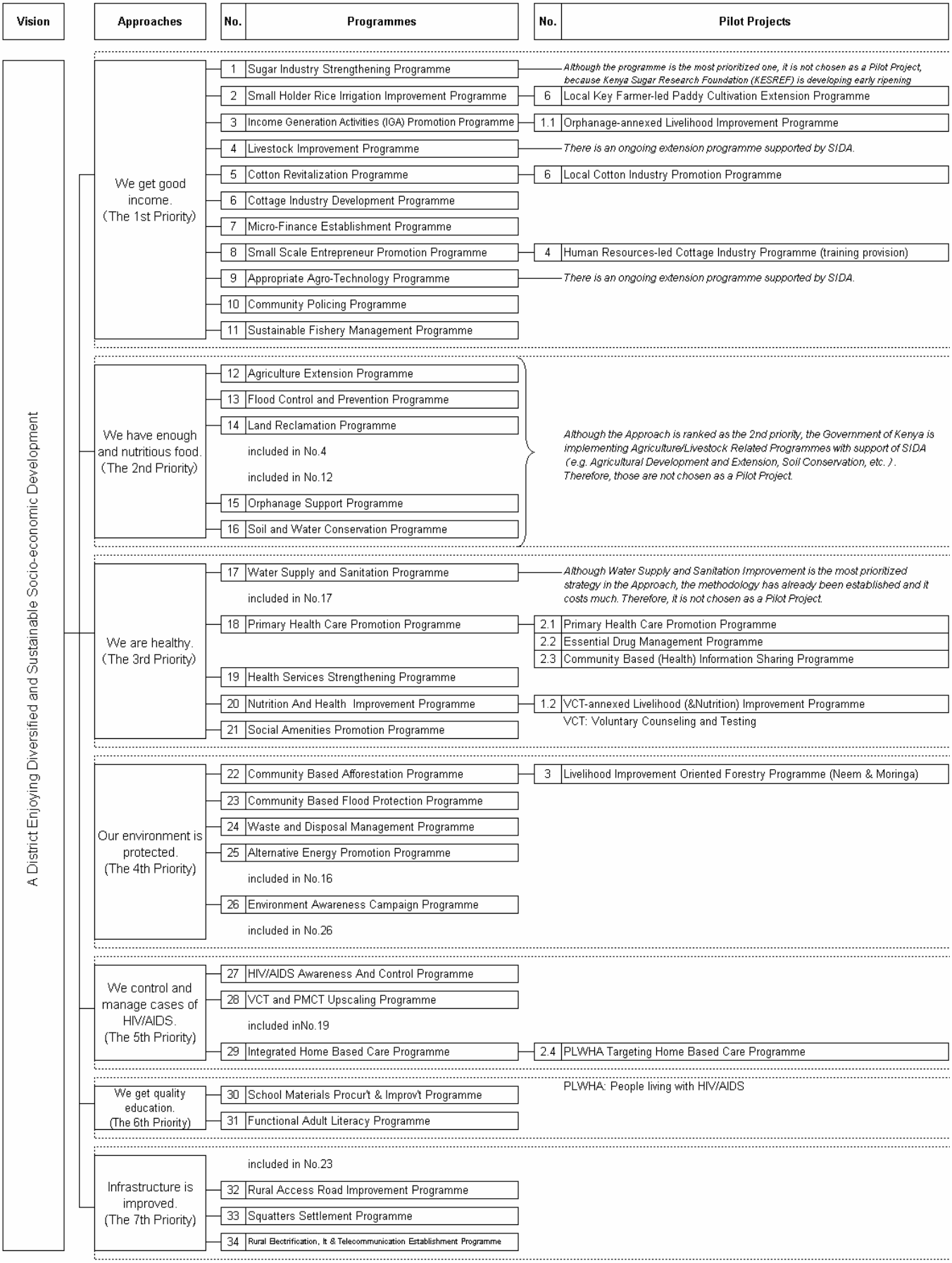
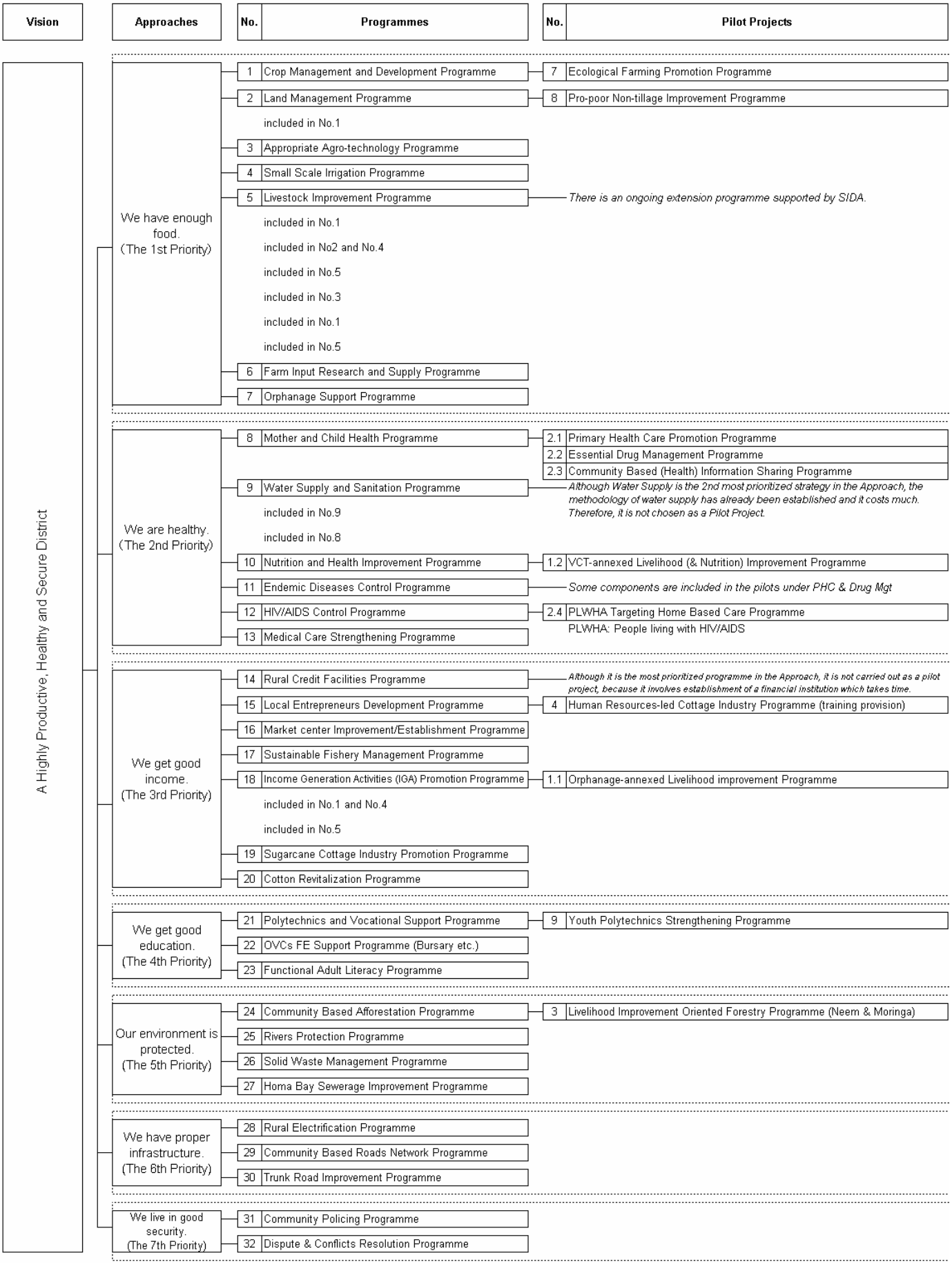


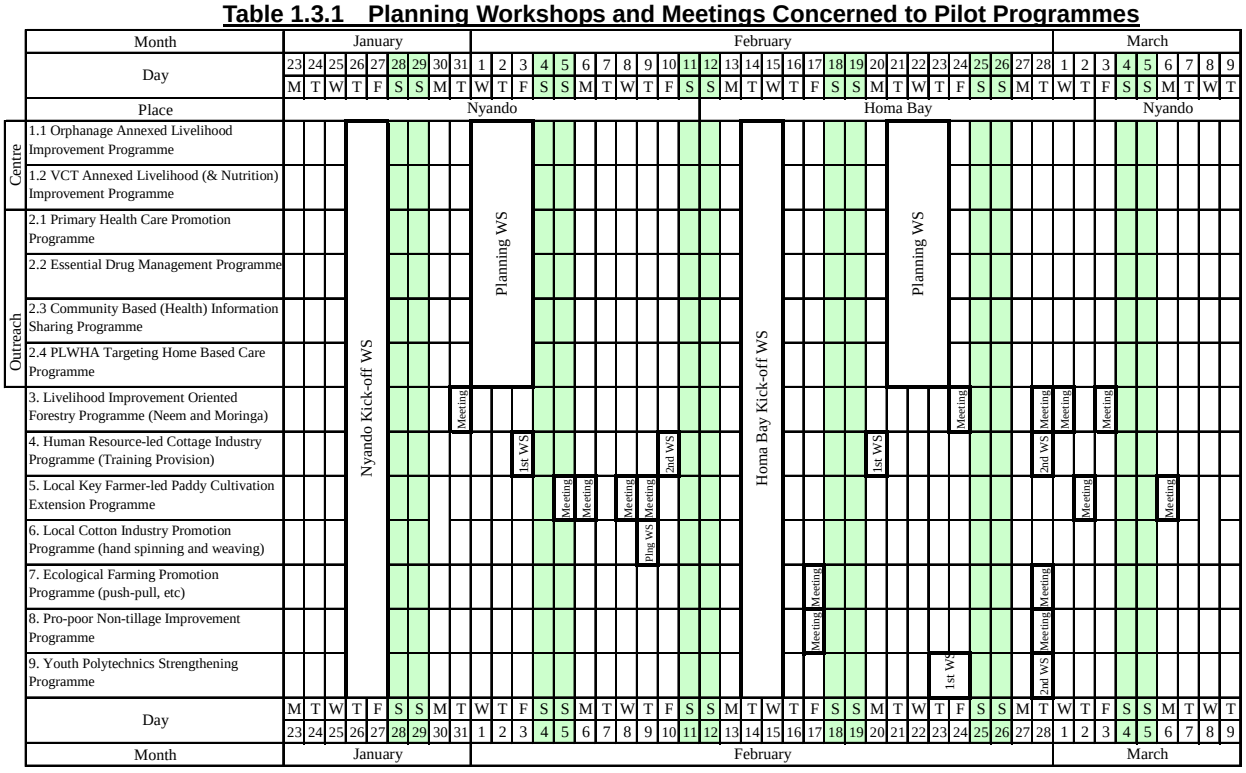
Figure 1.2.2 Homa Bay District: Pilot Programmes in relation to the Development Framework



1.3 Consensus Making Process

Together with some ideas by the Study Team taking into account our selection criteria aforementioned, the pilot programmes were officially presented in the Progress Report which was presented to the Steering Committee back on December 5, 2005. Then, the Study Team started consensus making with the district respective officials, concerned CBOs, etc. from January to March 2006. The consensus making process entailed some planning workshops and also several meetings during which activities, outputs, objectives, inputs, budget, time schedule, etc. were identified in a participatory manner. These workshops and the meetings concerned are shown in Table 1.3.1 and excerpts for the kick-off workshops are summarized below:

Table 1.3.1 Planning Workshops and Meetings Concerned to Pilot Programmes



1.3.1 Nyando Kick Off Workshop

Kick off workshop for Nyando District was held on January 26 & 27, 2006 involving the district development stakeholders who had participated in the planning work held back in late 2005. Discussions and resolutions were:

- In relation to Home Based Care (HBC) Programme, PLWHAs are the most worked on by the government and the MOH. MOH has already come up with National Strategic Plan targeting the community. MILDMAY is coming up with a model to assist PLWHAs. Strengths for HBC the MOH has are: 1) established structure, 2) training facility at medical training center to staff members of the ministry (sponsored by MILDMAY), 3) Partners such as MILDMAY International, Liverpool (VCT structure), PACT Kenya, which should be refered to implementing the HBC pilot progaramme.
- For the proposed Health Information Sharing System Programme, the responsibility should be with Community Health Workers (CHWs) to generate information through data collection and distributing this information to the community through a chalkboard. Intention is mainly to improve Health of the people from household level. It looks at food security, income generation and how to approach it. It is a softer way of creating awareness to the community members, and

it is a better way of sending information to the people better than the health facility. Using CHWs is a good mean since they visit individuals in their houses.

- The collected information is put at the Chief's office for comparison and further action. The chief in turn displays the chalk board in the Baraza where it is seen by all on the developments or back trends. Use of boiled water is clearly understood by the community put across by the CHWs than the health facility. More community health workers are therefore needed so that when some CHWs drop the number does not reduce too much.

- Concerning Orphanage Annexed Livelihood Improvement Programme, four orphanages were mentioned and they were; Achego, Jaber, Tamu small Home, and Happy Home. **Jaber** was the successful candidate and others were unsuccessful because they are well funded and would not be suitable for a pilot programme. Muhoroni was not a good candidate on VCT centre programme but Masago in Miwani Division.

- The named Orphanage(Jaber) should be just our entry point to the community. It is suggested that since children are not the target, picking an Orphanage/Child Development Center would be good if a school is chosen. A child leaves in the afternoon, which allows work to go on.

- An agreement was made that it should be piloted with a Local key Farmer led Paddy cultivation extension programme at Gem Rae Scheme.

- Livelihood Improvement Oriented Forestry Programme was discussed to introduce in Upper Nyakach Division. Neem and Moringa are the Major Trees for addition of nutrition and medicinal values. They however added an additional need for Fruit Trees (Mango) into the programme. Nyarande youth group tree Nursery in Upper Nyakach – Nyakwere was chosen as a site of the pilot programme.

- The fisheries officer talked about the desire to have the rice fields combined with fish farms. She explained that since fish takes six moths to mature and rice takes only four months, a selected corner or part of the farm can be dug deeper to allow for fish growth so that when rice is harvested then it is busy for two months for fish to mature. Land is properly utilized and good harvest is evident. JICA Team said MOLFD is welcomed to do the demonstration but on the ministry's cost, and the MOLFD agreed.

- The places for the pilot programmes were agreed, taking into distribution all overthe district, with the responsible persons in charge as shown in the following table:

Table 1.3.2 Places and Responsible Persons in Charge by Pilot for Nyando District

Pilot Programme	Division	Responsible
1.1 Orphanage-annexed Livelihood Improvement + No.2.1-2.4	Muhoroni, Jaber	Jaber MC, SDA, DAEO, DLEO, DPHO, HBC, DFiO, DfoO, PA, 3CHWs
1.2 VCT-annexed Livelihood & Nutrition improvement + No.2.1-2.4	Miwani, Masago MC	Masogo HC MC, DAEO, DLEO, SDA, DHEO, NU, DPHO, HBC, PA, 3CHWs
2.1 Primary Health Care Promotion Programme	ditto	Ditto
2.2 Essential Drug Management Programme	ditto	Ditto
2.3 Community Based (Health) Information Sharing Programme	ditto	Ditto
2.4 PLWHA Targeting Home Based Care Programme	ditto	Ditto
3. Livelihood Improvement Oriented Forestry Programme	U/Nyakach Nyarande	DfoO, VI Agro, DAEO
4. Local Key Farmer-led Paddy Cultivation Extension Programme	L/Nyakach Gem Rae	DAEO, IO, DfiO
5. Local Cotton Industry Promotion Programme	-	W/ cotton forum
6. Human Resource-led Cottage Industry Programme	-	Leaders (5 communities)

1.3.2 Homa Bay Kick Off Workshop

Kick off workshop for Homa Bay District was held on February 14 & 15, 2006 involving the district development stakeholders who had participated in the planning work held back in late 2005. Discussions and resolutions were:

- A participant pointed out that in general orphanages should not be encouraged. The Team replied that the idea of IGAs in orphanage here was to make the already existing institutions self-sustainable, but not to create new orphanages. The proceeds from the IGAs will benefit the orphans. All agreed that the Orpahnage Annexed Livelihood Imprpvement Programme is not creating orphanages but assisting the already existing ones by integrating an outreach programme to assist the centers.
- A lot of stigma attached to HIV/AIDS exists. The word of orphanage should therefore be de-linked to HIV/AIDS. The activities for IGAs in orphanages are good but the name should be changed from orphanage to a better change.
- The use of Moringa and Neem are still under research. But it is a substitute to nutrition, and has already been accepted by the community, thereby those trees should be promoted. Livelihood Improvement Oriented Forestry Programme is mainly to promote these two trees of Moringa and Neem.
- In relation to the forest proramme, Asego is more needy than Rangwe in terms of vegetation and forestry products because there is a lot of tree cutting in last ten years due to fish smoking and charcoal burning. Inclusion of gravellier in forest farming should also be considered. Also, if mangoes are considered, then it should be planted along the lake i.e. Rangwe and Asego.
- In selecting tree nurseries, government nurseries have a lot of red tape so that community initiated nursery is better to chose. Community can use the space in the central nurseries as well. Community should benefit from the benefits of tree nurseries to improve their livelihoods, and the main issue is to empower the community.
- There are areas in the district with other implementing agencies with a lot of funding and hence there should not be duplication of projects in such divisions. In this regard, Kobama Division should not be given much input in relation to pilot programme implementation.
- The places for the pilot programmes were agreeed, taking into distribution all over the district, with the responsible persons in charge as shown in the following table:

Table 1.3.3 Places and Responsible Persons in Charge by Pilot for Homa Bay District

Pilot Programme	Division	Responsible
1. Orphanage-annexed Livelihood Improvement	Nyarongi, Rapedhi Lwala Orphanage	Div.PHO, DAEO, DLEO, SDA, PA, Manager of the Ins.
2. VCT-annexed Livelihood & Nutrition improvement	Riana, Kinda Women Group	Div. PHO, DAEO, DLEO, SDA, CACC, PA, Manager of the Ins.
2.1 Primary Health Care Promotion Programme	ditto	Ditto
2.2 Essential Drug Management Programme	ditto	Ditto
2.3 Community Based (Health) Information Sharing Programme	ditto	Ditto
2.4 PLWHA Targeting Home Based Care Programme	ditto	Ditto
3. Youth Polytechnics Strengthening Programme	Homa Bay, Sero and Langi YPs	PM, DATO, DEO, DEO, PA.
4. Livelihood Improvement Oriented Forestry Programmes	Asego, Ndhiwa, Rangwe	DFO Forest, DAEO, DEO Environment, DSDO, PA.
5. Ecological Farming Improvement Programmes	All division	Into NALEP/ DAEO,
6. Pro-poor Non-tillage Improvement Programme	All divisions	Into NALEP/ DAEO, RTDC
7. Human resources-led Cottage Industry Programme	All divisions	Leaders of 6 communities

1.4 Pilot Project Budget

The budget was firstly prepared by the stakeholders during the relevant planning workshops, and then the Study Team reviewed and made some modifications taking into market prevailing price in case of materials/ equipment available in the market, limited pilot implementation period, budget limitation suggested by the JICA Headquaters, etc. Table 1.4.1 shows the budget by pilot programme which was scrutinized and approved by JICA Headquaters.

Table 1.4.1 Budget Approved for the Pilot Programmes

Pilot Programme/Project	Nyando Budget, Ksh	Homa Bay Budget, Ksh	Total Budget, Ksh
1.1 Orphanage-annexed Livelihood Improvement Programme	847,767	1,146,638	1,994,405
1.2 VCT-annexed Livelihood (Nutrition) Improvement Programme			
2.1 Primary Health Care Promotion Programme	1,418,745	1,915,165	3,333,910
2.2 Essential Drug Management Programme			
2.3 Community Based (Health) Information Sharing Programme			
2.4 PLWHA Targeting Home Based Care Programme			
3. Livelihood Improvement Oriented Forestry Programme	133,595	158,815	292,410
4. Human Resources-led Cottage Industry Programme	841,485		841,485
5. Local Key Farmer-led Paddy Cultivation Extension Programme	248,785	-	248,785
6. Local Cotton Industry Promotion Programme	1,042,660	-	1,042,660
7. Ecological Farming Promotion Programme	-	633,509	633,509
8. Pro-poor Non-tillage Improvement Programme			
9. Youth Polytechnics Strengthening Programme	-	1,350,283	1,350,283
10. Evaluation Workshop	538,480	671,760	1,210,240
Ground Total	**4,650,775**	**6,296,913**	**10,947,687**
Ground Total	**10,947,687**		

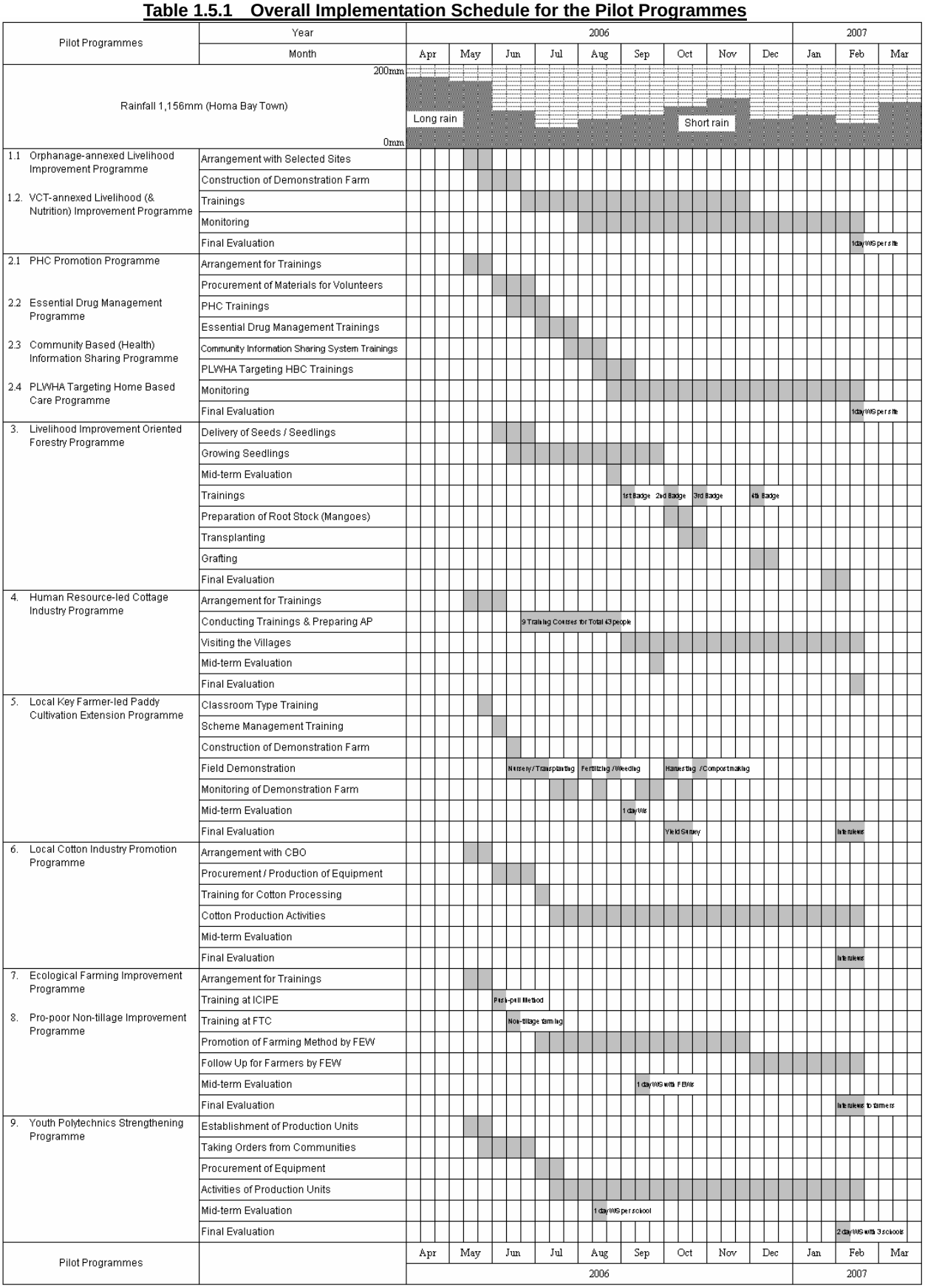
Note: Above figure does not include necessary expenses for the Study Team's logistics.

1.5 Overall Schedule

Since the overall study period was specified in the Scope of Work agreed between the two governments, the completion of the pilot was planned in line with the completion of the Study, which was early March 2006 (draft final report waspresented in May 2007). Given this time frame, the schedule of the pilot implementation was given as follows; actual implementation period was 9

months from June 2006 to February 2007.

Table 1.5.1 Overall Implementation Schedule for the Pilot Programmes



CHAPTER 2 THE PILOT PROGRAMMES

2.1 Centre Based Livelihood Improvement Programme

Under this programme, there are two sub pilot programmes; 1) Orphanage Annexed Livelihood Improvement Programme, and 2) VCT-annexed Livelihood Improvement Programme. The basic principle of selecting centre is pro-poor or the centre should be where vulnerable people are around. Since this programme receives some grant inputs such as vegetable seeds, graded poultry, etc., the programme should contribute to improving poor and vulnerable people from the viewpoint of public equity. An example of the pro-poor is Orphanage Annexed Livelihood Improvement Programme, while targeting vulnerable people is the VCT Annexed Livelihood Improvement Programme. In fact, the centre should not be limited to just orphanage and VCT. Whatever institutions deal with poor and vulnerable people can be the centre to be given the grant inputs. Candidate of the centre could therefore be day-care centre, widow group, a group taking care of orphans, etc.

2.1.1 Orphanage-annexed Livelihood Improvement Programme

1) Rationale

In Nyando District, 25% of the primary student pupils have lost one of their parents, and 12% have lost both parents, totaling to 37%. This means about one out of three primary school pupils does not have either the mother or the father or otherwise both (according to a survey done in July 2005, covering all primary schools in Nyando District). In Homa Bay, about 20% of the pupils do not have one of the parents and about 10% do not have both parents, totaling to 30%. The situation in Homa Bay is not as bad as Nyando, yet about one out of three pupils is not with both parents (surveyed in July 2005). Orphans are in many cases believed to have lost their parents due to HIV/AIDS, and are usually brought up by their relatives and also orphanages built by communities. In many cases local spiritual leaders and churches have been playing important roles to support orphans. Although orphanages are normally assisted by communities, church members, overseas sponsors amongst others, one of their challenges is to secure stable income sources.

Here comes an idea that orphanage can be financially strengthened by introducing income generating activities (IGAs) and at the same time could be a learning venue for the villagers nearby. This means some IGAs are introduced to community based orphanages together with training, and the training itself is administered to not only the orphanage staff but also villagers who reside nearby. Any villager interested in IGAs can participate in the trainings so that they can learn some skills of IGAs. This IGA promotion is relevant to the development programme of 'IGA Promotion Programme' in the district development programme, which is given 3rd priority within the 1st prioritized development approach of 'We can get income' in case of Nyando District. In Homa Bay, the IGA promotion is associated with development programme of 'IGA Promotion Programmes' prioritized as 5th within the approach of 'We get income' which is the 3rd priority amongst the development approaches.

2) Objectives

Objectives of Centre Based Livelihood Improvement Programme are:

- The target orphanages are financially supported through their own income generation activities together with the assistance of their sponsors,
- Learning venue for IGAs is provided to the villagers residing nearby communities of the target orphanages by inviting them to the IGA trainings held at the orphanages, and
- Communication network between communities and the orphanages is strengthened through the above process.

3) Major Planned Activities

Training for IGAs and other livelihood improvement is given at the target orphanages. The training is open to any community members who are interested in around the orphanages as well as those who are involved in running the orphanages. The training includes vegetable cultivation (including soybeans), poultry keeping, bee-keeping, dairy goat raising, and introduction of home made improved cooking stove (jiko). Vegetable cultivation is carried out as kitchen gardening. Poultry produces eggs which can be sold even in local market at a good price (about Ksh 6-7 per egg). Bee-keeping can give three times harvests in a year which can also become a good income source. Dairy goat produces milk which can be consumed by orphans as well as can be sold in locality, and cross breeding with local goats which are owned by nearby villagers was planned.

The training on these IGAs is not group-based approach but individual basis approach. The basic operation is therefore whoever is interested can come to and should participate in the training. This individual approach does not necessarily underestimate group approach. When people get together and work together as a group, they could achieve bigger impact. However, group approach requires longer lead-time which may not be accommodated in the short implementation period (about 9 months). Another fact is that there are many vulnerable people in the study districts such as PLWHAs, AIDS widows, etc. who really need quick means of improving their livelihood and health. For them, even the lead-time of forming a group may become overburden. Instead, they would rather prefer simple and quick approach which would be the individual approach. This approach is also meant to strengthen the relationship between the villagers nearby and the orphanage that is the learning venue.

Requirements for the IGAs training are trainers and materials. Trainers can be availed in the locality, say government extension officers in the fields of agriculture, livestock, home economics, etc. and also local lead farmers who reside around the venue are to be invited to disseminate what she/he has actually achieved. Materials planned to provided are agricultural input such as vegetable seeds, fertilizer, chemicals, poultry, dairy goat, materials for putting up poultry and goat houses, beehive, protective suite for harvesting honey, etc. These inputs are meant for demonstration purpose at the learning venue, but a small portion in case of seeds, value addition materials, etc. may be distributed to the participants. JICA Team is mainly to support logistics, procurement of the materials and carry out process M&E which can give on-time feedback from the participants to the trainers. Table 2.1.1 summarizes the training component which are changeable according to the local people's need, places, and number of training sessions:

Table 2.1.1 Training Components, Places and Sessions

Training Contents	Nyando District	Homa bay District
	Muhoroni Division (Jaber Orphanage)	Nyarongi Division (Rapedhi Orphanage, Nguku Volunteers)
Kitchen gardening	1（12）	2（24）
Poultry	1（12）	2（24）
Bee keeping	1（8）	2（16）
Dairy goat	1（18）	2（36）
Improved jiko	1（4）	2（8）
Value addition (juice, jam, baking etc.)	1（12）	2（24）
Total	6（66）	12（132）

Note: number in the parentheses indicates number of session (e.g. kitchen gardening is conducted 12 sessions in Muhoroni)

The schema on right hand illustrates the concept of programme, which is to make an orphanage (or VCT) a learning center by carrying out training there where community members are to come to attend the training. Divisional officers and in some cases local lead farmers will be the trainers.

Through this mechanism, it is expected that the ties between community and orphanages (VCT) be strengthened. The same mechanism is also applied for the programme No.1.2 "VCT-annexed Livelihood (& Nutrition) Improvement Programme". We define this mechanism as center-based extension.

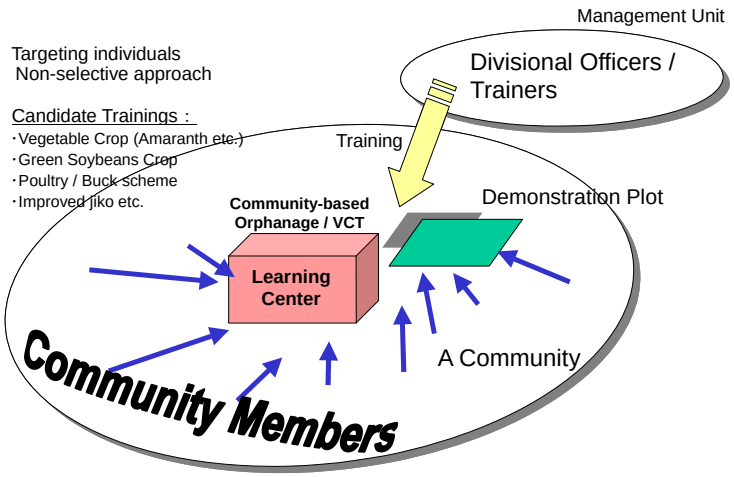


Figure 2.1.1 Schema on Center Based Extension Programme

2.1.2 VCT-annexed Livelihood (& Nutrition) Improvement Programme

1) Rationale

HIV positive ratio in pregnant women (therefore, economically productive generation) in Nyando District is currently around 17%. In Homa Bay District, the ratio of HIV positive pregnant women reaches as high as 22%. The ratio is now on declining trend thanks to wide range of HIV awareness campaigns. However so called AIDS widow is becoming a social issue. The GOK calls upon the people to take VCT (voluntary counseling and testing), and around 50% of women visiting VCT is reported infected with HIV[1]. HIV positive people can receive ARV (anti-retro viral) treatment free when their immune ability is weakened below certain level. Otherwise, the most important care for HIV positive is to improve their nutrition status, so that they can maintain high immune level. To access to ARV, they need to get tested which is not free, and therefore they need some cash.

Here comes an idea of promoting livelihood and nutrition improvement annexed to VCT meant for HIV positive people who need to improve their nutrition status and also IGAs. As mentioned above, HIV positive can be given ART but at the same time they need to take balanced and nutritious food to maintain their immune level. Most of them fall in the category of vulnerable people, so that they need IGAs as well. The idea of this programme is more or less same as the Orphanage Annexed Livelihood Improvement Programme with more emphasis on nutrition side. This programme is relevant to Nutrition and Health Improvement Programme ranked as 4th priority programme within the approach of 'We are healthy' which is the 3rd priority in the Nyando District development programme. In Homa Bay, this VCT-annexed programme is related to Nutrition and Health Improvement Programme (3rd priority programme) under the approach of 'We are healthy' ranked as 2nd priority in the Homa Bay District development programme.

2) Objectives

Objectives of the VCT Annex Livelihood (&Nutrition) Improvement Programme are:

- Nutrition condition of PLWHAs is improved by giving them trainings on vegetable cultivation and nutrition improvement at VCT, and also
- Financial capacity of PLWHAs is improved by giving them trainings on income generating activities at VCT.

It is assumed that by the capacity development of PLWHAs, they can get regular medical examination and their life would be prolonged and that leads to reduction of the number of orphans, and then that

[1] According to health data in Nyando in 2005. Men HIV positive found at VCTs were around 30%. Because women in many cases visit VCTs after their husbands died and they get suspicious about HIV infection.

would contribute to reducing the social cost of the community who are primarily to look after orphans in the community.

3) Major Planned Activities

Training on vegetable cultivation, soybean cultivation, poultry raising, dairy goat raising, etc. are given at the demonstration farm or at the poultry/ goat house that will be constructed as an annex of the target VCT. The trainings are, as the programme for orphanages, open to the community members around the VCT, but the contents of the trainings will pay more attention to nutrition aspect. The trainings will, therefore, include cooking methodology and balanced diet, etc. For example, soybean, which is well known nutritious pulses, had once been promoted by GTZ in Homa Bay district, however it has not taken root due mainly to its long cooking time. An idea to cope with this long cooking time is to harvest as green soy and boil it for several minutes only. This cooking does not require long time and also keeps the nutrition. Another high nutritious vegetable is Mchicha in local name and "amaranthus" in English name. This can be introduced to grow since it is sometimes left out of diet as just wild grass. This amaranthus is now disseminated by FAO and other organizations, targeting PLWHA.

This programme requires trainers and input for demonstration. These are almost same as the Orphanage Annexed Livelihood Improvement Programme and also the training mechanism does the same. Table 2.1.2 indicates the contents of the trainings, places, and number of sessions in days.

Table 2.1.2 Training Components, Places and Sessions

Training Contents	Nyando District	Homa Bay district
	Miwani Division (Masego HC)	Riana Division (KINDA VCT)
Kitchen Gardening (Nutritious crops eg soybeans, amaranthus)	1（12）	1（12）
Poultry	1（12）	1（12）
Bee keeping	1（8）	1（8）
Dairy goat	1（18）	1（18）
Improved jiko	1（4）	1（4）
Value addition (juice, jam, baking etc.)	1（12）	1（12）
Total	6（66）	6（66）

Note: number in the parentheses indicates number of session (e.g. kitchen gardening is conducted 12 sessions per place)

2.1.3 Implementation Process and Achievement for the Two Centre Based Programmes

JICA Study Team facilitated the establishment of working group each in the target five centres; 3 centres for orphanage annexed livelihood improvement programme and 2 for VCT-annexed. The working group was composed of trainers, mainly government officers, and committee members engaged in the centres. The government officers were not only from agriculture and livestock sectors but also public health sector since this livelihood improvement programme was meant to go together with outreach-oriented health improvement programme in order to have synergy effects. All the working groups were established from late May to June in 2006. They have held working group meeting once in every one to one and half months. Discussions centered on progress made till the time, adjustment of the training schedule, issues arisen and way-forward.

As we started actual activities on site, some changes under VCT-annexed Livelihood Improvement Programme had taken place for the demonstration site to be established. In Miwani Division, the demonstration site was meant to be in the compound of Masago Health Centre. However, since it was found difficult for the Masago HC staff to take care of demonstration site, the establishment and also management of the demonstration site was changed to CLEAR Project, a CBO which has been working in collaboration with the HC. In Riana, the target VCT centre was operated in a rented

building by the women group, that is KINDA Women Group. Since the group raised difficulty of attending demonstration site including poultry and goat all the time if constructed just beside the VCT centre, the site was changed to the chairlady's compound.

With the modifications above, training activities started from early June 2006. Training done for the two centre based pilot programmes are summarized in Table 2.1.3. Apart from the training in the table, follow-up with on-site training as required was also carried out, though these are not included in the table. Table 2.1.3 shows days with each number of participants by training component and by place. Two trainers were sometimes engaged in one day training, which means two sessions per day. In Nyando District, most training sessions have accompanied demonstration while in Homa Bay District classroom type training was firstly done and then followed by demonstration.

In terms of training days, a total of 159 days has been spent altogether for kitchen garden, poultry, bee keeping, dairy goat, animal health, improved jiko, and value addition. In average, there are about 20 - 30 participants each per day training. All the centres have got more female participants. The reason why female participants were more than male counterparts may be due to such training components as kitchen garden, poultry and value addition. These activities are usually carried out by women as IGAs, and hence more women than male may have been attracted. Female participant especially in Miwani Division and Nguku Volunteers centre in Nyarongi Division surpassed the male participants in number probably because these two centres are affiliated to women group.

An Example of Nursery Establishment under Kitchen Garden Training

Table 2.1.3 Progress for Centre Based Pilot Programmes (Livelihood Improvement) at 5 Places

District	Nyando District		Homa Bay District		
Division	**Muhoroni Div.**	**Miwani Div.**	**Riana Div.**	**Nyarongi Div.**	**Nyarongi Div.**
Place (Centre)	**Jaber Orphanage**	**Masego HC**	**KINDA VCT**	**Rapedhi Orphanage**	**Nguku Volunteers**
Kitchen Gardening	12 days 356, 152M, 204F	13 days 259, 99M, 160F	10 days 250, 130M, 120F	5 days 84, 30M, 54F	7 days 193, 24M, 169F
Kitchen g. sub-centre	*2 places*	*4 places*	*4 places*	*4 places*	*4 places*
Poultry, (3-5 cockles, 36-40 pullets per place)	3 days 50, 18M, 32F	13 days 301, 79M, 222F	7 days 125, 71M, 54F	4 days 134, 56M, 78F	6 days 148, 35M, 113F
Bee Keeping (5 hives per place)	-	3 days 64, 19M, 45F	2 days 29, 17M, 12F	5 days 88, 35M, 53F	5 days 125, 37M, 88F
Dairy Goat (1 buck, 2 does per place)	2 days 37, 15M, 22F	4 days 100, 24M, 76F	6 days 94, 49M, 45F	8 days 204, 99M, 105F	7 days 179, 48M, 131F
Community Animal Health (newly added)	-	*4 days* *96, 22M, 74F*	-	-	-
Improved Jiko (stove)	Not available	Not available	-	-	1 day 25, 3M, 22F
Value Addition	6 days 92, 43M, 49F	7 days 226, 11M, 215F	8 days 380, 107M, 273F	6 days 156, 34M, 122F	6 days 367, 56M, 311F
Total (days) Total (participant-days)	23 days 535, 228M, 307F	44 days 1,046, 254M, 792F	33 days 878, 374M, 504F	27 days 666, 254M, 412F	32 days 1,037, 203M, 834F
Total days **Total participant-days**	**159 days** **4,162 Participant-days, 1,313 Male Participant-days, 2,849 Female Participant-days**				
Participant/day	**23, 10M, 13F**	**24, 6M, 18F**	**27, 11M, 15F**	**25, 9M, 15F**	**32, 6M, 26F**

As training went on, we observed just one learning centre is not enough to cover the target sub-location. Therefore, additional learning centres were sought in kitchen garden and value addition which do not require much input. Number of additionally established kitchen garden nurseries is: 2 in Muhoroni, and 4 each in other centres as shown in above table.

As for income, Table 2.1.4 summarizes the production, income, expenditure and net income as at February 2007. Since overall time schedule for the project implementation is very much limited, all the components except for kitchen garden have not yet produced full potential. Honey from the beehives have not yet been harvested, and milk production from dairy goats is not started except for Miwani; one of the does provided to Miwani was already pregnant before the delivery. Poultry in Homa Bay District may have reached almost the potential, but still on-going in Nyando District. Though all the incomes in Table 2.1.4 are provisional, it can be said that upon full potential they may be able to benefit about Ksh 1,500 – 2,500 per month from poultry (40 pullets per centre provided), Ksh 2,000 – 4,000 per month from two dairy goats, and Ksh 20,000 per year (or Ksh 1,700 per month) from the five beehives provided.

Table 2.1.4 Income from the Income Generating Activities at 5 Places

Place	Item	Production	Income	Expenditure	Net Income
Nyando District					
Muhoroni div. Jaber Orphanage	Vegetable	-	12,000 Ksh so far	0 Ksh so far	**12,000 Ksh so far**
	Egg (37 pullets)	210/month (initial stage)	1,260 Ksh/month	2,300 Ksh/month (Feed 2,200 + Vaccine 100)	**-1,040 Ksh/month**
	Milk	Not yet	-	200 Ksh/month	**- 200 Ksh/month**
	Bee	Not yet harvested (5 hives)			
Miwani div. Masago HC CLEAR Prj.	Vegetable	-	-	-	**-**
	Egg (40 pullets)	300/month (initial stage)	1,800 Ksh/month	2,300 Ksh/month (Feed 2,200 + Vaccine 100)	**- 500 Ksh/month**
	Milk	60 l/month from one doe	1,200 Ksh/month	-	**1,200 Ksh/month**
	Bee	Not yet harvested			
Homa Bay District					
Riana div. Kinda W/G	Vegetable	-	7,500 Ksh so far	0 Ksh so far	**7,500 Ksh so far**
	Egg (36 pullets)	840/month	4,200 Ksh/month	2,500 Ksh/month (Feed 2,400 + Vaccine 100)	**1,700 Ksh/month**
	Milk	Not yet	-	880 Ksh/month	**- 880 Ksh/month**
	Bee	Not yet harvested			
Nyarongi div. Rapedhi Lwala Orphanage	Vegetable	-	600 Ksh/month	0 Ksh/month	**600 Ksh/month**
	Egg (36 pullets)	810/month	4,860 Ksh/month	3,100 Ksh/month (Feed 2,400 + Transport 600 + Vaccine 100)	**1,760 Ksh/month**
	Milk	Not yet	-	500 Ksh/month	**- 500 Ksh/month**
	Bee	Not yet harvested			
Nyarongi div. Nguku Voluntary Group	Vegetable	-	3,500 Ksh so far	0	**3,500 Ksh so far**
	Egg (36 pullets)	720/month	4,320 Ksh/month	2,700 Ksh/month (Feed 2,600 + Vaccine 100)	**1,620 Ksh/month**
	Milk	Not yet	-	650 Ksh/month	**-650 Ksh/month**
	Bee	Not yet harvested			
Estimation by Livestock Officer	*Egg (36 pullets)*	*900/month*	*5,400 Ksh/month*	*2,500 Ksh/month (+ Transport)*	***2,900 Ksh/month (- Transport)***
	Milk (2 does)	*240 l/m/2 does*	*4,800 Ksh/month/ 2 does*	*800 Ksh/month/ 3 goats*	***4,000 Ksh/mth/ 2 does***
	Bee (5 hives)	*100 kg/5hives/yrr*	*20,000 Ksh/5hives/yr*	*0*	***20,000 Ksh/5 hives/year***

2.1.4 Evaluation by the Implementers

A final evaluation workshop for the Centre Based Livelihood Improvement Programme was held at each site in February 2007. The dates held were 6th, 8th, 19th, and 20th of February for Muhoroni,

Miwani, Nyarongi [2] and Riana Divisions respectively. Participants were implementers and beneficiaries of the project; namely, committee members of the centres, CHWs who were major beneficiaries, local leaders such as area chief and assistant chief, and divisional government officers who participated in the project as trainer. Each workshop took one day, and the evaluation in morning session was done by committee members and the major beneficiaries, who are CHWs, and one in the afternoon by leaders of the committee, local leaders and government officers.

Table 2.1.5 summarizes the evaluation carried out by the committee members and CHWs by activity for the four divisions. The evaluation was asked in a range of mark 1 – 5 from view point of to what extent each activity (component) could contribute to improving livelihood (1; poorest contribution, 5; most contribution). First three activities (components) were marked very high, and this is because what they were taught is not difficult to try and in fact most of them have already tried, and thereby they saw some impact already.

Table 2.1.5 Evaluation by Committee Members and CHWs by Activity

Activities	Muhoroni	Miwani	Nyarongi	Riana	Remark
1. Kitchen Garden	5.0	5.0	5.0	5.0	
2. Poultry Keeping	5.0	5.0	5.0	5.0	
3. Value Addition	5.0	5.0	4.8	4.6	
4. Dairy Goat Rearing	4.7	5.0	4.9	4.3	
5. Bee Keeping	3.1	3.3	5.0	4.0	
6. Enzaro Jiko (cooking stove)			5.0		
7. Mango Grafting			3.9		
8. Push-pull Methodology				4.4	

Note: Activities No.6 & 7 were done by JICA Team and No.8 by MOA as recurrent activity.

Dairy goat rearing in Riana Division was marked a bit low, which is mark 4.3. This may be due to wrangles between the goat guardian group and community members. Goat guardian group comes from new settlers to which ordinary villagers may have felt some difficulties to access, e.g. for cross-breading. Bee keeping was also marked low except for Nyarongi Division. Since most of the evaluators were female CHWs, they were feared of bees giving not high mark. Mango grafting tried by JICA Team in Nyarongi Division was of experiment. About 80% of the graft experiments failed due to the first hand experience, thereby giving low rating. Push-pull methodology (see Ecological Farming Promotion) did not perform very well due to poor rainfall, resulting in mark 4.4.

Table 2.1.6 summarizes evaluation by so called 5-aspect that is composed of Efficiency, Effectiveness, Impact, Rationale, and Sustainability. Evaluation in AM was done by committee members for the centres and also major beneficiaries, who are CHWs, and the one in PM by local leaders and government officers. The evaluation was asked in a range of mark 1 – 5; 1 for the lowest and 5 for the highest. Following are the observations by JICA Team and comments given by the participants:

- In general, markings by committee members and CHWs are higher than those by leaders and government officers (marking is higher in AM than in PM). Government officers usually give more critical evaluation, which has resulted in the lower markings.
- In Muhoroni Division, effectiveness and impact were rated a little lower; the reason given by the government officers was the time for the project implementation. They said due to limited time, effectiveness and impact had not yet reached to the full expected level. An officer said impact was low because most of the components were long-term. This time limitation was mostly given to the reason why impacts in the other three divisions were also a little low.
- In Miwani Division, government officers marked efficiency low, which is 3.7. They commented

[2] In Nyarongi Division of Homa Bay District, there are two sites and these were combined for the evaluation workshop.

that the efficiency was low because not many people had got information of the training courses at household level. Although CHWs disseminated information of when and what training was to be held, balaza did not work well for disseminating training information. This is because not many women participate in balaza. Apart from this, level of literacy and high expectation were said other factors, leading to lower efficiency mark.

- In Nyarongi Division, committee members and CHWs marked effectiveness lower than that by leaders and government officers. The mark is low because some people do not practice though they have learned, according to the participants. Time factor was also one of the reasons of the lower mark of effectiveness. Some said people cannot buy input due to high poverty, resulting in lower sustainability.
- In Riana Division, most marks by government officers were lower as compared to other areas. As afore-mentioned, there were conflicts between the centre guardian group and other community members. Internal wrangles led to the lower marks across all the five-aspect excluding rationale.
- Rationale has got very high marks across all the areas. They think the livelihood improvement project is very needed in the community, giving very high marks to the rationale. JICA Team may think that projects given input from outside may always tend to be marked very high. If they were asked to contribute to larger extent, they might have rated the rationale lower.

Table 2.1.6 Evaluation by 5-aspect, AM by Committee & CHWs and PM by Leaders/Gvt Officers

Five-aspect	Muhoroni		Miwani		Nyarongi		Riana		Remark
	AM	PM	AM	PM	AM	PM	AM	PM	
1. Efficiency	4.3	4.0	4.9	3.7	4.2	4.4	4.5	3.9	
2. Effectiveness	4.0	3.8	4.8	4.4	3.2	4.0	4.4	3.9	
3. Impact	4.0	3.7	5.0	3.8	3.8	3.2	4.0	3.6	
4. Rationale	4.9	5.0	5.0	5.0	4.4	4.9	5.0	4.9	
5. Sustainability	4.2	4.8	5.0	4.0	4.2	3.0	4.6	3.5	

2.1.5 Issues Arisen and Lessons

A simple questionnaire has been administered periodically sometime after most of the training was finished. One questionnaire survey usually covered randomly selected 10 interviewees. The questionnaire was meant to get first hand feedback from the participants and to be used to refine the latter training sessions to come. A total of 234 samples have been collected, asking level of satisfaction, level of understanding, applicability, what requirement they need to start, suggestions to improve, experiences for training in the past, and other training needs. These are summarized below:

- Level of satisfaction was asked by four levels; ‘very satisfied’, ‘satisfied’, ‘dissatisfied’ and ‘very dissatisfied’. Participants tend to give very high satisfaction almost for any training sessions. As shown in Figure 2.1.2, no participant gave ‘dissatisfied’ or ‘very dissatisfied’ responses. One reason of this high satisfaction may be the applicability of the skills taught. Another reason may have come from the fact that most participants had already experienced such practices as kitchen garden and poultry, but faced some difficulties in

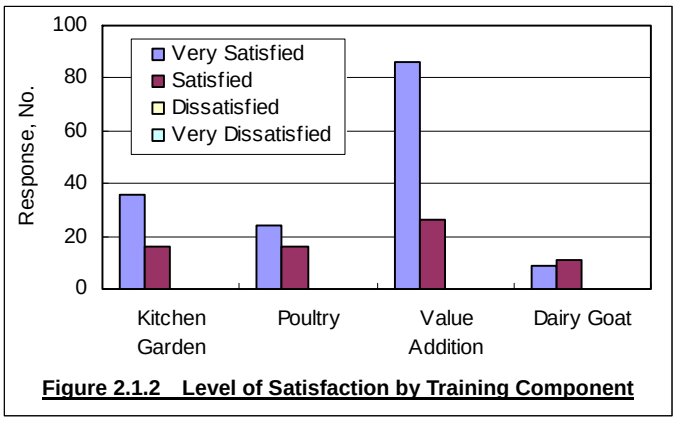


Figure 2.1.2 Level of Satisfaction by Training Component

progressing on his/her own. In this context, the training must have answered what the participants have been querying, thereby they felt the training was very practical and gave high satisfaction. A good example is "onion" tried in kitchen garden training. Unless a shock is given to onion seeds by exposing seeds to sunshine, germination is usually very poor. This is what many farmers have so far experienced. Since onion is somewhat resistant to insect and pests, most of the participants so far already tried onion to some extent, but faced very low germination ratio. Given the technique of exposing seeds to sunshine, participants gave very high satisfaction level. However, this tendency of not giving critical observation in most cases was seen across almost all the training sessions including health sector. This may be attributed to a gap of education level, or less opportunity of being given trainings so far thereby appreciating very much. Such attitude of not giving critical comment and observation may hinder us from further trying to improve the training.

- Figure 2.1.3 shows how new what was taught during the training sessions is. None of the respondents replied what was taught was already known in most of the parts. For kitchen garden responses of 'fairly new' and 'new in some parts' are more than the response of 'mostly new', suggesting that many participants have so far tried kitchen garden. In value addition training, most of the participants were surprised at the fact that such fruits as avocado and pawpaw, also yam, can work as drugs in de-warming, STD, healing stomach ache, etc. How to preserve extra fruits and foods was new as well. However, the way of utilizing fruits and foods in such ways is not difficult at all. They can easily try what they have learned in their households, and this has led to the high satisfaction of the training shown in Figure 2.1.2 mentioned above.

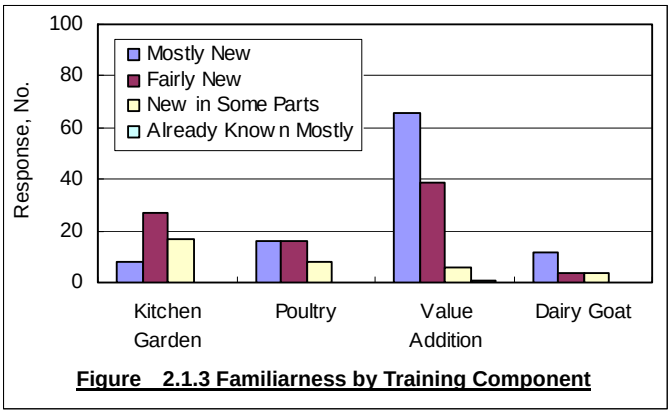


Figure 2.1.3 Familiarness by Training Component

- Figure 2.1.4 shows the level of understanding responded by the participants. Kitchen garden was understood very well as the participants had some experiences. In fact, many respondents replied that they could refer what they learned to their own experiences, improving their understanding level. Value addition was also easy to learn so that they gave very high understanding level. Actually, female participants who are the majority of the training sessions are of course familiar to cooking. Therefore, although what was taught was mostly new, they could understand very well. Poultry and dairy goat trainings showed lower understanding level because the training included disease management for animals, which require more skills than others.

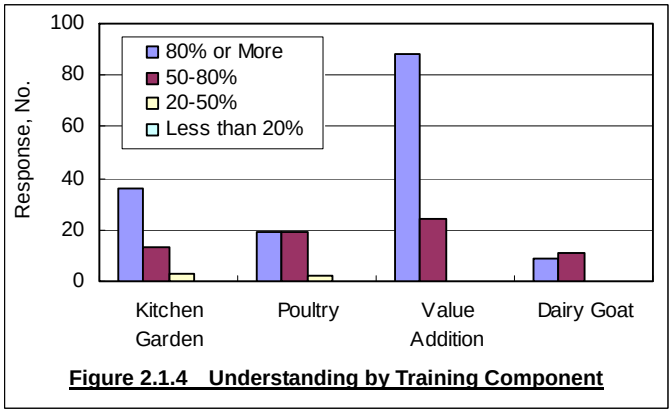


Figure 2.1.4 Understanding by Training Component

- As for applicability as shown in Figure 2.1.5, most of them think what was taught/ demonstrated is very applicable and some think fairly applicable. Though trainings for poultry and dairy goat

included some parts difficult to understand, there were easy parts to try as well. This high applicability they think, however, does not always correlate the readiness for the participants to try. For poultry and dairy goat, they need to put up housing units which require not only locally available materials but also those they have to buy in market. Improved goats are not so cheap that ordinary farmers may not be able to start on their own. They need to form a group in most cases or otherwise cross breeding with the improved goat provided by the Pilot Programme should be tried.

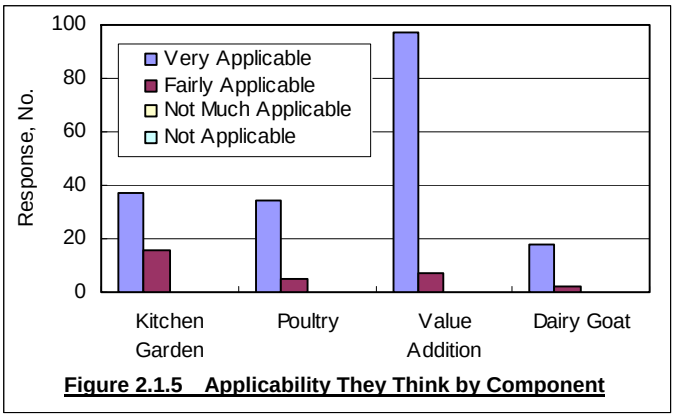


Figure 2.1.5 Applicability They Think by Component

- Suggestions given by the participants to improve the trainings are: more frequent trainings inclusive of repetition of same training, inclusion of supervision and more demonstration, further down to community level aside from the centre only where the training sessions were held. This suggests that the participants have been given very rare opportunities of learning in their past. Questionnaire result showed there were only 1 – 3 participants, out of every 10 participants, who have been given some training opportunities in the past by either the government or NGOs. Given very precious opportunity to learn, it was observed during the training sessions that they were in fact very eager to learn.

- As opposed to aforementioned fact that there are only few people who have been given learning opportunities, there is one thing to mention. What is very different in Riana Division of Homa Bay District from other areas is their past experiences on training. Very surprisingly, nine out of 10 participants have been given some training courses by the government before this livelihood improvement training, and also seven by NGOs. More surprising is the fact that there are many participants who have been given several training opportunities, not just once. In other areas, especially in rural areas, only one to, say maximum, three participants out of ten have had an experience for training in his/her entire lifetime.

- Training in Riana Division was carried out through a group, which is actually very active in development activities. Many participants were from this group as well as from a sister group to the prime one. Our intention was to extend this training opportunity to as many people as possible, as indicated in our basic approach that is whoever is interested can and should come and learn. As long as it is operated on public money, which requires a sense of public equity amongst all the interested people, we should think of disseminating this training opportunity to not only such experienced people but also to those who have not yet been given such opportunity. We therefore requested the trainers, mostly divisional government officers, to further go down to village level apart from carrying out the training just at the centre. Kitchen garden and value addition, therefore, were carried out at sub-centres as well.

2.2 Outreach Oriented Community Health Improvement Programme

This programme has four sub programmes; 1) Primary Health Care Promotion Programme, 2) Essential Drug Management Programme, 3) Community Based (Health) Information Sharing Programme, 4) PLWHA Targeting Home Based Care Programme. These programmes are all community based for which community volunteers are to be trained as either PHC CHW (community health worker) or HIV home based care TOTs (trainers of trainees[3]). On top of the PHC training, Essential Drug management Programme and Community Heath Information Sharing Programme are administered. The Essential Drug Management Programme is to establish a community chemist which is to run by CHWs. The Community Heath Information Sharing Programme is to ask active CHWs to collect health related information in their locality, which can be posted in a public place and shared by community members so that they can see the trend of diseases prevalent in their locality, thereby seeing way-forward.

2.2.1 Primary Health Care Promotion Programme

1) Rationale

The Study districts are known for their high infant and under-five mortality rates. This is believed mainly due to high prevalence of malaria, unhygienic water, etc. Table 2.2.1 shows exceptionally high mortality rate as compared to the national level. Infant mortalities in Nyando and Homa Bay are higher by 50% and 93% as compared to the national level. Under-five mortality rates for the districts are also about double the national average. The under-five mortalities are 212 and 254 for the Nyando and Homa Bay, and about one in every 4.7 children in Nyando and one in every 3.9 children in Homa Bay cannot see their five-year birthday. Affected by these high infant and under-five mortalities, crude death rates for the districts are also very high, showing about two-fold death rates against the national level.

Table 2.2.1 Infant Mortality, Under-5 Mortality, Crude Death Rate and Life Expectancy

	Infant Mortality per 1000 live births	Under-five Mortality per 1000 live births	Crude Death Rate per 1000 pop.	Life Expectancy at Birth, yr	
				Males	Females
National	77.3	116	11.7	52.8	60.4
Nyanza Province	111.6	192	19.0	41.7	48.0
Nyando	116.1 (150%)	212 (183%)	22.4 (191%)	37.7 (-15.1)	42.9 (-17.5)
Homa Bay	149.2 (193%)	254 (219%)	25.1 (215%)	35.9 (-16.9)	40.7 (-19.7)

Source: 1999 Census; Note: Percentage in parentheses is the magnitude against the national level.

Given above situation, health improvement is one of the greatest changes in the districts in addition to combating of the high prevalence of poverty. In improving the situation of health, there may be two categories; community based disease management and improvement of health services by improvement of health facilities, enough provision of medical consumables, provision of trained health officers, etc. Both approaches are important but the latter is more dependent on outside resources, which may not be availed in a short time and according to plan. The former on the other hand is dependent on community's own resources, with which the people can commence without much outside assistance.

Hence this primary health care promotion programme comes in. This programme is to mobilize community volunteers and train them as community health workers. They are expected to work for the community members by doing house visit, disseminating health information at barazas, churches, schools, etc. wherever many people gather. This programme is in line with Primary Health Care

[3] Community volunteers are trained as trainer who are to train family members who are taking care of PLWHA. It means the community volunteer is not meant to take care of PLWHAs directory due to the big number but to train the family members who are taking care of PLWHA.

Promotion Programme ranked as priority No.2 in the approach of 'We are healthy' that is the third priority amongst seven development approaches in the Nyando District development plan, while in Homa Bay District the programme is related to Mother and Child Health Programme ranked as top priority programme in the approach of 'We are healthy' which is the second priority development approach.

2) Objectives

The objective of the Primary Health Care Promotion Programme is:

- Community based primary health care management is improved by increasing the number of community health workers (CHWs).

3) Major Planned Activities

The pilot conducts training for management of prevalent diseases and their prevention at community level to those who have volunteer spirit. Those trained are expected to become community health workers (CHW). One of the keys leading the programme to success is the selection of the trainees. Since they are supposed to work for the community, they need to have volunteer spirit which could be observed by attendance to community based activities, attendance to barazas, engagement in some volunteer activities, etc. At the same time the trainees should be selected in a way of covering each and every corner of the target area, which in this case is sub-location. Since this programme is operated on outreach-oriented approach, the trainees should be selected by covering all the areas as equitably as possible. In this regard, a public baraza should be held from which equally distributed trainees can come; for example one trainee from each village in the target sub-location.

The programme is to be implemented in Tonde Sub-location in Muhoroni Division and Wangaya II Sub-location in Miwani Division, both of which are in Nyando District, and for Homa Bay District there are three target sub-locations such as Konyango Sub-location in Riana Division, North Kaganda Sub-location in Nyarongi Division, and South Kaganda Sub-location in Nyarongi Division. Deciding on the number of trainees per target sub-location depends on the population; more population needs more CHWs. According to a guideline by MOH, one CHW should be given 10 households. However, this is not always possible taking into account resources required for the PHC training. In this pilot, one CHW is supposed to cover about 10 homesteads (composed of two or more households), and therefore the required number of CHWs in the target sub-locations is as in the Table 2.2.2:

Table 2.2.2 Training Batches, CHWs to be Trained for PHC

District	Nyando District		Homa Bay District			Total
Division	Muhoroni	Miwani	Riana	Nyarongi		
Location	God Nyithindo	North E. Kano	Centrl Kabuoch	Centrl Kanyadoto		
Sub-location	Tonde	Wangaya II	Konyango	N. Kadanda	S. Kaganda	
Est. HHs in 2006	667	1,324	987	555	526	4,059
Est. HS in 2006	333	662	493	278	263	2,029
Trained CHWs	20	32	37	20	18	127
Active CHWs, A	8	21	16	6	4	26
CHWs/ 10HSs, B	33	66	49	28	26	203
B-A	25	45	33	22	22	148
Training Batch(TB)	1	2	2	1	1	7
Trainees /BT	35	30	25	30	30	30(avg)
Total Trainees	35	60	50	30	30	205
Spare Ratio	1.38	1.33	1.50	1.38	1.35	

Note: Estimated household is based on 1999 census, no. of trained CHWs etc. from Divisional PHO.

In estimating the required number of CHWs in the above table, considered is the already trained and

active CHWs. The required number is therefore number of CHWs per homestead less presently active CHWs. Spare ratio in the end column is the CHWs to be trained under the pilot programme against actually required number of CHWs. Spare ratio copes with the drop out of CHWs (there are dropouts since they are supposed to work as volunteer), and gives some opportunities of refresher course to the already existing CHWs. With this table, taking into account the big population in the two sub-locations of Wangaya II in Nyando District and Konyango in Homa Bay District, they are to have two batches of the PHC trainings, otherwise one batch training each. Each batch of the training is to train about 30 community volunteers.

The training on PHC takes a week (5 days), during which several trainers come from different health institutions such as health centre, hospital, NGOs, etc. with the divisional Public Health Officer (PHO) being the coordinator. The training course undertakes such topics as PHC concept and element, common illnesses and diseases in the locality, HIV/AIDS, immunization, mother and child health, family planning, community based rehabilitation for the disabled, nutrition, water and sanitation, etc. Table 2.2.3 gives an example of the PHC training timetable, but this is not always the same by target sub-location. The establishment of training topics rests on the responsibility of the divisional PHO taking into account the diseases and illnesses prevalent in the area and also availability of the trainers.

Table 2.2.3 An Example of PHC Training Sessions

Session	Day 1	Day 2	Day 3	Day 4	Day 5
Session 1	Arrival/Registration Expectation Objectives	Intestinal Worms -Causes -Prevention & Control	Expanded Programme of Immunization	Nutrition	Water and sanitation
Session 2	PHC Concept, History, Elements of PHC, Actors in PHC, Roles of CHWs, Qualities of CHWs	Gastroenteritis -Causes, Signs -Prevention -Control -RX	M & Child Health -Family Planning -Anti natal Care -PMTCT	-Vitamin A -Supplements	Diseases associated with water. -Organizations dealing with water
Session 3	Common illnesses Communicable Diseases Classification	Rabies Causes -Signs /Control -Prevention -Control	Family Planning methods	Breast Feeding. -Definition -Techniques -Advantages	Excreta Disposal -Methods
Session 4	URTI -Truck Infection -Prevention -RX (treatment)	-Malaria -Signs and causes -Prevention -RX	Community Based Rehabilitation (CBR) -Prevention -Management	Mental Illness. -Definition -Classification -Causes	Waste management
Session 5	-Diarrhoeal Diseases -Causes, Signs -Prevention/Control	HIV/AIDS/AIDS -Signs & Spread -Prevention	Ditto	Group Formation	Group Dynamics Closure

2.2.2 Essential Drug Management Programme

1) Rationale

Given one-week PHC training, the trained CHWs are supposed to start promoting community health management in their locality. They are to disseminate what they have learned during the training course by taking any opportunity of people's gathering apart from household visit and also to make referral for a patient to nearby health institute, etc. In doing these activities, they will encounter requests from their community members. These requests may include grant assistance in nutritious food, transportation to health institute, drugs, etc. according to some experiences by already working CHWs. In relation to nutritious food, Centre Based Livelihood Improvement Programme, which is meant to implement in the same sub-location of outreach oriented health promotion pilot programme, can assist CHWs. For example, CHWs can refer the client to the learning centre whereby the client can learn how to cultivate vegetables or otherwise the CHW herself can teach.

For the drugs, the CHWs may suggest proper subscription to the client. There are, however, no pharmacies in the vicinities of Tonde Sub-location in Muhoroni Division and South Kaganda Sub-location in Nyarongi Division. In these places, the community members have to go to hospital far away from their areas. Taking into account the circumstance, a programme of putting up a community chemist is recommended. Essential Drug Management Programme is to provide another additional training on essential drug management to the community health workers for the two sub-locations and assist in opening community pharmacies by providing start-up essential drugs (the concept is same as Bamako Initiative).

2) Objectives

The objective of the Essential Drug Management Programme is:

- Essential drugs are availed in the target sub-locations by equipping already trained CHWs on PHC with knowledge of prescribing essential drugs.

3) Major Planned Activities

This pilot programme administers training for essential drug management, and this is done on top of primary health care training. Therefore this pilot programme targets active CHWs who are amongst those trained by the Primary Health Care Promotion Programme and also those who had been previously trained and working actively. The training will last five days, and call 30 active CHWs each in the two target sub-locations of Tonde Sub-location in Muhoroni Division, Nyando District and South Kaganda Sub-location in Nyarongi Division, Homa Bay District. The trainers are almost the same as the ones who are engaged in the Primary Health Care Promotion Programme; namely they are from health institutes located nearby.

Given the 5-day training for essential drug management, they are to form a group, which will be in charge of opening and running a community chemist. To open up the community chemist, the pilot programme will also provide some essential drugs as start-up seed at a cost of about Ksh 30,000 per place. The CHWs in charge of the chemist however should prepare for the place at which they can sell the essential drugs. These essential drugs are sold at a higher price than wholesale price, so that they can set aside recurrent expenses in addition to replenishing of the drugs. Therefore they are supposed to run the community chemist in a revolving manner.

Table 2.2.4 Places to Carry out Essential Drug Management Programme

District	Nyando District		Homa Bay District			Total
Division	Muhoroni	Miwani	Riana	Nyarongi		
Location	God Nyithindo	North E. Kano	Centrl Kabuoch	Centrl Kanyadoto		
Sub-location	Tonde	Wangaya II	Konyango	N. Kadanda	S. Kaganda	
No. of Batch	1	–	–		1	2
No. of Trainee	35	–	–		30	60
Essential Drugs	1 LS (start up)	–	–		1 LS (start-up)	2 LS

The participants are given the following sessions as a base, although this can be changed by the responsible divisional PHO as per local needs. The training will undertake drug management mainly for malaria, diarrhea, worms, eye infection, scabies, fungal infection, as experienced in the local area commonly.

Preparation of community chemist

Table 2.2.5 An Example of Essential Drug Management Training Sessions

Session	Day 1	Day 2	Day 3	Day 4	Day 5
Session 1	Registration, Courses overview Expectations, Objectives	Treatment of malaria -Malaria drugs -Fever drugs -Dozes	Worms Infection -Types -Causes -Prevention -Complication	Treatment of Scabies -Drugs Used -Administration	Drug Use (Dispensing)
Session 2	Introduction to BAMAKO/DRUGS	-Insecticide Treated Nets -Net Treatment	Treatment of Worms -Drugs -Dozes	Fungal Infection -Signs -Causes -Prevention	Ordering/ Purchasing Drugs
Session 3	Drugs category & groupings	Diarrhea -Definition -Causes -Prevention - Dehydration	Eye Infection -Signs -Causes -Prevention	Treatment of Fungal infection. -Drugs used and administration	Antibiotics -General Information -Management of drug overdose
Session 4	Malaria -Causes. -Signs in children -Signs of severe malaria	Treatment of Diarrhea. -ORT Corner -Preparation of ORS	Treatment of Eye Infection. -Management of complications -Drugs and Dozes	Anti Acid -Piriton (Uses &Doses)	Drug Storage
Session 5	Management of malaria	Anti Diarrhea drugs	Scabies -Signs -Causes -Prevention	Metronetazole -Diseases it treats -Doses -Uses	CLOSURE

2.2.3 Community Based Health Information Sharing Programme

1) Rationale

Although there are high incidences of infant and under-5 child mortalities as afore-mentioned, community people are not always aware of seriousness of such situations as a whole picture of the area wherein they reside. This is partly because people do not have correct knowledge about diseases and necessary countermeasures and another reason is the fact that the knowledge and information are not shared widely. To cope with the former, there are programmes of Primary Health Care Promotion and also Essential Drug Management. For the latter, information about prevalent diseases are not well shared at sub-location or location level but only amongst the people within a clan.

Without sharing the seriousness of the situation among the people in wider area, it would be difficult for people to form healthy community as a whole in future. Information both in terms of place and also time is important. Geographical information can assist people to identify the places where a specific disease is happening, and time series information can give the people trend if a disease is subsiding or increasing. Information sharing would therefore be very important step to improve the living conditions of the area. Trained CHWs can be engaged in collecting important health indicators such as occurrence of diseases, number of toilet constructed, etc., and the collected indictors should be posted at gathering places like the chief office, community chemist, etc. By looking at the indicators, the villagers can see the trend of what is happening in their community, which can lead them to the first step to improving the situation on their own.

2) Objectives

The objectives of the Health Information Sharing Programme is:

- Information mainly for critical health issues prevalent in the community is shared amongst the community members, thereby direction to move to better situation as community is spelled out.

By sharing the collected information by community, challenges that they have to collectively tackle can be clarified. Given these clarified challenges, it is expected that the target communities would take initiative for any actions to improve the situation on their own collectively.

3) Major Planned Activities

Among CHWs trained under Primary Health Care Promotion Programme or by any relative PHC training, active ones are to be invited for further training under this Community Health Information Sharing Programme. During this training, PHC issues are reviewed and indicators for the information to be collected and shared are decided amongst the training participants. Then, a community baraza may also be held to identify some additional social indicators to collect, for example pupil's drop-out. Those who are trained under this programme are to collect the information identified and then post them on chalk board, which are mounted at a public place such as chief's office, community chemist, and the orphanages and VCTs involved in the aforementioned pilot programmes.

This pilot programme is carried out at five target sub-locations same as the ones for aforementioned PHC Promotion Programme. Each 5-day training will be given to 30 active CHWs per sub-location (for PHC pilot programme, two batches of trainings are arranged for the sub-location of Miwani and Riana Divisions where there is high population, however given limited fund only one batch training per sub-location is arranged for the Information Sharing Programme). To facilitate the CHWs work to collect information, logistics support is also provided for example gumboots for all the CHWs and one bicycle per three CHWs engaged in this pilot programme. Summary of the programme is given in Tables 2.2.6 and 2.2.7.

Table 2.2.6 Places to Carry out Health Information Sharing Programme

District	Nyando District		Homa Bay District			Total
Division	Muhoroni	Miwani	Riana	Nyarongi		
Location	God Nyithindo	North E. Kano	Centrl Kabuoch	Centrl Kanyadoto		
Sub-location	Tonde	Wangaya II	Konyango	N. Kadanda	S. Kaganda	
No. of Batch	1	1	1	1	1	2
No. of Trainee	30	30	30	30	30	150
Gum Boot	30	30	30	30	30	150
Bicycle	10	10	10	10	10	50

Table 2.2.7 Training on Community Health Information Sharing Programme

Time	Day 1	Day 2	Day 3	Day 4	Day 5
9.00-10.30 am	Role of key actors in PHC	Recap Introduction to teaching/learning skills appropriate for adult learners	Recap Introduction to report writing	Recap Organogram of information flow	Recap Emerging issues
11.00-1.00 pm	Community mobilization	Micro teaching	Importance of record keeping	Community-based health information system	Plan of action
2.00-4.00 pm	Leader ship	Micro teaching	Types of records	Monitoring and supervision	Closure

2.2.4 PLWHA Targeting Home Based Care Promotion Programme

1) Rationale

As indicated in Figure 2.2.1, the nation wide prevalence already passed the peak at about 13% in year 2000, and the trend of the study districts also seems to be declining. High prevalence of HIV/AIDS is, though, still seen in the study districts; about 18% in Nyando

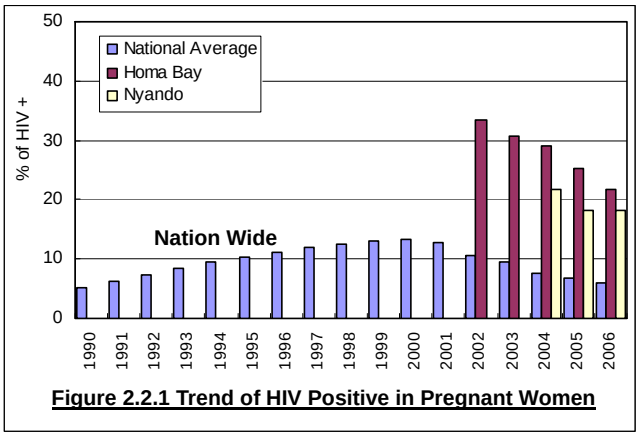


Figure 2.2.1 Trend of HIV Positive in Pregnant Women

District and about 22% in Homa Bay District as of 2006, both for pregnant women. HIV/AIDS affects economically productive generations, thereby leaving out elderly people and orphans.

PLWHAs (people living with HIV/AIDS) need to pay special attention to nutritious food and also prepare themselves for their last moment. MILD MAY, a British international NGO, based in Kisumu has been implementing Home Based Care (HBC) Programme in Nyanza Province since 2002. They are volunteers of community members just like community health workers but more specialized in caring for PLWHAs and in many cases they are in fact CHWs as well.

Their tasks are to give necessary trainings to the family members of PLWHAs, thereby they are called HBC TOT (trainer of training), referral of PLWHAs to medical institutions and preparation of monthly report for the situation of PLWHAs in their allocated areas. However, there are considerable drop-outs due to its voluntary work. To strengthen HBC programme, more trainings to increase the number of HBC trainers are sought. One of the pilot programmes is therefore to strengthen the on-going PLWHA targeting Home Based Care Programme.

2) Objectives

The objective of the PLWHA Targeting Home Based Care Programme is:

- Outreach of home base care services is extended by increasing the number of home based care trainers and also facilitating the training by the HBC trainers to care takers of PLWHAs

Through this programme, it is also expected to reduce stigma of the community members against PLWHAs contributing to stabilization of the community.

3) Major Planned Activities

The pilot cooperates with the activities of the Ministry of Health and MILD MAY to increase the number of HBC trainers and also to support the training by the HBC trainers to the care takers of PLWHAs. The trainings on HBC will be conducted near the aforementioned orphanages or VCTs in order to link the activities of HBC with the orphanages and VCTs. Through this linkage, the skills on income generation demonstrated at the orphanages or VCTs would be extended through HBC trainers who are going around the communities.

Figure 2.2.2 on right hand illustrates household visits to be undertaken by trained HBC TOTs, which is also applied to Primary Health Care Promotion Programme. We define this approach as outreach oriented extension. While doing household visit, HBC TOTs and CHWs can disseminate health improvement activities as well as disseminate information on IGAs undertaken at such centres as orphanage, VCT, etc.

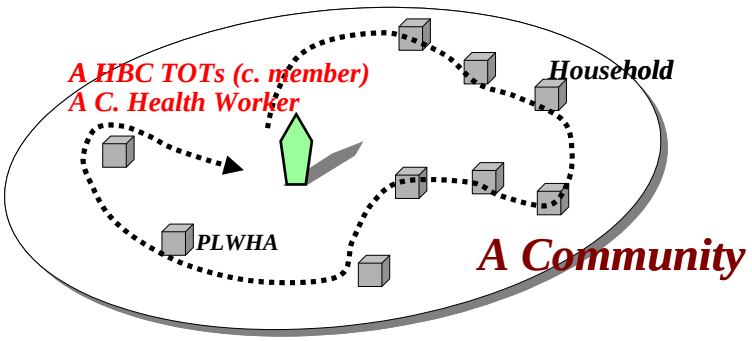


Figure 2.2.2 Volunteer Based and Outreach Oriented Approach

The contents of the trainings given to HBC TOTs are subject to the one prescribed by NACC (National AIDS Control Council), and the pilot project will conduct regular monitoring and evaluation to learn lessons.

Since HBC programme is still new, how many households (or homesteads) can be covered by a HBC

TOT is not yet agreed. One may say it is same as CHWs case, which is 10 households (or homesteads), or less household per HBC TOT is necessary given more burdens in HBC activities than PHC promotion (In Nyarongi Division of Homa Bay District, the divisional PHO pointed out that five households per HBC TOT is ideal). Since the number of households affected by HIV/AIDS is hardly known, 10 homesteads per HBC TOTs is applied just same as the case of deciding the batches and trainees for PHC training. To facilitate the HBC TOT work to move around, logistics support is provided for example gumboots for all the TOTs and one bicycle per three TOTs engaged in this pilot programme. Summary of the programme is given in the following two tables.

Table 2.2.8 Training Batches, HBC TOTs to be Trained for HBC Programme

District	Nyando District		Homa Bay District			Total
Division	Muhoroni	Miwani	Riana	Nyarongi		
Location	God Nyithindo	North E. Kano	Cent'l Kabuoch	Central Kanyadoto		
Sub-location	Tonde	Wangaya II	Konyango	N. Kaganda	S. Kaganda	
Est. HHs in 2006	667	1,324	987	555	526	4,059
Est. HS in 2006	333	662	493	278	263	2,029
Tr'ed HBC TOTs	2	17	11	7	3	40
Active TOTs, A	2	16	11	6	3	38
TOTs/ 10HSs, B	33	66	49	28	26	203
B-A	31	50	38	22	23	165
Training Batch	1	2	2	1	1	7
Trainees /BT	35	30	25	30	30	29
Total Trainees	35	60	50	30	30	205
Spare Ratio	1.12	1.20	1.30	1.38	1.29	1.24

Note: Estimated household is based on 1999 census, no. of trained HBC TOTs, etc. from Divisional PHO.

Training under this pilot programme is subject to the curriculum prescribed by NACC. It is an 11-day training as shown in Table 2.2.9. All the trainers are available from nearby health institutes, and the divisional PHO will be in charge of coordinating the training sessions.

Table 2.2.9 Training Schedule (Total 11 days) for Home Based Care Promotion Programme

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8.30-10.30 am	Course overview pretest, official opening	Recap Psychological impact of HIV/AIDS	Recap Practical on counseling	Recap Introduction to self care	Recap Nursing services practical	Family and community sensitization (field visits)
10.30-11.00	Break					
11.00 am -1.00 pm	Facts on HIV/AIDS	Displaying a caring attitude	Practical on counseling	Introduction to self care	Planning organizing and transferring nursing skills	Ditto
1.00-2.00	Lunch					
2.00-3.30 pm	Facts on HIV/AIDS	Displaying a caring attitude practical	Identifying the needs of HBC care givers and PLWHAs	Nursing services	Community mobilization	Ditto
3.30-5.00 pm	Introduction to HBC concept	Counseling	Identifying the needs of HBC care givers and PLWHAs	Nursing services	Role of CHW and other co-actors in HBC	Ditto
Time	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	
8.30-10.30 am	Sharing field experience	introduction to concept of training	Recap VCT and ARV management	Recap TB and HIV/AIDS	Recap post test	
10.30-11.00	Break					
11.00 am -1.00 pm	Nutrition	Micro teaching	VCT and ARV management	Discharge plans, Referrals and record keeping	Course evaluation all facilitators	
1.00-2.00	Lunch					
2.00-3.30 pm	Nutrition	Micro teaching	Management of opportunistic infections	Discharge plans, referrals and record keeping	Work plan	
3.30-5.00 pm	HBC Kits and its use	Personal testimonies and sharing of experience	Management of opportunistic infections	Terminal care	Official closer	

2.2.5 Implementation Process and Achievement for the Outreach Oriented Health Programmes

Table 2.2.10 below shows the achievement of training for the four health sector pilot programmes. At all places, primary health care promotion training which establish community health workers started in June – early July 2006. Other training courses have been carried out spreading to as recently as early February 2007. As the training went on, PHO in Nyarongi Division of Homa Bay District noticed there was a need of additional training in health information sharing. An additional training on health information sharing was done at the two sites of Nyarongi Division and at Riana Division. Essential drug management training was also requested at North Kaganda Sub-location, Nyarongi Division, which was accepted by JICA Team.

As shown in Table 2.2.11, through these training courses a total of 177 CHWs and 205 HBC TOTs have been established (some participants are not newly trained but took the training as refresher). In principal, HBC TOTs were meant to come from the trained CHWs. However, in Miwani Division of Nyando District and Nyarongi Division of Homa Bay District, the PHOs in charge selected some HBC TOT candidates not from the JICA trained CHWs. The number of HBC TOTs who had undergone PHC training assisted by JICA is also shown in Table 2.2.11; 29 out of 30, 24 out of 30, 21 out of 30 in the order of Miwani Division, North Kaganda Sub-location of Nyarongi Division and South Kaganda Sub-location of Nyarongi Division. Therefore, JICA assisted training established 177 CHWs, out of whom 159 are at the same time HBC TOTs. In another count, the JICA assisted training trained a total of 223 (177+205-159) community volunteers as either CHWs or HBC TOTs.

Other observations made during the training are as follows:

- Since there is no community chemist in the target Tonde sub-location, the CHWs trained were to put up a community chemist. The CHWs trained has identified the place of putting up the chemist, which is at Jaber Orphanage. The divisional PHO in charge finalized the essential drugs with the CHWs, which was provided under this pilot programme at a cost of about Ksh 30,000 as start up. Apart from this preparation, the trained CHWs have taken opportunities of people's gathering such as baraza, church services, etc., during which they are now promoting community health.

- In Miwani Division of Nyando District, it was planned to train 60 CHWs by two batches of PHC trainings. However, the PHC training was carried out in two batches for the same participants, which means they were given a total of 10 days training per person. This arrangement implanted health knowledge well into the participants. The trained 30 CHWs were all introduced to community members at a big baraza held beside Masago Health Centre on July 20.

- In Riana Division of Homa Bay District, after first batch of PHC training was finished, it was observed that the participants were not from all the coverage of the target sub-location. The participants were those who belonged to the CBO engaged in Livelihood Improvement Programme which was also carried out there and from another CBO, a sister group. Therefore, a baraza was held to select the second batch PHC training participants in such a way of covering all the villages. With this second batch of the PHC training, now each village has got their own CHWs, about two CHWs per village.

- In Nyarongi Division of Homa Bay District, there are two target sub-locations. Both sub-locations had finished the PHC training and also HBC TOTs trainings by early September 2005 (one batch training each). The participants for PHC training were mostly those who had been trained once and have been actively working in their assignment areas. Therefore most of the participants for PHC training were rather given a refresher than newly trained. On the other hand, HBC TOTs were mostly newly recruited and trained though there were already some HBC

TOTs in the participants. This is because the PHO in charge believes the work-load for HBC is much more than that of CHWs, and hence he wanted to establish HBC TOTs apart from CHWs.

Table 2.2.10 Training Achievement by Place and by Component

Place	Planned Training	Progress for Training
Nyando District Muhoroni Division (Jaber) God Nyithindo Location Tonde Sub-location	PHC Promotion (1)	June 19 – 23
	Essential Drug Management (1)	July 24 – 28
	Health Information Sharing (1)	December 4 – 8
	PLWHA HBC Programme (1)	Oct.30 – Nov.4, Nov.20 – No.24
Nyando District Miwani Division (Masago VCT) North E. Kano Location Wangaya II Sub-location	PHC Promotion (2)	June 6 – 10, July 3 – 8
	Health Information Sharing (1)	Sep. 6, November 27 – 30
	PLWHA HBC Programme (2)	Sep.18 – 22, Oct.16 – 20, Oct.30/31, Nov.4/5, Nov.20 – 24,
Homa Bay District Riana Division (KINDA VCT) Central Kabuoch Location Konyango Sub-location	PHC Promotion (2)	June 26 – 30, Aug.7 – 11
	Health Information Sharing (1)	Aug.28 – Sep.1, Jan.31, Feb.1/2
	PLWHA HBC Programme (2)	Sep.18 – 24, 26 – 29, Oct.2 – 6, Oct.9 – 14
Homa Bay District Nyarongi Div. (Rapedhi) Central Kanyadoto Location North Kaganda Sub-location	PHC Promotion (1)	June 12-16
	Health Information Sharing (1)	Sep.20 – 22, 25/26, Dec.11 – 14,
	PLWHA HBC Programme (1)	Aug.7 – 12, 14 – 18
	Essential Drug Management (1 additional)	Oct.23 – 27, Nov.13 - 17
Homa Bay District Nyarongi Div. (Nguku Voluntary) Central Kanyadoto Location South Kaganda Sub-location	PHC Promotion (1)	July 18-22
	Essential Drug Management (1)	Nov.6 – 10, Nov.13 - 17
	Health Information Sharing (1)	Sep.27 – 29, Oct.2/3, Dec.11, 13/14
	PLWHA HBC Programme (1)	Aug.22 - Sep.5

Note: Number in bracket means the training batch. Each of the trainings is planed to have about 30 participants

Table 2.2.11 Trained Community Health Workers (CHWs) and HBC TOTs by Place

Place	Planned Training	CHWs/HBC Trained	In CHWs	Person-days
Nyando District Muhoroni Division (Jaber) God Nyithindo Location Tonde Sub-location	PHC Promotion (1)	37 CHWs (13M, 24F)	-	185
	Essential Drug Mgt (1)	37 CHWs (13M, 24F)	37	185
	Health Information Sharing (1)	34 CHWs (13M, 24F)	34	170
	PLWHA HBC Programme (1)	35 HBC TOTs (11M, 24F)	35 (0)	385
Nyando District Miwani Division (Masago VCT) Wangaya II Sub-location	PHC Promotion (2)	30 CHWs (1M, 29F)	-	330
	Health Information Sharing (1)	37 CHWs (12M, 25F)	13	185
	PLWHA HBC Programme (2)	60 HBC TOTs (5M, 55F)	29 (31)	600
Homa Bay District Riana Division (KINDA VCT) Konyango Sub-location	PHC Promotion (2)	50 CHWs (17M, 33F)	-	250
	Health Information Sharing (1)	30 CHWs (12M, 18F)	30	240
	PLWHA HBC Programme (2)	50 HBC TOTs (17M, 33F)	50 (0)	550
Homa Bay District Nyarongi Div. (Rapedhi) Central Kanyadoto Location North Kaganda Sub-location	PHC Promotion (1)	30 CHWs (10M, 20F)	-	150
	Essential Drug Mgt (1)	29 CHWs (9M, 20F)	11	290
	Health Information Sharing (1)	30 CHWs (10M, 20F)	8	240
	PLWHA HBC Programme (1)	30 HBC TOTs (10M, 20F)	24 (6)	330
Homa Bay District Nyarongi Div. (Nguku V.) Central Kanyadoto Location South Kaganda Sub-location	PHC Promotion (1)	30 CHWs (10M, 20F)	-	150
	Essential Drug Mgt (1)	30 CHWs (10M, 20F)	11	300
	Health Information Sharing (1)	30 CHWs (10M, 20F)	13	240
	PLWHA HBC Programme (1)	30 HBC TOTs (10M, 20F)	21 (9)	330
Total of CHWs trained		177 CHWs (51M, 126F)	159 CHWs cum TOTs	5,115 person-days
Total of HBC TOTs trained		205 HBC TOTs (53M, 152F)		

Note: Number in bracket in the column of 'Planned Training' means the training batch.

Training on counseling for Home Based Care Training targeting HIV/AIDS clients.

A nursing training session carried out in Nyarongi

2.2.6 Evaluation by the Implementers

A series of final evaluation workshops for the Outreach Oriented Health Improvement Programme were held at each site in February 2007. The evaluation workshops were combined with Centre Based Livelihood Improvement Programme. Table 2.2.12 summarizes the evaluation carried out by the CHWs by activity which was identified by the participants thereby some differences by division. The evaluation was asked in a range of mark 1 – 5 from view point of to what extent each activity (component) could contribute to improving community health (1; poorest contribution, 5; most contribution). Although almost all the activities identified are marked very high, there are some activities marked a little low, which are shown by shaded columns. Some comments given to these lower marks are as follows:

- Muhoroni and Miwani Divisions gave a low mark to 'sensitize community through balaza and churches' under PHC component (marks of 4.3 and 4.1 respectively). Reasons given by the participants are; those who attend barazas are few, and in fact not many mothers and women do not attend balaza nowadays; time for explaining is always too short; those who got the messages do not pass the right messages; churches do not want CHWs to talk about condoms, family planning or even how to prevent HIV/AIDS.
- Miwani and Nyarongi Divisions gave low marks to 'education on family planning' under PHC component (4.0 and 3.7 respectively). They said that; no need of family planning because HIV/AIDS has killed so many people apart from accidents, Malaria and TB; infant mortality rate is high; not many pregnant women can bee seen on the street nowadays (implies many widows were left due to HIV/AIDS); injection/pills have side effects of bleeding, stomach ache and back pain; men do not agree to use condoms; FP increases prostitution; pills, injection, condoms etc. are against the Bible.
- In Riana Division, some participants raised an issue that clients wanted some input, where CHWs could not afford. This situation gave low marks on 'make follow up visits (4.3)' and 'identifying diseases in the community (4.4)' under PHC component, and on 'nursing (3.9)' under HBC components.
- Riana Division gave a low mark 'HIV/AIDS awareness creation' under HBC component, which is mark 4.5. Reasons given are; already a lot of efforts have been done and everybody knows about HIV/AIDS today, and hence it is waste of time; awareness campaign has been repeated so that people do not see the importance anymore, thinking only one day event, etc.

Table 2.2.12 Evaluation by CHWs by Activity (Shaded Cell shows marks below 4.5)

Activities	Muhoroni	Miwani	Nyarongi	Riana	Remark
Primary Health Care (PHC)					
1. Sensitize community thr. baraza, churches	4.3	4.1			
2. Sensitize community through home visits	5.0	5.0			
3. Make follow-up visits	5.0		4.6	4.3	
4. Investigate sicknesses through home visits.	4.9				
5. Identifying diseases in the community	4.2	4.9		4.4	
6. Data collection on the PHC sicknesses			5.0	4.7	
7. Referral to health institutes		5.0		4.9	
8. Treatment of minor diseases	4.9				
9. Encourage pregnant mothers to visit clinics		5.0			
10. Advise on nutrition				4.9	
11. Teaching the community on health matters			5.0	5.0	
12. Teaching on drug adherence		5.0			
13. Education on family planning		4.0	3.7		
14. Recording/ Report writing			4.6	4.4	
Home Based Care (HBC)					
1. HIV/AIDS awareness creation		5.0	5.0	4.5	
2. Identification of the sick/ PLWHAs	4.9	4.9	4.8		
3. Follow-up visits to HIV/AIDS patients	5.0		4.9	4.5	
4. Training of care takers			4.9		
5. Nursing	4.0	4.9		3.9	
6. Treatment of opportunistic infections		5.0		4.7	
7. Psycho-spiritual support and counseling	5.0	5.0	4.9	5.0	
8. Teaching the sick on drug adherence			5.0	5.0	
9. Referral to dispensary	5.0		4.7	4.9	
10. Education on health	5.0				
11. Education on nutrition (balanced diet)		5.0	4.7	5.0	
12. Networking	4.7				
13. Reporting			5.0	4.9	
Health Information Sharing					
1. Preparation of work plan		5.0			
2. Community mobilization			4.4	4.3	
3. Data collection	4.9	5.0	5.0	5.0	
4. Information sharing	5.0	5.0		4.5	
5. Networking	4.8			4.5	
6. Follow-up		5.0	4.9		
7. Record keeping		5.0			
8. Report writing		5.0	4.9	5.0	
Essential Drug Management					
1. Dispensing of drugs	5.0				
2. Stock taking			5.0		
3. Drug management	5.0		5.0		
4. Selling of drugs			4.8		
5. Record keeping	5.0		5.0		
6. Report writing			5.0		

Table 2.2.13 summarizes evaluation by so called 5-aspect that is composed of Efficiency, Effectiveness, Impact, Rationale, and Sustainability. Evaluation in AM was done by CHWs, and the one in PM by leaders including CHW leaders and area chiefs and government officers. The evaluation was asked in a range of mark 1 – 5; 1 for the lowest and 5 for the highest. Following are the observations by JICA Team and comments given by the participants:

- In general, markings by CHWs are higher than those by leaders and government officers (marking is higher in AM than in PM). Government officers usually give more critical evaluation, which led to the lower markings.

- Rationale has got very high marks across all the divisions. They understand that health improvement is very crucial issue in these areas, whereby giving very high marks to the rationale. JICA Team may think that projects given input from outside may always tend to be marked very high. If they were asked to contribute to larger extent, they might have rated the rationale lower.

- Impact was not given high marks. This is mainly due to the project implementation period, which they thought was too short. Also the attitude of people, negative attitude toward HIV/AIDS issues, was attributed to the lower marks.

- Government officers gave critical evaluation on sustainability, resulting in lower marks on the sustainability in PM sessions. This is because they think that some CHWs may drop out as is the case already experienced. Some officers and even CHWs think that voluntarism / commitment will go down without token.

- In Nyarongi Division, CHWs gave a low mark to effectiveness, and government officers gave low marks to both efficiency and effectiveness, to which they raised there were not enough bicycles and gumboots for the CHWs. Also there is no chemist and no capital to buy essential drugs in one of the two sites in Nyarongi Division. Here one may see a tendency that people think evaluation in relation to input but not in relation to output.

- In Riana Division, government officers gave lower marks to the efficiency and effectiveness apart from impact. There were conflicts in the community, which divided them into two groups; one is composed of new settlers and the other one is of indigenous people. Divisional PHO raised the issue by saying that when the project started, the Konyango people fought and fought for democracy, and in fact they were in problems. This issue was attributed to the lower marks. However both CHWs and government officers gave sustainability high marks. According to them, now there is no longer war and they no longer fight either, resulting in good mark on sustainability.

Table 2.2.13 Evaluation by 5-aspect, AM by CHWs and PM by Leaders/Government Officers

Five-aspect	Muhoroni		Miwani		Nyarongi		Riana		Remark
	AM	PM	AM	PM	AM	PM	AM	PM	
1. Efficiency	4.8	4.4	5.0	4.4	5.0	3.5	4.0	3.9	
2. Effectiveness	4.0	4.3	4.0	4.0	3.5	3.1	4.1	3.6	
3. Impact	3.9	4.0	5.0	4.0	4.1	3.7	4.0	3.8	
4. Rationale	5.0	5.0	5.0	5.0	4.9	4.8	5.0	4.9	
5. Sustainability	4.7	3.7	5.0	3.8	4.6	3.0	5.0	4.2	

Table 2.2.14 summarizes evaluation by capacity development related indexes; development in individual, as group/ community, and in networking. This evaluation was done by asking to what extent you, your community and networking have changed to betterment. As can be seen, changes at group / community level is lower because change in group/ community would take longer time than individual change. Level of literacy and high expectation were also said to be other factors. Another comment was that level of poverty makes people not to see the priority in improving health.

Table 2.2.14 Evaluation by Development Index, AM by CHWs and PM by Leaders/Government Officers

Development Index	Muhoroni		Miwani		Nyarongi		Riana		Remark
	AM	PM	AM	PM	AM	PM	AM	PM	
1. Individual	4.7	4.5	5.0	4.5	4.7	4.1	4.1	4.6	
2. Group / Community	3.9	3.9	4.5	4.1	4.4	3.3	3.9	4.0	
3. Networking	4.8	4.5	4.9	4.7	4.8	4.9	4.8	4.3	

2.2.7 Issues Arisen and Lessons

1) Training Evaluation

Two simple questionnaires have been administered; one asked all the participants of assessment by training session in a scale of 1 – 5 (very dissatisfied to very satisfied), and the other questionnaire was done to cover randomly selected 10 participants every time after we finished above-mentioned health training courses. Beside these questionnaires, field interviews have also been conducted to follow up the trained CHWs' activities. Following are the issues and lessons:

- For PHC training, assessment by session indicated very high satisfaction in most cases with some sessions being a bit lower. The sessions given a bit lower rating are: *'URTI-Truck infection', 'Gastroenteritis', 'EPI', and 'Community based rehabilitation (CBR)'* in Muhoroni Division, *'Definition and guideline of effective communication', 'Process of communication', 'Counselor client relationship', 'Communication channels', 'and Concept of PHC'* in Miwani Division, *'Introduction to Common Communicable Diseases' and 'Signs and Symptoms of Common Diseases'* in Riana Division as shown in Table 2.2.15 as an example, and *'Mother and child health', 'Sexually transmitted infections' and 'Identifying communities needs'* in Nyarongi Division. In Miwani Division, the second batch of the PHC training was given to the same participants of the first batch training. In other places, following trainings such as essential drug management, information sharing, and HBC training undertook some follow up of the PHC, which contributed to raising the participants' understanding.

Table 2.2.15 An Example of Assessment by Training Session (PHC Training in Riana Case)

Day	SESSION	Very Dissatisfied				Very Satisfied
		1	2	3	4	5
1	Climate Setting, Norms, Expected Workshop Objectives	0	0	2	2	22
	Health and Development	0	0	0	6	20
	PHC/BI Concepts	0	1	0	4	21
2	Recap. Introduction to PHC Elements	0	1	0	4	21
	Introduction to Common Communicable Diseases	***0***	***7***	***1***	***10***	***8***
	Signs and Symptoms of Common Diseases	***0***	***1***	***0***	***14***	***11***
3	Recap. Continued	0	1	0	7	18
	Water and Sanitation	0	0	0	3	23
	Mother and Child Health	0	1	0	4	20
4	Recap. Immunization	0	1	0	1	24
	Nutrition and Growth Monitoring	0	0	0	5	21
	Sexually Transmitted Infections	0	0	1	3	22
5	Recap. Identifying Communities Needs (3L)	0	0	0	2	24
	Final Exercises on 3Ls	0	1	0	2	23
	Final Exercises on 3L Surveys	0	0	0	3	23

- Although the satisfaction by training session and also as a whole were generally very high, we found out during the post evaluation survey that the participants did not give critical observation ratings since some of them thought JICA may withdraw if they gave lower rate. Also there are some villagers who feared giving critical comments to the trainers. Although the sessions were generally highly satisfactory, we should recognize there is a tendency of not giving critical comments amongst most of the villagers. Of course, since there has been little learning opportunity for most of the villagers, they may have very much appreciated the opportunity, resulting in very high satisfaction. On one hand, this tendency may be attributed to education gap between the trainers and trainees who are mere local people. In both cases it is true that in fact this tendency hinders the trainers from improving themselves based on feedback. In this

regard, trainers themselves should always try to get feed back not only from the participant direct comments but also through carefully watching the participant attitude during the training.

- Most impressive things they learned during PHC training were amongst many things; *'HIV/AIDS awareness creation' and 'Malaria causes, spread, infection and prevention'* in Muhoroni Division, *'Counseling the sick', 'Safe water' and 'Nutrition and food supply'* in Miwani Division, *'Water and sanitation', 'Immunization' and 'Common communicable diseases'* in Riana Division, *'Sanitation to have health and clean environment', 'Balanced diet (nutrition)' and 'Maternal and child health'* in Nyarongi Division. Most of those topics were not known to the participants, so that they replied those were very new and some suggested more frequent trainings as a means to understand more.

- Pertaining to PHC training, what the participants thought easy to implement amongst what they learned was water and sanitation improvement across almost all the five target areas. In fact the participants had already got some knowledge about water & sanitation even before the training. They listed such activities are easy to implement as *'Boil/clean and protect drinking water', 'Rack and pit latrines construction', and Hygiene maintaining'*. However, participants from Miwani Division of Nyando District and Nyarongi Division of Homa Bay District raised difficulties to construct toilet. Miwani is famous of black cotton soil very susceptible to collapse of the soil. There is rock foundation in shallow places in Nyarongi Division, very hard to dig septic pit.

- The answers on the question, difficult things to implement, differ from place to place, but majorities are *'Family planning', 'Community based rehabilitation', 'HIV/AIDS control'* and also *'Convincing the sick to go for VCT test'* amongst others. One thing noticed across the target areas is that 'Family planning', 'Discuss issues on STI and HIV/AIDS' are more difficult in Homa Bay area and this in some cases is associated with religious belief, which was little noticed in Nyando area. During an evaluation workshop held in Nyarongi Division of Homa Bay District, one participants raised that there is no need of family planning because it is against the Bible.

- For Essential Drug Management training, interviewees in Muhoroni Division of Nyando District replied that most new things were *'Combination of drugs in prescription', 'Taking drugs for worms'* among others; and already known to some participants were *'Malaria causes and prevention', 'HIV/AIDS'* to some extent, etc. Most impressive thing for more than half the interviewees was *'Malaria cause, symptom, prevention'*, followed by *'HIV/AIDS', 'Use of drugs and hygiene'*, etc. Difficult things for some participants to implement are *'HIV/AIDS test and awareness creation'* as indicated during PHC training. Interviewees in Nyarongi Division of Homa Bay District replied that most impressive things were *'Medical terms', 'Types of drugs'*, and followed by *'Drug prescription', 'Types of diseases', 'Stock management'* amongst others; mostly new things were *'Medical terms'* again being the majority; topics already known to some of the participants were *'Malaria', 'Typhoid', 'Anti malarial drugs', 'Element of PHC'*, etc.; and difficult things they think to implement are *'Prevention measures', 'Medical terms to understand', 'Availability of drugs'*, etc.

- For Health Information Sharing System (HISS) training, most impressive things for the interviewees across all the target sub-locations were *'Organogram', 'Information flow and collection', 'Record keeping on HISS', 'Report writing', 'Communication types', 'Method of data collection', 'Drawing maps'*, etc; mostly new things were *'Work plan developed', 'Micro-teaching related to importance of information sharing', 'Importance of record keeping', 'Information flow', 'Record type/ keeping'* amongst others; and topics already known to some of the participants were very few, suggesting the idea of CHISS is quite new to most of the participants. What they think it is difficult to implement varies by interviewees, but in Homa Bay they sometimes faced a

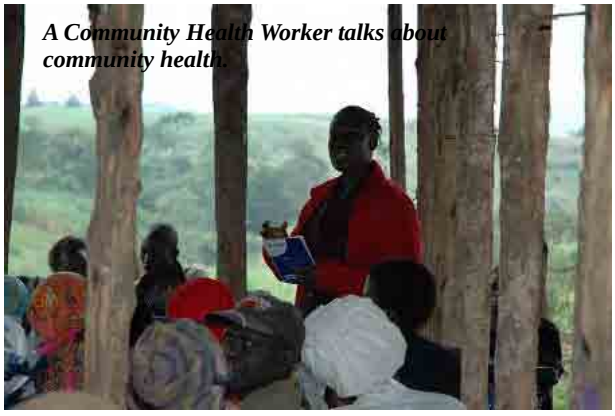
difficulty during site training that community was not always ready to give information and asked CHWs even money in exchange of giving information.

- For HBC training, the most difficult thing was to understand *'ARV management'*, which was quite new for them. *'Counseling'* was well understood, and in fact about half of the interviewees replied that the most impressive thing and also what they think they can do is the counseling. On the other hand, what is difficult for them to implement is how to *'Approach the patients from their side'* since the patients are not willing to accept their status. Since the first PHC training, CHWs have been doing some health promotion activities to date. Difficulties the CHWs have faced are also related HIV issue in many cases such as*; 'HIV/AIDS awareness still not believed', 'Feel ashamed to talk about HIV',* etc.

2) Volunteerism and Recognition

Difficulties relative to health related activities by CHW/HBC TOTs can be summarized in two; one is volunteerism and the other one is recognition by community members, local leaders, etc. As not much time has passed since they were trained, most of them are still active in promoting local health. Approximately about 70 percent of the trained ones have done some activities such as house visit, promotion of PHC at baraza, school, etc., and at least all of them promoted health and hygiene at their household level and also to neighbors. Though some drop outs are expected since it is operating on volunteerism, regular interaction between health officers, trained CHWs/ HBC TOTs and local authorities are strongly recommended.

To introduce trained CHWs/ HBC TOTs to community members, there should be baraza or special occasion organized by local leaders with the divisional PHO in charge. Photos below show newly trained CHWs to present what they have learned to the community members and school students. By doing this, they are recognized by the community and also they can train themselves by actually doing what they learned during the training session. Also, local leaders especially area chiefs should always spare some time for CHWs to talk about community health every time they hold baraza. School teachers should be aware there are CHWs in their locality, so that they could arrange some occasion for the CHWs to talk about health at school. Recognition by the communities would motivate CHWs and HBC TOTs to actively continue their voluntary work.



A Community Health Worker talks about community health.

Health Programme: Community Health Workers now talk to their villagers about local disease management.

3) Stigma from Whom

It was some time after HBC training was finished in Miwani Division, Nyando District. JICA Study Team was carrying out interview survey to the HBC TOTs newly trained. One of the challenges they were facing was, as expected, difficulty to convince community members to visit VCT to know their status. Then, we asked how you succeeded in convincing your colleague villagers to visit VCT. We

interviewed 10 HBC TOTs on that day, and surprisingly four HBC TOTs openly replied us that by disclosing their status that was HIV positive they succeeded in convincing the villagers to visit VCT. Similar story was heard in Riana Division of Homa Bay; namely, after the training many started coming open to the public about their status on HIV.

Another example is in Muhoroni Division, Nyando District. An interviewee in Muhoroni Division asked us if there was an opportunity that we could do inland fishery training. We asked why, and the answer was the disclosure of his status, that was HIV positive. He was looking for a source of good quality protein which can support maintaining his immune level. This led him to an idea of raising inland fishery. Another reply from a male HBC TOT in Nyando District was that he was ashamed of his parents died of HIV/AIDS until he undertook the PHC and HBC TOT training, but now realized his case was not a special one. He seemed very much committed by saying he was going to teach about HIV/AIDS by referring to the story of his parents.

We have not asked to disclose their status, or tell the parent story either. One thing very much clear to everybody is that there is almost no one who is not affected by HIV/AIDS. Faced with a fact that one out of every three pupils now does not have either father or mother or the both, we may say none of community members can be away from the effect of HIV/AIDS. An issue here is if it is true or not once somebody is acknowledged HIV positive the one is stigmatized. To an extent, it is surely true especially in Homa Bay District which is more conservative than Nyando. However, one may think the stigma would rather come from the person himself/herself by thinking she/he not be under-looked from colleagues. In this sense, stigma can be said to originate in the relationship between the HIV positive person and others whom the person feared to know his/her status.

Not only JICA but also many organizations, including of course GOK, are now engaged in HIV combating efforts. Through these efforts, people have become very familiar to what the disease is and how to treat or at least how to live with HIV/AIDS positively. As people become familiar to this disease, more people start talking about this disease positively and not in a stigmatizing way. One may say that stigma may no longer be so big as commonly said, but the stigma is a reflection how the HIV positive person himself/herself sees the relationship with other people around.

Also, we believe that the more people talk about their status openly, the more peer follow up would work each other. GOK is determined to provide ART service to 75% PLWHAs by 2010. As known, ART recipients must continuously take ARV drugs where close follow up and monitoring is very much keenly sought. There may be a limitation for government staff to continuously follow up the recipients even with cooperation from local authorities such as area chiefs. However, if more people know their status each other, more peer follow up would work, and hence ART treatment would have more chance to succeed.

2.3 Livelihood Improvement Oriented Forestry Programme

2.3.1 Rationale

In the Study District malaria is the top cause of death and 20% of the pregnant women is HIV positive, who needs care for nutrition. Utilization of useful trees such as Neem, Moringa and improved varieties of Mango would be one of the countermeasures against malaria prevention, nutrition improvement and income generation.

As well as being a well-known medicinal tree, Neem is known to have effects to repel mosquito larvae and hinder their growth. Moringa is also a well-known tree for its high nutrition value. Improved varieties of Mango are noted as well, for bearing fruits that have more commercial value than local varieties. These trees, however, have not been widely planted in Nyando and Homa Bay Districts. Although people are already used to plant trees in and around their homestead, most of them are for construction purpose like Eucalyptuses.

2.3.2 Objectives

Objectives of the pilot are:

1. People plant trees that are useful for medical care, or nutritious supplement, and
2. People utilize and sell these useful trees to improve their living conditions

2.3.3 Major Planned Activities

The programme introduces useful tree species to community members who are practicing tree planting. First, the study team supplies seeds of Neem, Moringa and Grevillea, together with seedling pots to eight Community Based Organizations (CBOs) that grow tree seedlings. Then, the study team gives necessary trainings to the CBOs in collaboration with Forestry Officers and other stakeholders. The following tables show the target CBOs and the major activities of the programme.

Table 2.3.1 Target Tree Nurseries of CBOs

District	Division	Group
Nyando	Upper Nyakach	Nyarande Youth Group
		Kajimbo Orphans Youth Group
		Kabongo Yaw Patch Orphans & Widows Group
Homa Bay	Rangwe	Aora Ogolla Women Group
		Kowili Greenbelt Network
	Asego	Daro Kech Women Group
	Ndhiwa	Oponono Women Group
		Ngutu Women Group

Table 2.3.2 Major Activities of the Forestry Programme

Activity	Term	Required Items etc.
1. Distribution of seeds (Neem, Moringa, etc.)	June 2006	Seeds and pots
2. Training of nursery management to CBOs	June - September 2006	Flipchart, felt pen, etc.
3. Seedling preparation by CBOs	June - September 2006	
4. Preparation of rootstock (Grafted Mango)	September 2006	Saws and axe
5. Introduction of the trees at Baraza	October - November 2006	
6. Training of grafted mango to CBOs	October - November 2006	Rootstock, cooler boxes, knifes, scions, etc.
7. Monitoring and evaluation	October 2006 - March 2007	

After the seed distribution, CBOs start sowing them and grow seedlings until they become large enough to be transplanted in the field. Then, when the short rainy season has started, members of the

CBOs introduce usefulness and utilization of the trees at public gatherings like Chief's Baraza. It is expected that people who are interested in the trees buy and transplant them for their own benefit.

After that, the Study Team trains CBOs in collaboration with progressive farmers, to propagate improved varieties of Mangoes, e.g. Ngowe, Apple, etc., by grafting. Some necessary materials for grafting, such as scions, knifes, tubes, etc. are supplied to the CBOs from the Study Team. After the Grafted Mango training, CBOs start growing these improved varieties to sell to the community people.

It is assumed that the community people plant and utilize such useful trees at home and even sells the products locally. For example, leaves of Moringa and Neem are processed to tea and sold as high-grade health items, and fruits of the improved Mangoes are sold at much higher price than that of local varieties. Therefore, planting these trees could be the source for agro-industrial development in the future.

2.3.4 Implementation Process and Achievement

In June and July 2006, seeds of Neem, Moringa and Grevillea, and seedling pots have been distributed to the target CBOs. The summary of the quantity of seeds and the CBOs is shown in the table below.

Table 2.3.3 Quantity of Seeds and Seedling Pots distributed to the CBOs

District	Group	Moringa	Neem	Grevillea	Pots
Nyando	Nyarande Youth Group	800g	400g	100g	20.0kg
	Kajimbo Orphans Youth Group	400g	200g	100g	6.5kg
	Kabongo Yaw Patch Orphans & Widows Group	800g	400g	100g	10.0kg
Homa Bay	Aora Ogolla Women Group	1,000g	400g	100g	9.0kg
	Kowili Greenbelt Network	1,100g	700g	200g	9.5kg
	Daro Kech Women Group	400g	400g	50g	5.0kg
	Oponono Women Group	700g	300g	50g	5.0kg
	Ngutu Women Group	700g	300g	100g	5.0kg
Total		**5,900g**	**3,100g**	**800g**	**70.0kg**

Note: 1) The number of seeds per 1kg for each species is: 4,000 – 6,000 for Neem, 4,000 – 5,000 for Moringa and 70,000 – 100,000 for Grevillea (Tree Seed Handbook of Kenya 2nd Edition, KEFRI, 2004).
2) About 1,000 pots are included in 1kg of them.

Trainings to the CBOs

After the seed distribution, the study team, in cooperation with Forestry Officers and Vi-Agroforestry staffs, started trainings of tree nursery management and forest products utilization to the members of the CBOs. After that, in November and December, the Study Team conducted grafted mango trainings to these CBOs with necessary materials such as rootstocks, scions, etc. In total 15 days and 240 participant-day (130M, 110F) of the trainings were carried out.

Table 2.3.4 Trainings conducted to the CBOs

District	Group	Tree Nursery Management	Forest Products Utilization	Grafted mango
Nyando	Nyarande Youth Group	O	O	
	Kajimbo Orphans Youth Group	O	O	O
	Kabongo Yaw Patch Orphans & Widows Group	O	O	O
Homa Bay	Aora Ogolla Women Group	O		
	Kowili Greenbelt Network	O		
	Daro Kech Women Group	O		
	Oponono Women Group	O		O
	Ngutu Women Group	O		O

Training of Tree Nursery Management, Kajimbo Orphans Y/G

Training of Tree Nursery Management, Aora Ogora W/G

The post evaluation survey was carried out on 6 random samples out of 14 participants for Kabongo Yaw Pachi O&W Group and 5 out of 13 for Nyarande Youth Group. The purpose of the post evaluation was to share the responses from the participants, so that we could refine the training topics and the process of the Pilot Programme. The main findings were:

- The participants' satisfaction was very high in most cases. This high satisfaction may have come from the fact that most participants had already experienced tree nursery management, implying that it was not too difficult to understand what was demonstrated and worked as a refresher course to what they knew.
- According to the results, we can see that the participants were very much interested in medicinal plants as well as plants which can generate income. Since local diseases are prevalent especially in lower part of Upper Nyakach where Nyarande Youth Group is situated, participants seemed to promote medicinal plants. As well, hit by high level of poverty, they were interested in IGAs for they liked to have tree species which can generate income., etc.

The CBOs sowed most of the seeds right after receiving them in June 2006; some are into seedbeds and others are directly into seedling pots. However, the germination rate of the Moringa seeds, in total 2,500g, was very poor while that of the Neem was fair. Therefore, the Study Team distributed additional Moringa seeds of 2,600g to the CBOs in July and August 2006. Fortunately, the 2nd batch of the Moringa seeds germinated very well.

Production of the Seedlings

In both of the Districts, most seeds were sown in seedbeds first, and then transplanted in plastic tubes when they had grown large enough. In Nyando District, most seedlings have survived after the transplantation in the tubes, since all the nurseries have neighbouring permanent water sources. In Homa Bay District, on the other hand, about one third of them have died because most of the nurseries have seasonal water source only. The target CBOs produced 18,030 seedlings in total, which includes 5,450 Neem (1,950 in Nyando and 3,500 in Homa Bay), 8,130 Moringa (1,430 in Nyando and 6,700 in Homa Bay) and 4,450 Grevillea (1,800 in Nyando and 2,650 in Homa Bay).

Preparation of Seedling Pots, Nyarande Youth Group

Extended Tree Nursery, Kobongo Y/P O&W Group

Sale of the Seedlings

By the end of December 2006, in total 700, 970 and 1,175 of Neem, Moringa and Grevillea seedlings were sold respectively. Most seedlings were sold to neighbouring community members except for Moringa seedlings of Nyarande Youth Group, which were sold to the people in Rachuonyo District. The members of the groups introduced community members these trees at chief's barazas, schools, market, etc. to promote sale.

In Nyando District 255, 420 and 925 of them were sold respectively. The difference of the sale among species is due to that of popularity in the area. Grevillea, for example, has been well known as timber tree in the District so the number of sale was the biggest while the other two species are comparatively new and the sale was small. In the area of Kobongo Yaw Patch Group, however, Neem is well known as multipurpose medicinal tree because radio has been broadcasting the information about it, so the group managed to sell 150 Neem seedlings. Similarly, Moringa is well known as nutritious food and medicine in Rachuonyo District. Therefore, Nyarande Youth Group, which is located in the border between Nyando and Rachuonyo Districts, sold 400 of Moringa seedlings.

A Client buys seedlings, Kobongo Y/P O&W Group

In Homa Bay District, on the other hand, 445, 550 and 250 of Neem, Moringa and Grevillea seedlings were sold respectively. Concerning Neem and Moringa, the total number of the sale was not so different from that of in Nyando District. Oponono Women Group alone sold 290 and 450 of Neem and Moringa, which accounts for 65% and 82 % of total sale of the five tree nurseries. It is because the chairlady of the group is clan elder, so she managed to promote these trees effectively. Grevillea, however, were not sold well like in Nyando District because the people in the area do not know this tree so much.

Planting Trees in Private and Public Lands

In total 3,697 tree seedlings, 1,205 Moringa, 958 Neem and 1,534 Grevillea, were planted in private

and public lands such as farms, school, churches, etc. In Nyando District, 218 Neem, 100 Moringa and 234 Grevillea seedlings were planted. Nyarande Youth Group alone accounts for more than 90 % of them. They planted 100 each of both Neem and Moringa seedlings in three nearby schools free, and 300 each of all the three species in their own farms. Although the other two groups grow the seedlings for income generation only, they started to plant a few trees in public lands after the project started.

In Homa Bay District, 740 Neem, 1,105 Moringa and 1,300 Grevillea seedlings were planted. Two groups, Aora Ogora Women Group and Kowili Greenbelt Network, account for more than 90% of them. Aora Ogora Women Group, although they mainly produce the seedlings for income generation, planted 80 each of all the three species in two schools and a chief's camp free, and 400 each of the three in their own farms. Kowili Greenbelt Network, which is the only group producing tree seedlings mainly for free distribution, planted 240, 600 and 600 of Neem, Moringa and Grevillea seedlings respectively in schools, churches, orphanages, etc.

Grafted Mangoes

The Study Team and Forestry Officers started preparing top worked grafted mangoes for demonstration in June. Forestry Officers, however, were not familiar with fruits trees like mango, so only a few of the grafted have succeeded. Therefore, the Study Team looked for another trainer and found a progressive fruits farmer in Homa Bay Town, who had experience in mango grafting. The farmer has attended fruits production training of GTZ and been spreading his skills to neighbouring people.

In November and December 2006, the Study Team and the farmer conducted grafted mango training and provided four CBOs some necessary materials such as rootstocks, scions, pruning scissors, etc. When the Study Team visited these CBOs in January and February 2007, however, more than half of the mangoes grafted during the training had been already died. According to the trainer, the survival rates of grafted mangoes by trainees are normally low so it will improve if they get more experience.

Training of Grafted Mango, Kobongo Y/P O&W Group

Grafted Mango Seedlings, Kobongo Y/P O&W Group

2.3.5. Issues Arisen and Lessons

The Study Team firstly purchased the seeds from the Seed Centre of Kenya Forestry Research Institute (KEFRI) in Nairobi, which is regarded as one of the best seed supplier in the country. However, almost all of Moringa and some of Grevillea seeds did not germinate while most of Neem did. Accordingly, the Study Team bought additional Moringa seeds at Moringa Research Agency in

Homa Bay and distributed them to the nurseries, which germinated well later. It means that even a large seed supplier, which normally sells high quality seeds, sometimes sells low grade ones. We must keep in mind the necessity to confirm their origin, date of yield, condition of storage, etc.

On the other hand, Neem seemed to have achieved high germination rate. Their growth, however, are generally poor and some of them have been dying after the transplantation in the pots. Although it is difficult to identify the causes in one trial, it is inferred that physiological characters of the seeds did not suit the climate condition in the area. Therefore, it is recommended that we should select the seeds from the area of similar climate to the target area if possible.

Tree seedlings normally spend long period, from a few months to more than one year, until they become large enough to be transplanted in the field. In the beginning of the rainy seasons, around October or March, people normally transplant them to the field. In other words, the seedling production activities go on in both of dry and rainy seasons, that is, throughout the year. Therefore, the tree nurseries should be located on near perennial water source. In fact, a half of the eight CBOs do not have access to permanent water source near the nurseries; they have been occasionally facing with the difficulty in getting water. On the other hand, the other four CBOs are situated on near perennial water sources such as large rivers and boreholes.

In most target CBOs membership has doubled and commitment of the members improved since the project started. As a result, even some small dormant groups, e.g. Kajimbo Orphans Youth Group and Kabongo Yaw Patch Orphans and Widows Group, have extended their tree nurseries on a large scale and become one of the largest tree nurseries in the District.

Most community members do not have easy access to the tree nurseries of the government, which are located in centres of the Divisions, so the nurseries of the CBOs are important tree seedling sources for the people in most rural areas. It is to be desired that there is at least one active tree nursery in one sub-location. For that purpose it is recommended to support potential CBOs, regardless of their present scale, to be centres of tree seedling production in the community. Although most CBOs produce the seedlings mainly as a part of income generation activities, they actually plant them in public lands free, e.g. schools, churches, etc.

In both of the Districts, human and financial resources of Forestry Department are limited. As a result, the officers normally do not visit the tree nurseries of CBOs frequently. It is unrealistic that Forestry Department supports and follows up many CBOs by themselves. Therefore, the extension strategy, which is effective with a few extension officers, is necessary to be developed. It is recommended, for example, to strengthen the collaboration with other Ministries and NGOs, e.g. the Ministry of Agriculture, Vi-Agroforestry, etc. and to develop the capacities of support staffs of Divisional Forestry Offices, who are not performing well because of light duty. Different extension approaches also need to be adopted according to the popularity level of the trees in the area.

2.4 Human Resource-led Cottage Industry Programme (Training Provision)

2.4.1 Rationale

An essential condition for endogenous development is existence of leaders. Leadership can be defined as a process of influencing people to be motivated and act themselves to achieve the objectives of the group. Leadership is important than power, because it works to motivate people to contribute and act by their own initiative. In Japanese regional societies, which have been endogenously developed, we could find leaders who took the role of leadership as defined above, unlike the ones who bring public investment from the central government by power.

In the Study District, there are communities who initiated their actions without any external assistance. These communities and the people around them can be the core of the endogenous development of the area. It is hence assumed that providing opportunity of learning to these leaders and active people in small-scale business would bring some synergy effects to the community such that capacity building of the leaders and the active people will influence other community members to take action toward endogenous development.

This pilot programme is formulated under the development approach of "We get good income", which was identified as the first priority in Nyando District and the third priority in Homa Bay District. In the draft development programme, the stakeholders in Nyando and Homa Bay Districts identified the strategies to achieve the approach of "We get good income" as "We can find job opportunities" and "We have business activities" respectively. Under these strategies, small-scale entrepreneurs development programme is formulated. The pilot takes the initial action to it as providing the opportunity of learning, namely assisting community leaders and active people to attend training courses on small-scale business.

2.4.2 Objectives

The objectives of the pilot are:

1. Potential leaders of the communities are trained for any skills available to learn in Kenya, and
2. The potential leaders disseminate the skills learned by the trainings to the community members

It is expected that the leaders disseminate the skills to the community members and start taking action with them to improve their livelihood.

2.4.3 Major Planned Activities

The pilot specific workshops on Human Resource-led Cottage Industry Improvement Programme were held with the representatives of the communities, where the Study had held the community workshops from August to October 2005. Each workshop for Nyando and Homa Bay was held with two rounds.

First Round Workshop: Participants were two representatives each from five and six communities in Nyando and Homa Bay respectively. These two representatives were the one who was elected as the representative to attend district level workshop in 2005 and the other who was the runner-up at the election.

Second Round Workshop: Participants were four each from five and six communities in Nyando and Homa Bay respectively. The participants of the first round went back to their communities and selected another two participants. The first round

participants were not necessarily the ones for the second round workshop, but as a result, all the participants of the first round came to the second round, as well.

Following are the objectives, venue, participants and programme of the workshop:

Workshop Programme for Pilot Preparation

Site	Nyando	Homa Bay
Date	Feb 3 and Feb 10, 2006	Feb 20 and Feb 28, 2006
Venue	Multi Purpose Training Institute, Ahero	Farmers Training Center, Homa Bay
Program 1st Round	1. Introduction and opening 2. Presentation of the Draft District Development Programme and Pilot Programme 3. Review of the community workshop 4. Pre-discussion of trainings to take 5. Discussion on criteria to select community representatives 6. Closing	
2nd Round	1. Feedback from the communities on how they selected all the representatives 2. Feedback from the Team on the trainings requested at the 1st round workshop 3. Explanation on the Institution of and available trainings in KIRDI 4. Identification of priority trainings by individuals 5. Confirmation of schedule 6. Closing	

Through the workshops, 44 community representatives expressed their interests and the Study Team inquired about available training courses to meet their interests in Kenya. Then the community representatives identified their priorities of the training courses they wish to attend. Then the schedule of the pilot activity was confirmed among the participants at the end of the workshops. It was scheduled that the trainings would be administered from June to August 2006 and at the end of the trainings, the participants were to prepare their own action plan and start their activities on their own. The Study Team only finances the cost for the trainings. Table 2.4.1 shows the schedule of activities:

Table 2.4.1 Schedule of Activities

Activity	Time	Remark
1. Conduct training	Late June to August 2006.	Conducted by the above respective institutions
2. Action plan preparation	At the end of the training courses	
3. Monitoring	From August 2006	JICA Study Team goes around the villages.
4. Evaluation	February 2007	Those who attended the training courses are invited to the workshop

2.4.4 Implementation Process and Achievement

1) Administration of Trainings

In late May 2006, when the Study commenced implementing the pilot programme, the Team went around the communities to confirm their interest of the training once again with the list of available trainings. Then some community representatives changed their training courses to the other within the list. Final decision of the representatives on training courses was made by mid June and then the trainings started with beekeeping and fish preservation & processing from late June. The last training

courses on fruit & vegetable processing and grain processing were administered in late July and ended at the beginning of August. Table 2.4.2 shows the summary of the trainings carried out:

Table 2.4.2 Summary of the Trainings Carried Out

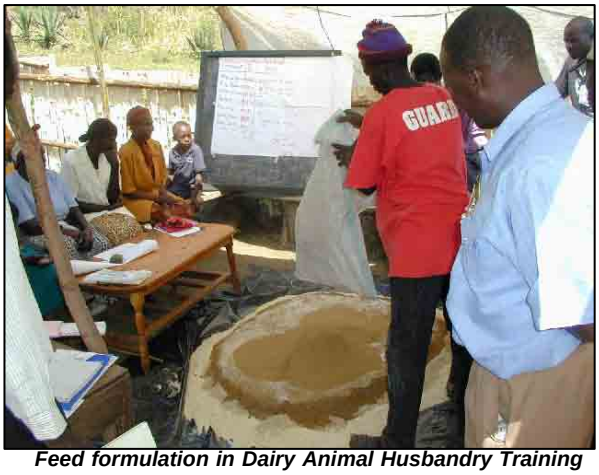
Training Courses	Provider	Period	Community Representatives (M:male, F:female)		
			Nyando	Homa Bay	Total
Baking Technology	KIRDI[1)]	Jul 17 – 22 & Jul 24 – 29	3 (0M, 3F)	11 (6M, 5F)	14 (6M, 8F)
Fruit & Vegetable Processing	KIRDI	Jul 31 – Aug 5	6 (3M, 3F)	2 (0M, 2F)	8 (3M, 5F)
Milk Processing	KIRDI	Jul 10 – Jul 15	4 (4M. 0F)	3 (2M, 1F)	7 (6M, 1F)
Grain Processing	KIRDI	Jul 31 – Aug 5	1 (1M, 0F)	2 (0M, 2F)	3 (1M, 2F)
Poultry Keeping	ATC[2)]	Jul 10 – Jul 15	3 (0M, 3F)	3 (0M, 3F)	6 (0M, 6F)
Dairy Animal Husbandry	Farmers[3)]	Jul 17 – 30	2 (1M, 1F)	2 (2M, 0F)	4 (3M, 1F)
Beekeeping	CBO[4)]	Jun 26 – Jul 7	1 (1M, 0F)	0	1 (1M, 0F)
Fish Preservation & Processing	LBDA[5)]	Jun 26 – Jul 2	0	1 (1M, 0F)	1 (1M, 0F)
Total			20 (10M, 10F)	24 (11M, 13F)	44 (21M, 23F)

1) Kenya Industry & Research Development Institute (Institute under the Ministry of Trade and Industry)
2) Agriculture Training Center (Institute under the Ministry of Agriculture)
3) Mfugo Women Group (Group of Dairy Farmers in Lower Nyakach in Nyando. District/ Divisonal Livestock Officers also supported the training)
4) Kamwa Kadiang'a Self-help Group (They practice apiculture, making & sales of beehives, and training)
5) Lake Basin Development Authority

A lady from Nyando Division
I was chosen as a trainee because I am the secretary of Giko Scheme. Other trainees are the chairman of Giko Scheme, the chairman and treasurer of Siany SS1 Scheme. At the baraza, the chairman asked a lady to be chosen from the scheme. Most of the people do not want to take training if there is no sitting allowance around here because they rely on cash income. I wanted to take training, however, maybe because I have been more exposed. I like voluntary work. I am growing cowpeas, skumawiki, carrots etc. Horticulture is the center of attraction here, and there are a lot of vegetables. That is why all of four trainees chose fruit and vegetable processing training. We need to know how to preserve vegetables to avoid the damage from flooding. I lost some vegetables several weeks ago because of flooding. It was more than one meter deep and I could not even collect some.

Among the eight training courses, dairy animal husbandry course was arranged specially for this pilot programme. The Study Team with the divisional livestock officer in Lower Nyakach contacted an advanced dairy farming group called Mfugo Women Group in Lower Nyakach and asked them to conduct the training. The group developed a training programme with the livestock officer and prepared for the venue of the training and accommodation for trainees in their village. They conducted theory session at the garden of the group member's house and could immediately go into practical with the dairy cows kept there and fodder cultivated on the nearby farm. The district livestock officer also took a session of feed formulation. The livestock officers were encouraged to continue such on-farm training on their own.

Training on Baking Technology at KIRDI



Feed formulation in Dairy Animal Husbandry Training held at a village of advanced dairy farming group

At the last day of each training course, the Study Team conducted a post-evaluation questionnaire to the trainees. It is indicated from the questionnaire that the expectations of the participants for the trainings were met on average 78%. The highest satisfaction with their expectation was found for the second batch of baking technology training (85%), while the lowest was found for grain processing (66%). Figure 2.4.1 on right hand shows the result on the question, "how much is your expectation met?".

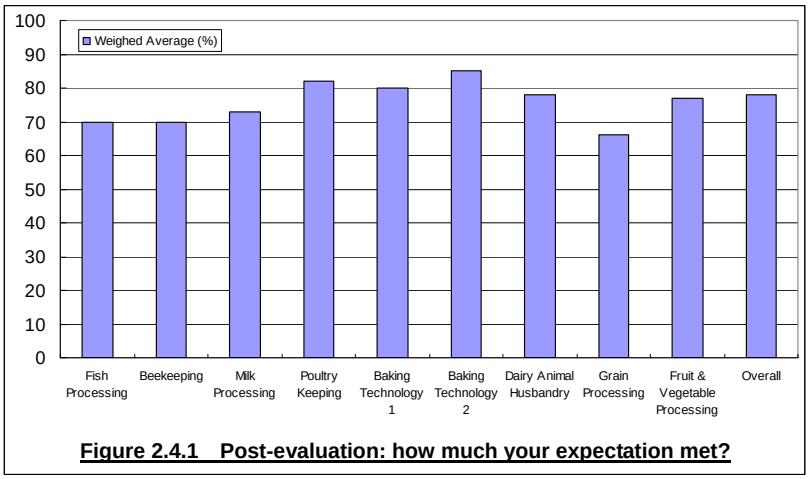


Figure 2.4.1 Post-evaluation: how much your expectation met?

About a question if they found any topics difficult to practice, there were not many of them, which the participants considered difficult to practice. Those topics they thought difficult are butter, ghee, and ice cream making, bread making etc., which in most cases require considerable amount of capital to purchase equipment. It was found from the questionnaire that those who attended milk processing, which includes butter, ghee and ice cream making, strongly raised the issue of capital.

Also at the last day of each training course, the Study Team facilitated a session of preparing individual action plan, which consists of detail activities, period of implementation, necessary inputs, ways of acquiring the inputs and the target. All the community representatives were supposed to start their activities immediately after they went back to their villages and the Study Team did not give any more inputs to them.

2) Post-training Activity by the Community Representatives

From mid August, the Study Team has started going around the villages to monitor their progress and also all the trainees presented their progress as at the end of January 2007. Following tables summarize the progress of each trainee:

Table 2.4.3 Status 1: Komolo Village, Miwani Division, Nyando District

No.	Rep.		Training	Status
	Sex	Age		
1	F	28	Poultry	She has got 15 chickens so far. Death rate of the chicken has drastically decreased since she came back from the training. At the committee meeting, she talked about how to construct a chicken house with local materials. A widow group she belongs started constructing poultry unit. She has now a lot of eggs to sell.
2	F	48	Poultry	She has got 6 pullets so far. She also trained neighbors in her house on poultry housing and food habitats. She started building a poultry unit. She has been teaching community and Kobwa women group built their poultry unit and keeps 12 hens. She also taught them how to vaccinate hens.
3	M	57	Milk Processing	He started communicating with welfare steering committee of Komolo Development Society to start milk kiosk. They have not got enough resource to start the business, meanwhile he is selling milk and earning net income of Ksh200 per day.
4	M	58	Fruit & Veg. P.	He has taught his group (Komolo) on jam making. About 20 people learned from him. He has not started his project yet due to insufficient budget.

Table 2.4.4 Status 2: Kakola Village, Nyando Division, Nyando District

No.	Rep.		Training	Status
	Sex	Age		
1	F	26	Fruit & Veg. P.	She has not done anything yet.
2	F	32	Fruit & Veg. P.	She made guava jam, tomato jam and peanuts cream for home consumption and is making orange juice, avocado juice to sell mainly to a school. She gets Ksh4,000 per month as gross income and Ksh3,000 as net profit.
3	M	55	Fruit & Veg. P.	He has made avocado juice for his family. He has not tried other fruits since they cost higher than avocados. He has talked to clan members and is arranging group work.
4	M	66	Fruit & Veg. P.	He has not done anything yet.

Table 2.4.5 Status 3: Ruke Village, Muhoroni Division, Nyando District

No.	Rep.		Training	Status
	Sex	Age		
1	F	24	Dairy Animal	As a group, unit for a cow has been made and the village representative also provided a calf. She bought 1 cross breed cow at Ksh8,000 and it produces 6 liters per day. She has taught 4 neighbors about importance of dairy cow.
2	F	35	Frui & Veg. P.	She has been making orange juice for family consumption, but not for business.
3	M	40	Milk Processing	He with his group presented a proposal of milk processing project to CDF committee but it was not accepted, so the activity has not taken place.
4	M	56	Beekeeping	He called a meeting with a women group and talked about beekeeping. He bought 1 KTB hive at Ksh800. He has been going around and teaching people in the community on how to stay with bees.

Table 2.4.6 Status 4: Kamgwa Village, Lower Nyakach Division, Nyando District

No.	Rep.		Training	Status
	Sex	Age		
1	F	26	Baking Tech.	She trained 20 people on baking in December. She has been selling mandazi three times a week at Sondu market since August 2006. She bakes 4 – 5 packets (160 – 200 pieces) per day. She gets a profit of Ksh1,000 on a good week.
2	F	42	Poultry	What she learned was almost new to her. She taught several people on how to construct poultry unit She has prepared all the materials for her own poultry unit and start constructing it after rainy season. She has got 12 chicks, 2 pullets and 2 cocks.
3	M	61	Milk Processing	He has talked 5 times at baraza and taught 3 groups. He is selling 10 - 30 liters of milk per day at Ksh30 per liter (gross income of Ksh300-Ksh900 per day).
4	M	62	Grain Processing.	He talked about what he learned at Chief's baraza and taught groups on how to make porridge. He is selling mixed flour porridge for children. He sell 1 packet of porridge at Ksh25 and sold 182 on one week (sales Ksh4,550 – cost Ksh3,000 = Net Ksh1,550).

Table 2.4.7 Status 5: Bwanga Village, Upper Nyakach Division, Nyando District

No.	Rep.		Training	Status
	Sex	Age		
1	F	45	Baking Tech.	She talked to the community about what she learned. She made a baking group with 15 members. She bought an oven in late December 2006 at ksh18,000 made by jua kali. She tested baking cake but has not started business due to lack of weighing machine.
2	F	46	Baking Tech.	She has baked for her family. She assembled 18 people and is communicating with group leaders to make oven. She has been hired by her church to make mandazi for 2 times.
3	M	55	Dairy Animal	He has planted 1 acre of napier grass and a cattle shed is under construction. He has sent some youths to the dairy farmer he was trained for training.
4	M	61	Milk Processing	He improved his livestock feed for better milk and planted 100 pawpaw trees and 8 avocado trees for making yogurt and mala. He also bought cans (20liters and 50 liters), 2pots, a pan and stove for boiling milk. He talked to the community people in school meeting and baraza. About 6 people followed him and planted napier grass for cattle. He records all the dairy farmers in the village for milk collection. He has not started practice yet.

Table 2.4.8 Status 6: Ngegu Beach, Rangwe Division, Homa Bay District

No.	Rep.		Training	Status
	Sex	Age		
1	F	26	Baking Tech.	She did bakery demonstration and nine people came. She heard that there is a woman who has inexpensive oven, so she went to learn it and made hers at Ksh4,000. She bakes 12 packs (144 pieces) of cake and sell at Ksh50/pack. She gets a profit of Ksh150 out of 12 packs.
2	F	30	Milk Processing	She invited 10 mothers and shared what she learned. She made mala for two weeks in September but stopped due to giving birth. She also learned from the man who went to fish preservation and processing training on how to cut fishes and engaged in fish trading.
3	F	39	Fruit & Veg. P.	She started juice processing and selling at the center. She communicated with neighbors for group activity. She started cooperating with a woman who has a Kiosk with refrigerator and selling fruit juices. She can sell 10 liters per day depending on weather and gets net profit of Ksh350 per day.
4	M	34	Fish Processing	He carried out experience sharing with more than 30 fishmongers on fish preservation, simple smoking, deep fry, etc. He also made a demonstration kiln.

Table 2.4.9 Status 7: Kogelo Kalanya Village, Asego Division, Homa Bay District

No.	Rep.		Training	Status
	Sex	Age		
1	F	19	Baking Tech.	She has been baking mandazi and cakes. She met with groups to discuss how to have a bakery in the community. She went around shops and some shops accepted her products. She gets a profit on Ksh250 per day for mandazi and Ksh150 for cake. She eanred a profit of Ksh5,000 in one month.
2	F	25	Baking Tech.	She has been baking mandazi and cakes. She shared her experience through group meeting.
3	M	31	Baking Tech.	He has baked mandazi and chapatti at home and done bakery hygiene practice.
4	M	32	Baking Tech.	He baked mandazi and doughnuts. He taught neighbors on how to bake bread.

Table 2.4.10 Status 8: Murram Village, Riana Division, Homa Bay District

No.	Rep.		Training	Status
	Sex	Age		
1	F	38	Grain Processing	She planted sorghum in 1/4 acre and maize in one acre. She trained clan members on bulking of sorghum and maize. She has not done the processing yet due to lack of equipment.
2	F	-	Poultry	She organized Konyri Kendi Konyango Poultry Group with 15 members. They raised a fund of Ksh15,000 and improvised an empty house to poultry unit. They have already sold more than 100 chickens they grew at Ksh200 per head. Therefore, they have already collected their investment cost.
3	M	43	Dairy Animal	He has purchased materials for cow unit and made feed troughs for a cow. He has also planted napiar grass and other fodder crops. He get 4liters per day of milk and sell 2 liters per day at Ksh30/liter. He has been giving animal health services to community and collected names of 20 farmers who are ready to get intensive training.
4	M	52	Milk Processing	He formed a group with 12 members and registered with the Social Services They have been submitting proposals to several institutions to get capital to start the business.

Table 2.4.11 Status 9: Okok Village, Ndhiwa Division, Homa Bay District

No.	Rep.		Training	Status
	Sex	Age		
1	F	40	Grain Processing	He met two groups (CBO) for collaboration. He taught 40 people on grain processing.
2	F	57	Poultry	She made poultry house. She got 8 pullets and ordered grade cocks. She has encouraged 2 community groups (ORDA and Kanyobado Women Group) to start pultry keeping. 2 farmers have got cocks and 5 farmers prepared poultry units.
3	M	-	Dairy Animal	He has established fodder (napier, sesbania, etc.). He has talked to some villagers to form a group to get dairy cow, but the activity is not started yet. He has taught ORDA group on fodder establishment and helped 5 members to get upgraded cows.
4	M	32	Milk Processing	He started dairy society group. He is engaged in milk trading, but has not started processing due to lack of materials.

Table 2.4.12 Status 10: Otange Village, Nyarongi Division, Homa Bay District

No.	Rep.		Training	Status
	Sex	Age		
1	F	30	Fruit & Veg. P.	She found that fruit & vegetable processing is somehow involving and difficult to practice. So she learned baking from others who went to baking training and joined their group. As a group, they contributed Ksh200 to feed people with baking products at chief baraza.
2	F	25	Baking Tech.	She is baking cakes for family and sale in small amount. She earns net profit of Ksh520 per month. With other 3 who attended the trainings, they taught a women group on baking.
3	M	31	Baking Tech.	He has bought an ordinary jiko and baked for family consumption.
4	M	40	Baking Tech.	He has ordered jiko to bake.

Table 2.4.13 Status 11: Oriang Village, Kobama Division, Homa Bay District

No.	Rep.		Training	Status
	Sex	Age		
1	F	24	Baking Tech.	The three bought an oven and started business together. Because the price of ingredients got high, they suspended baking in December and started again late January 2007. Thye used jaggary instead of factory made sugar and utilized local material like sweet potatoes. On one week they sold 144 pieces at ksh10 and got net profit of Ksg760 in 2 days (for three members).
2	M	32	Baking Tech.	
3	M	36	Baking Tech.	
4	F	28	Poultry	She made a poultry unit for 6 hens and 1 cock and vaccinated tthem.

Following are the significant activities being practiced by some of the trainees:

Baking Technology

Baking technology was the most successful training course regarding the post-activities of the trainees. Here we report some of the successful activities of people who attended baking technology:

Asego Division, Homa Bay

A lady in Kogelo Kalanya Village in Asego Division formed two groups: one for mandazi and the other for cakes in September 2006 after she returned from the baking training. There are 20 members for mandazi group and 30 for cake group, which has been registered with Social Services Office as a CBO named Rangwena Bridge Women Group. The mandazi group produces 12 packs (144 pieces) per day and the cake group bakes 4 pieces per day. They get a profit of Ksh200 per day for mandazi and Ksh130 pr day for cake. According to her, demand for cakes is high in Homa Bay town, so the group is saving to purchase an oven for the future. She has been invited to wedding ceremonies to bake cake since she started the business. She feels very happy about it. During the evaluation workshop held in February 2007, some best performers were chosen by the 44 trainees and she was chosen as the third best performer.

Rangwe Division, Homa Bay

A lady from Ngegu beach in Rangwe Division started baking. She learned about jua kali made oven by a person and made her oven as a cost of Ksh4,000. Then she started baking cakes using tins cut half. She has been selling cakes nearby kiosks. She bakes 12 packs (144 pieces) of cake and sells at Ksh50/pack. She gets a profit of Ksh150 out of 12 packs. A pack contains a dozen pieces Kiosk owner sells Ksh5 per piece, hence the owner can get profit of Ksh10 per pack. During the evaluation workshop, she was chosen as the second best performer among the 44 trainees.

Lady who got jua kali oven for baking cake

Kobama Division, Homa Bay

From Oriang Village, Kobama Division in Homa Bay District a woman and two men attended the baking technology training. After the training, these three people jointly invested in purchasing an oven (charcoal is the energy) for bakery business, which cost Ksh15,000 (they paid Ksh3,000 each and borrowed the balance from the villagers). They brought the oven from Nairobi and started off on August 25. They placed the oven at the center of the village so that they can demonstrate how to bake for other villagers. They started selling bread and cakes at the market along the tarmac road (Ratanga center). At the training in KIRDI, the trainer was teaching how to improvise the ordinary charcoal used oven for baking in case of difficulty to get the proper oven, but the Oriang people went ahead of it.

They were baking 50 loafs per day and 30 buns per day and selling at Ksh25/loaf (400g) and Ksh10/loaf (200g) and Ksh5/piece (buns), but from mid November the prices of ingredients rised so that their business has been affected. They have been suspending the baking since December 2006. Price of sugar went up from 60Ksh/kg to 100ksh/kg and oil from 185Ksh to 250Ksh. They do not want to increase the price because of competition, so they are trying to improvise the ingredients to reduce the cost, e.g. buying jaggary, which is cheaper than sugar (Ksh50/kg).

Baking at Oriang Village

Their profit was Ksh6,300 in September, Ksh4,500 in October, Ksh2,500 in November and then in December they stopped. A new secondary school has been opened (Badi Secondary school). They expect that the school will be their good customer.

Lower Nyakach Division

She has not got an oven yet, but she frys mandazi. She started selling mandazi three times a week at Sondu market since August 2006 after she came back from the training. Market days at Sondu are on Wednesday, Friday and Monday, so that she bakes mandazi on Tuesday, Thursday and Sunday. She sells mandaj at Ksh5 and total sales are Ksh600 on a bad day and Ksh1,000 on a good day or Ksh3,000 per good week. Cost for mandazi ingredients is Ksh2,000, so that she can make a profit of Ksh1,000 in a good week. With the technology she learned from the training at KIRDI, she can make a ditinguished mandazi in ways of shape, softness, and taste (see the photo on right hand).

Mandazi made by a lady trainee

There is a bakery group in her nighbor and she has given training for 20 people in the group from 10AM to 5PM on 23 December 2006. Now she has connection with the group and they are often comunicating each other.

Fruit & Vegetable Processing

A lady of Kakola Village, Nyando Division, Nyando District attended the fruit & vegetable processing course and was chosen as the best performer at the evaluation workshop. Her story is as follows: after training she looked for money. She ploughed 0.25 acre of her farm. She planted kales, chili and


Homemade Peanuts and Tomato Jams

some other local vegetables. She got Ksh1,000 from the sales of kales, though heavy rains swept away her vegetables. With the money she earned she started making orange juice then sold at the near by schools. Most pupils never liked the orange juice. Then she started buying and making avocado juice. In one month she had made Ksh4000 and a profit of Ksh3,000. When the schools have resumed after the school holiday, she started making mango juice because it was mango season. Expenditure for the juice takes Ksh2,000 per month and its profit is Ksh1,190 per month.

Milk Processing

A man who attended the milk processing training from Marumm village, Riana Division, Homa Bay District spoke about what he learned from the training course at the assistant chief baraza (general meeting) to the community people in mid August and asked those who were interested in joining him to form a group for milk processing business. He had tried to have community meeting with those interested. However, turnout was very low. But he did not give up and by the beginning of September, he managed to get nine people to start the group. They have registered his group with the Social Services Department as CBO in September 2006. He says that the required initial investment for milk processing is so high that it will take time to get equipment. He has also been communicating with the trainer at KIRDI, and Kenya Dairy Board to get further advice, and also made good relationship with the district health department to deal with the business.

Poultry Keeping


Improvised Poultry Unit

A lady in Marumm Village, Riana Division in Homa Bay organized and chaired a group called Konyri Kendi Konyango Poultry Group with 15 members after she returned from the poultry training course. Among them 3 women have also attended the poultry trainings conducted by the other pilot programme, namely center-based livelihood improvement programme. Their target is to install a poultry unit in each house of the members to keep chickens in it unlike leaving them free run of their houses.

They collected Ksh1,000 each or in total Ksh15,000 and procured necessary inputs such as wires, chicken feed, and medicines. Then they improvised an empty house left at the garden of the chairlady's house into a poultry unit and all the members brought chicks to the unit. They have been selling grown chicken at Ksh200 per head and have already sold more than 100 heads or earned Ksh20,000 as of December 2006. That means they have already recovered their initial investment. They had 240 chickens as at December.

When they keep chickens out of the unit, the growth of chicken is slow and the survival ratio becomes very low due to predators, difficulty in vaccination etc. The group has drastically improved survival ratio and been making profits. The chairlady has been also trained as a community health worker (CHW) through other pilot programme, outreach oriented community health improvement programme. A demonstration farm has been established in her place trough the center-based livelihood improvement proramme, as well. The lady is running jaggary business and therefore, she should have sense of business administration and is considered as a lead farmer in the area.

Dairy Animal Husbandry

A man who attended the dairy animal husbandry training in Marrumm village, Riana Division in Homa Bay has been keeping an upgraded zebu and also a dairy goat. Applying the technologies of animal husbandry including napier grass and other fodder crop cultivation, which he learned from the training, he managed to increase the milk production from 2 liters per day to 4 liters per day. He told the Team that he was impressed with the advanced dairy farmers who trained him as they generate income though they live in rocky hills where crop harvest is poor. He was also trained for animal health by Livestock department in Homa Bay and now he is giving animal health services to the community people. According to him, he was selected for the trainee because he had already got some skills of animal husbandry from the pilot programme. At the evaluation workshop, he won the fourth position of the best performers among the trainees.

Fish Preservation & Processing

A man from Ngegu beach in Homa Bay attended fish preservation and processing course at the Lake Basin Development Authority (LBDA) in Kisumu and the Study Team visited him at his fishing beach called Ngegu. He himself is a fisherman owning a boat. His action plan after the training was capacity building of fishmongers. According to him, he started sharing his experience at LBDA with fishmongers coming for their business at Ngegu beach. He has been voluntarily conducting his activity twice per week since he came back from the training. He has been so far teaching 25 fishmongers on how to keep fish fresh for longer time.

He took us to a woman who was in the beach at that time of the interview and showed how the woman is putting the fish in a tub. The heads of fish were all pointed upward. He explained that the way of putting fish as its head up enables to keep fish in good condition longer as: decay of fish starts from gills and if fish is placed with the head down, liquid in the organs comes to the gills, so that decay process is enhanced. He also explained that touching gills of a fish accelerate the decay. He explained all those things with some technical terms as if he memorized any single word he learned from the training.

Teaching fishmonger how to preserve fish

In the post evaluation questionnaire for the training, he was answering that fish preservation using salt was a new idea for him. However, he has not tried to do it yet, because there are not much fish catch at current season, so that all the fish caught were sold out fresh. He is also planning to construct a kiln for smoking fish, but since it needs capital, he estimates it would take time. He did demonstration on simple smoking at the beach in November 2006 and 8 fishmongers attended it. Fishmongers said the smoking process takes time, so that it is better to do at home, so that while smoking, they can do other homework. Also fishmongers said smoking is not suitable for catfish (mud fish), since the fish is oily. His experience sharing with fishmongers is helping them prolong freshness of fish to increase yield and maintain quality, so that they can earn more income than before.

Case in Muhoroni Division

From Ruke village, Muhoroni Division in Nyando District, the four representatives attended different training courses that are dairy animal husbandry, fruit & vegetable processing, milk processing and

beekeeping. There are communities where all the four representatives chose the same topics like fruit & vegetable processing in Kakola village in Nyando Division. They had an intention to start income generation activity as a group. The representatives in Ruke village also discussed as a group and decided to integrate the four trainings. A mother-in-law of a woman who attended the fruit & vegetable processing told the Study Team that they thought of integrating them because it seemed easier to teach other people in that way. It seems that this mother-in-law is somehow coordinating and taking lead in the activities.

As for dairy animal husbandry, they have put up a unit for cow at the compound of the mother-in-law and she offered a calf. They have also planted napier grass for fodder. As of February 2007, the lady who attended the dairy animal husbandry got one cross bred cow, which produces 5 liters of milk per day. She has taught 4 people in the community about animal husbandry. For milk processing, they applied CDF for acquiring equipment but their proposal was not accepted, so the activity has not taken place. For beekeeping, the man who attended the training got one KTB hive himself and has been teaching community people on beekeeping. For fruit and vegetable processing, the lady who undertook the training is only making juice for home consumption.

2.4.5 Evaluation by the Implementers

At the evaluation workshop, the trainees evaluated the importance of the activities in which they were trained. Those who attended the same course formed a group and rated the activities in their field of the cottage industry with point 5 as the highest and 1 as the lowest. Table 2.4.14 summarizes the results of the rating. Each person of the group rated by themselves and the average of the ratings is shown on the table. For fruits & vegetable processing group, they rather focused not on the contents of the training but on the post training activities and gave the highest mark to issue of capital. Other groups like milk production & processing and beekeeping also gave high rates to procurement of equipment / tools. Other groups gave the higher score to the activities according to the experience from their practices, e.g. timing (of baking) in baking technology, breed selection and disease control in animal husbandry, selection of grains in grain processing, poultry unit in poultry keeping.

Table 2.4.14 Self-rating on Importance of Activities in Each Field of the Training

Baking Technology	Mark (1–5)	Fruits & Vegetable Processing	Mark (1–5)	Animal Husbandry/ Feed Processing	Mark (1–5)	Grain Processing	Mark (1–5)
(1) Timing	4.9	(1) Capital	5.0	(1) Breed Selection	5.0	(1) Selection of Grains	5.0
(2) Scaling & Pricing	4.8	(2) Raw Materials	4.6	(1) Disease Control	5.0	(1) Buying	5.0
(2) Marketing	4.8	(2) Workshop (Site Selection)	4.6	(2) Feeding	4.8	(1) Graining	5.0
(3) Acquisition of Equipment & Tools	4.7	(3) Marketing	4.0	(3) Housing	4.0	(2) Selling	2.7
(3) Rationing	4.7	(4) Accounting	3.4	(3) Milking Technique	4.0		
(3) Storage	4.7						
(4) Mixing	4.7						
(5) Selection of Materials	4.6						
(6) Baking	4.5						
(7) Packaging	4.3						
Poultry Keeping	**Mark (1–5)**	**Milk Production & Processing**	**Mark (1–5)**	**Beekeeping/ Honey Processing**	**Mark (1–5)**	**Fish Processing**	**Mark (1–5)**
(1) Poultry Unit	4.4	(1) Acquisition of Equipment	4.6	(1) Procurement of Bee Suit	5.0	(1) Smoking	5.0
(2) Seeding in General	4.2	(2) Owing Dairy Cows/Goats	4.4	(1) Tools of Harvest	5.0	(2) Deep Frying	4.0
(2) Disease Control of Poultry	4.2	(3) Site Selection	3.9	(1) Grading of Honey	5.0	(2) Sun Drying	4.0
(2) Selection of Birds	4.2	(4) Legal Aspects	3.7	(2) Harvest of Honey	4.0	(2) Chilling	4.0
(3) Economic Poultry Farming	4.0	(5) Milk Processing & Marketing	3.4			(2) Freezing	4.0
(3) Record Keeping	4.0					(3) Salt Wring	3.0
(4) Poultry Equipment	3.8						

As plenary session at the evaluation workshop, the trainee participants evaluated the pilot programme as a whole from the viewpoint of project performance, namely efficiency, effectiveness, impact, relevance and sustainability. For the project performance, the participants gave high marks in relevance, efficiency and sustainability. In relation to relevance, however, few trainees said after all that they wished to attend other training courses. Effectiveness and impacts were given relatively lower marks. They said because; they need enough capital, profit margin is small, it is too early to see the impact, etc.

They also evaluated the pilot from the formative point of view represented by the indexes of individual changes, group / community changes and networking changes. They rated the highest mark to individual changes and high mark to networking and the lowest to group/ community changes. The reasons for the low mark the participants gave were: products like jam are too luxury to attract community, the trainees cannot give practical messages to the community without tools, community expectation is too high, many people think training is for incentive (allowance) etc. Table 2.4.15 summarizes the evaluation.

Table 2.4.15 Project performance Index and Formative (Development) Index

1. Project Performance Index (05/02/2007)	Mark (1-5)	Total points	Number of Votes for Marking (1-5)						Remarks
			5	4	3	2	1	Total	
(1) Efficiency	**4.9**	210	**38**	5	0	0	0	43	
(2) Effectiveness	**4.1**	178	11	**27**	5	0	0	43	Need enough capital. Profit margin is small (Baking). Natural disaster.
(3) Impact	**4.0**	174	12	**21**	10	0	0	43	Effectiveness is not high. Attitude of community is not favorable. It is too early to see the impact (time factor). Scale of baking business is too small.
(4) Relevance	**5.0**	213	**41**	2	0	0	0	43	One male trainee said he wishes he had taken animal husbandry / feed processing training rather than fruits and vegetable processing. Another female trainee said she wishes she had taken baking technology rather than fruits and vegetable processing.
(5) Sustainability	**4.8**	208	**36**	7	0	0	0	43	
2. Development Index (05/02/2007)	Mark (1-5)	Total points	Number of Votes for Marking (1-5)						Remarks
			5	4	3	2	1	Total	
(1) Individual	**4.6**	197	**27**	14	2	0	0	43	
(2) Group / Community	**3.1**	133	0	7	**33**	3	0	43	Jam is luxury. We can not send practical message with no tools. People are busy making money. For many community members, training means incentive (allowance).. People do not see immediate gain. Expectation is too high (equipment, fund, subsidies, et
(3) Networking	**4.1**	177	8	**32**	3	0	0	43	

2.4.6 Issues Arisen and Lessons

1) Selection of Community Representatives

One of the issues to implement this pilot programme is how to select community representatives. With limited resources, only four people each from the divisions were picked up to send the training courses in this programme and the pilot should seek the way to amplify the effect of the programme as much as possible. One way to consider is to select right person who will actually implement what he or she learned and shares their knowledge with other community members so that they are also encouraged to join in the activity.

From such viewpoint, the pilot firstly invited two representatives from each community. One is the representative elected by vote at the community workshops to attend the district level workshop the Study carried out in 2005. The other was the runner-up at the election. Since the community people elected them, they could be respected as lead persons in their community. Then to add another two representatives, the Study Team also relied on their way of selecting representatives at

their communities though the Team put some conditions in the selection taking into account the target of the programme, which is to promote cottage industry. The detail of the criteria is shown in the box below and Tables 2.4.16 and 2.4.17 summarize how they selected all the representatives in their communities.

Through the observation of the trainings implemented and field interviews by the Study Team, it seems that the selection of the representatives are fairly well done as many of those who attend the trainings have started the activities immediately after they came back from the training and are positively sharing their experiences with other community members. In Ngegu beach, the people gathered in baraza agreed to appoint women who had made some achievement before and those who only make noise and cannot help others were rejected. It is envisaged that the traditional system, namely baraza organized by area chief and clan elders could work better in selecting right representatives than the selection to be done by the line ministries, i.e. external agencies at least the target is to get the opportunity of learning.

Selection of Community Representatives to Attend Training Courses

At the 1st round workshop in February 2006, the Team asked the two representatives from each division to discuss the criteria for selecting community representatives to attend the trainings. Some of the criteria were given by the Team such as four representatives from each community is maximum, women should be included with at least two or more because they are mostly engaged in small-scale business, etc. The Team asked the participants to discuss this matter with the community members and select the four representatives and come back to the second round of the workshop with all the representatives. Following are the criteria agreed in Nyando and Homa Bay respectively

Criteria agreed in Nyando District

- Basically at community's discretion, but
- Four representatives from each community
- More than or equal to two women should be included.
- Those who have salary or run big business should be excluded.
- Those who can disseminate & initiate actions should be selected, and
- Younger ones would be better.

Criteria agreed in Homa Bay District

- Four representatives from each community
- At least two women should be included.
- Younger would be better (preferably 40 years old and under).
- Those who do not have permanent job should be selected.
- Those who at least understand Kiswahili would be better.
- Those who have keen interest in income generating activities should be selected.

Table 2.4.16 How the Community Selected the Representatives: Nyando District

Division	Village	Selection Process
Muhoroni	Ruke	A member went back to her women group where they selected the participants after sitting together. It is the only strong women group in the area. Then a man was also taken from the youth group.
Miwani	Komolo	After the February third meeting at Ahero, they went back to the village and held a meeting with the five groups. Since two members had come from two groups, preference was given to groups that had not been selected.
L. Nyakach	Kamgwa	They did their selection through the chief's office in the village. They informed the community that they needed two women to accompany since the two males were already in the previous workshops.
U. Nyakach	Bwanga	They had their selection in an open meeting held on February 5th Sunday. They chose the other two representatives from different villages in the area who had not been represented.
Nyando	Kakola	They chose the representatives on the basis of women engaged in small business and farmers who plant vegetables. They have a problem of marketing their vegetables and had to select two women this time to address their issue.

Table 2.4.17 How the Community Selected the Representatives: Homa Bay District

Division	Village	Selection Process
Ndhiwa	Okok	We had meeting on February 21, 2006. There were around 100 attendants in the meeting, out of whom 70 were females and 30 were male. The community identified their interests as dairy farming, millet and sorghum processing, forestry, and bee-keeping Some of community members expect the representatives to have opportunity of learning dairy animal keeping – get enough information, technology so that others can copy. There are around 10 villagers who are interested in bee-keeping. After we identified the interests, we chose our representatives by voting.
Nyarongi	Otange	We had Chief's Baraza. We looked at the gender issue, involvement of the representatives in the community etc. and elected the two women. Our community's interest is to get ideas from the training and take back them to the community.
Kobama	Oriang	The community meeting was held on 23rd February and 60 community members attended it. We had two agendas for the meeting: 1) submission of the record of the first round workshop and 2) election of the two representatives. The election was conducted.
Riana	Murram	Due to the DC's visit we could not have a community meeting, so we went through groups in the community. We asked the groups to chose active person and give their interests. A group called Wakulima gave one name. Two other groups gave one active member who has the interest of the community, but the lady is so occupied with other training and cannot accommodate this programme. So we chose other and by chance wife of a representative was elected (Mutually on good understanding, the wife had to surrender the position on the day of the workshop and the Murram group elected another person).
Rangwe	Ngegu	We held a community meeting on February 21, 2006 and told them to send two representatives. On Friday two groups came with interests of business and Pre-Primary education respectively. They elected three women because women are quite involved in business than men and we have realized that men are mobile (move beach to beach), while women are always in one place.
Asego	K. Kalanya	We had a serious community meeting at Kogelo Primary School on February 24. Attendants were over 60 people. The agenda of the meeting was 1) to report the last workshop (1st round workshop) and 2) to select trainees. We wanted courses to be done by our representatives for the good of the community. We referred to the criteria to select representatives as: willingness and interest in representing the community, gender, somebody married and not a child from that area, age – below 40 years old, availability of time particularly for the community and for the training, literacy level and clan consideration. We elected two women by vote.

2) Relevance of Training Course from Financial Point of View

Through the interviews to the trainees, it was observed that some of the trainees, especially those who attended the milk processing course, were complaining about the high cost of procuring necessary equipment to start the business. Even for the cottage industry level, the milk processing business requires licenses from the Dairy Board and Public Health, which cost Ksh15,000 and Ksh2,000 respectively. Then it still needs another cost for procuring equipment and permission from Kenya Bureau of Standards (KBS). A trainee who attended the milk processing estimated the required capital of Ksh300,000 to start the dairy business. Topics of the milk processing covered by KIRDI include ones, which are good for selling local markets like yogurts and local products called mala, but others seemed beyond capacity of individuals.

Also it was noticed that the financial capacity of the trainees are different. Three trainees for baking technology in Oriang village, Kobama Division managed to contribute Ksh3,000 each but had to borrow the balance of Ksh6,000 from other people to purchase the oven. When a woman in Bwanga Village in Upper Nyakach, who also attended the baking technology training, heard about it, she was encouraged to buy one because she thought it was cheap for her.

Lesson here is that we should more carefully consider the contents of the training if they are possible to implement for the community people with their financial capacity and also study about the financial capacity of trainees before the selection of training courses, otherwise the trainees could be discouraged to take their own initiative and be oriented again to seek external aids.

2.5 Local Key Farmer-led Paddy Cultivation Extension Programme

2.5.1 Rationale

Paddy crop has been prevailing in Kano plain across Nyando District to Kisumu District. Irrigation schemes for paddy crop include NIB (National Irrigation Board) Ahero, South West Kano and other small-scale irrigation schemes. Thirteen farmers in the South West Kano Irrigation Scheme went to Kilimanjaro Agriculture Training Center (KATC) in Tanzania to learn advanced rice crop technologies. They are defined as key farmers and supposed to disseminate the technologies they have learnt. However, the technologies have not been disseminated much, especially to the schemes outside the South West Kano Irrigation Scheme. There is only one government extension officer who also learned in KATC and due to logistics problem, extension of the technologies have been stagnant. Activation of key farmers for the extension work should be considered.

This pilot programme would be a sub-component of "Small-scale Rice Cultivation Improvement Programme", which is formulated under the strategy of "Rice (Cash Crop) Promotion" and the approach of "We get good income" in the draft development programme of Nyando District. Rice cultivation technology improvement will enable to increase of harvest. In the Study area, rice is not grown as staple food but for cash and market channel has been established. Increase of income by rice cultivation improvement can also come from quality improvement such as introducing basmati variety (IR variety is currently dominant and its price is around a half of basmati), farmers' self-hulling before selling unhulled rice to the traders, etc. Among those measures, production increase by technology improvement is the immediate one with available human resources in the Study Area.

2.5.2 Objectives

The objectives of the pilot are:

1. Paddy cultivation techniques of the community are improved through acquiring the techniques from the key farmers who learned them at KATC, and
2. Income of paddy growers increases by adopting the above techniques.

2.5.3 Major Planned Activities

The pilot programme aims at disseminating new rice technology to the farmers in the Study area through local key-farmers who have learnt the new technology in KATC in Tanzania. To conduct this, the pilot administers a classroom type training to rice farmers and establish demonstration farms in the target rice irrigation schemes.

1) Identification of Target Irrigation Scheme

Upon agreement at the workshop with stakeholders in January 2006, Gem Rae Irrigation Scheme located in Lower Nyakach Division was identified as the initial target scheme to implement the programme. The Study Team conducted a field survey for Gem Rae Scheme with Divisional Soil Conservation Officer of Lower Nyakach Division and assessed that it would be better to include the neighboring scheme called Awach Kano for the pilot because the two schemes share the same stream as their water source and also farms located along the main road was thought to belong to Awach Kano, where the demonstration effect is expected high, for people passing by the main road can easily see and approach to the demonstration farm. Later on in June 2006, the paddy fields along the tarmac were found that they belong to Nyachoda Irrigation Scheme in Nyando Division. The target schemes were finally identified as these three sites: Gem Rae in Lower Nyakach Division, and Awach Kano and Nyachoda in Nyando Division. Table 2.5.1 below shows the outline of the schemes and Figure 2.5.1 indicates the location of the three schemes.

Table 2.5.1 Outline of Target Irrigation Schemes

Scheme	Gem Rae	Awach Kano	Nyachoda
Division	Lower Nyakach	Nyando	Nyando
Irrigable Area (ha)	250	200	230
No. of Irrigation Block	14	11	6
No. of Farmers	400	280	387

Source: Gem Rae and Awach Kano: Nyando Irrigation department. The number of farmers in Nyahcoda was obtained from Nyachoda irrigation committee and the area was estimated from the questionnaire survey by the Study Team.

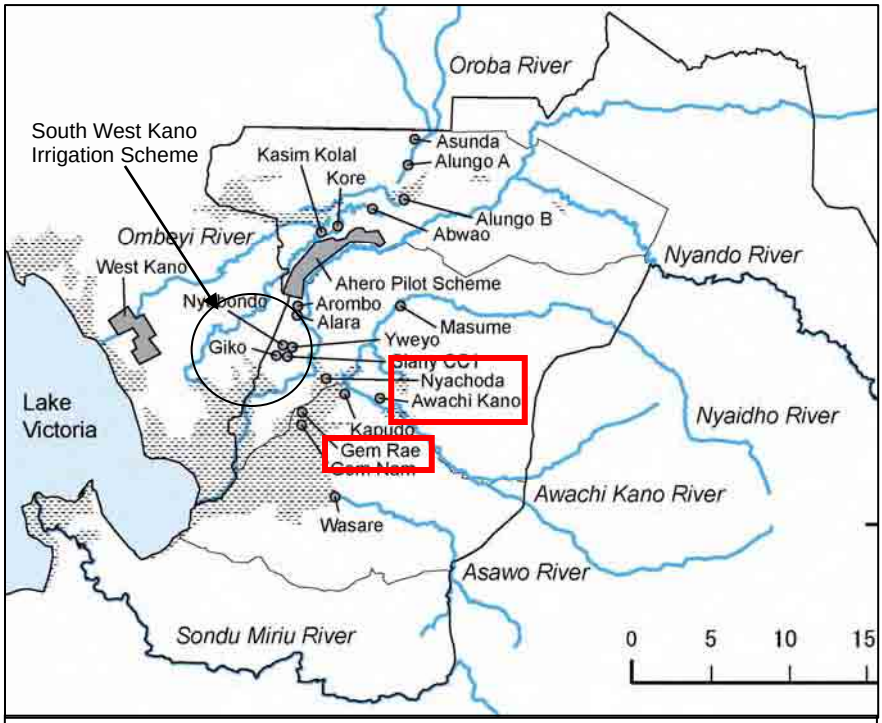


Figure 2.5.1 Location of the Irrigation Schemes in Nyando District

2) Assignment of Government Officers

The Study Team consulted with the Deputy District Agriculture Officer, Nyando in February 2006 and the DDAO guided the team to meet the Divisional Agriculture Extension Officer for Nyando Division. DAEO Nyando designated the Divisional Soil Conservation Officer to take part in the pilot. Also DDAO guided the Team to work with District Irrigation Department and the District Irrigation Officer designated the District Irrigation Extension Officer, who is the only officer to have been trained at KATC.

The District Irrigation Extension Officer was assigned to take the leadership of the pilot team. As of February 2006, the team for the pilot (hereunder called the pilot team) was set with the three: District Irrigation Extension Officer, Divisional Soil Conservation Officer (title name is changed as Divisional Environment and Land Officer) in Nyando Division and Divisional Soil Conservation Officer in Lower Nyakach Division. The officer in charge of Lower Nyakach Division was re-assigned by the District Agriculture Officer to Divisional Specially Assigned (Food Security) Officer in Lower Nyakach Division in May 2006 due to the transfer of the previous officer.

3) Planning with Key-Farmers

The Study Team has visited a key farmer in the South West Kano Irrigation Scheme several times since August 2005 and he accepted to be a trainer and asked him to select other few farmers who are capable to conduct trainings from both Nyando and Kisumu Districts (The South West Kano Scheme lies across the border of the two districts). In February 2006, the pilot team including the Study Team, District Irrigation Extension Officer and Nyando Divisional Soil Conservation Officer visited the key-farmer and prepared a training programme and agreed with the logistics arrangement.

The pilot team held community meetings at Awach Kano and Gem Rae Schemes in February. For both meetings, the key farmer accompanied with the pilot team and he explained what he learned at KATC and how useful the technologies were. His speech was very effective to the farmers in the target schemes to get motivated in participating in the trainings.

The activities of the pilot was planned in three categories: 1) classroom type training for farmers, 2) scheme management training for irrigation committees, and 3) demonstration at demo-plots.

The pilot programme prepares demonstration farms in Awach Kano Irrigation Scheme, and also in Gem Rae Irrigation Scheme and assist key-farmers in the South West Kano Scheme to conduct trainings at the demonstration farms. Classroom type training was planned for the representatives of the farmers and the part of the trainings for representative farmers was conducted by the initiative of the key-farmers in late February. Plenary trainings mainly at the site of the demonstration farms was planned to be conducted from around June 2006, when Gem Rae and Awach Kano Schemes start the paddy crop in this year.

2.5.4 Implementation Process and Achievement

Upon the implementation of the pilot from June 2006, there were few changes as some have been mentioned. These are 1) addition of demonstration site, 2) change of a government officer in the pilot team, and 3) setting of key-farmer team.

- Addition of demonstration farm: Nyachoda Irrigation scheme was not initially planned to be involved in this pilot, but in June 2006 it was recognized that the paddy fields along the tarmac road do not belong to Awach Kano but Nyachoda. Because the demonstration effects are expected very much along the tarmac road, the Team decided to establish a demonstration farm in Nyachoda scheme, as well.
- Change of a government officer in the pilot team: due to mass transfer of officers within the Ministry of Agriculture, the officer in charge of this pilot in Lower Nyakach Division was transferred to other division, as well. Instead of him, Divisional Specially Assigned (Food Security) Officer in Lower Nyakach Division was assigned to the pilot team.
- Setting of key-farmer team: for selection of the key-farmer trainers, at first the Study Team asked the selection of capable peer farmers to the key-farmer, whom the Team initially contacted. However, the process without involving the district agriculture office or irrigation office caused a conflict among the key farmers in the South West Kano Scheme. Guided by the DAO and the District Irrigation Officer in Nyando, it was decided to make two key-farmer teams, one of which was formed by the key-farmers in Nyando and the other was led by the key-farmer, whom the Study Team was communicating from the initial stage.

1) Scheme Management Training

Implementation of the pilot programme started in the beginning of June 2006 with the scheme management training facilitated by the pilot team: District Irrigation Officer and Nyando Divisional

Environment and Land Officer. The scheme management training was meant for the irrigation committees to well manage the whole scheme.

It was observed that the water management as an irrigation scheme is generally weak in the Study Area. Irregular and strong rain in short time particularly occurring in semi-arid area causes the rapid rise of water level in the river and the river water flows into irrigation canals irregularly throughout the year. When farmers find water on their farm and can expect the water to remain there, they start planting rice at any time. Therefore, the cropping pattern of the entire scheme is not uniform and you can see the farm plot on which the land preparation was just complete and the neighboring plot just about to harvest the crop. This tendency is the most significant in Awach Kano among the three target schemes.

Diversified cropping pattern according to the water availability by plot will make the water management of the scheme complicated and also make pests and disease control difficult. These difficulties will hinder the productivity improvement of the paddy crop. Unlike Asia, unstable rainfall pattern in the semi-arid area makes scheme water management very difficult. However, productivity improvement can be achieved when the improved crop husbandry meets appropriate water management. Regarding this aspect, the pilot team decided to conduct the scheme management training for the irrigation committee.

The target committees were initially of Gem Rae and Awach Kano. At the time of planning the training, Nyachoda was still out of the target, but by chance a committee member from Nyachoda volunteered to attend the training. Training was conducted at a store (community hall) of Awach Kano Scheme. There were 22 participants for this training. It was remarkable that the participants kept time rigorously and they also prepared lunch by themselves. Table 2.5.2 below shows the training programme.

Table 2.5.2 Programme of Scheme Management Training

Day	Lesson 1	Lesson 2	Lesson 3
1	Opening, introduction and climate setting	Scheme leadership Roles and structure	Leadership styles
2	Scheme by-law, formulation and application	Conflict management	Group dynamics
3	Water management in rice scheme	Scheme operation and maintenance	Credit and micro finance for smallholder irrigation
4	Record keeping	Financial management	Paddy / rice marketing
5	Gender mainstreaming in scheme development	HIV / AIDS effect in rice production	Way forward and closing

Through the discussions taking place in the course of the training, the issue of communication between the committee and ordinary farmers rather than the issue of physical problems of the irrigation system was focused for better scheme management. For example, in Awach Kano Scheme, it was revealed that the previous committee has not surrendered the fund of the scheme to the new committee and it has been a dispute among the scheme members. The chairman of the Awach Kano committee said that he realized the importance of accountability to the scheme members to collect funds for operation and maintenance of the irrigation system.

The team conducted a post-evaluation questionnaire to the training participants. All the participants indicated that the training was useful and among them 18 persons or 82% of them said it was very useful, though their answers might have been biased by the presence of the trainers. Most of the participants found out the weakness of the schemes in record keeping and use of by-laws.

The participants were asked to pick up best five topics from the training course, which they think

useful for their scheme management. As a result of the analysis, it was found that the major useful topics for the participants were “Scheme leadership”, “Water management” and “Record keeping” for both Gem Rae and Awach Kano, “Conflict management” for Gem Rae, “Scheme by-laws” and “Financial Management” for Awach Kano. Figure 2.5.2 shows the questionnaire result on useful topics for the participants.

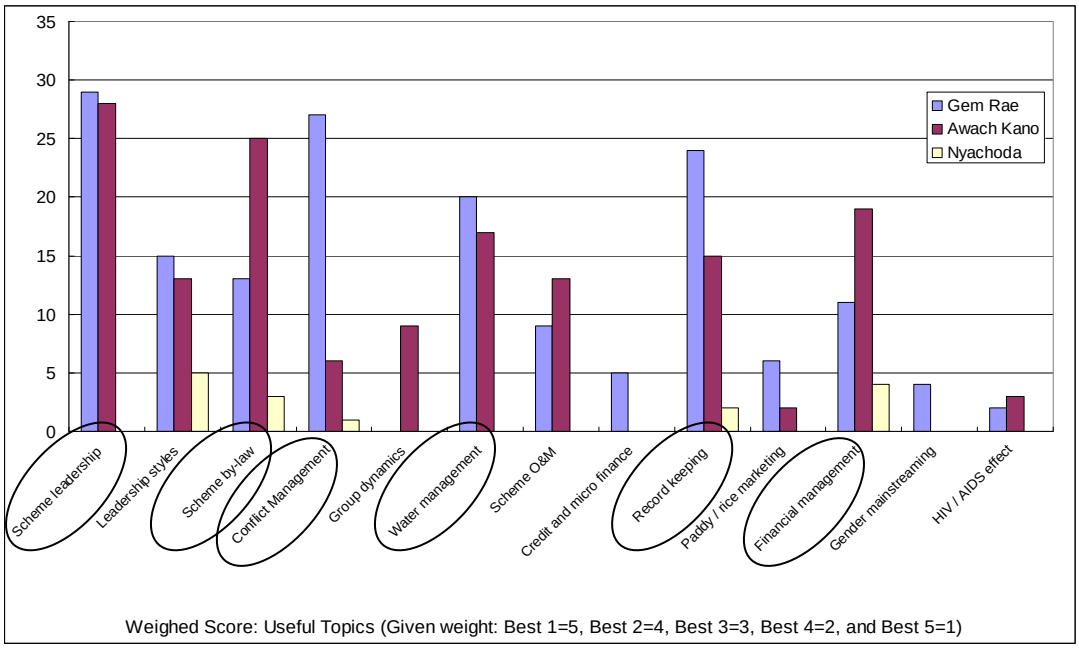


Figure 2.5.2 Useful Topics Felt by the Scheme Committee

2) Classroom Type Training

Initially the key-farmer team was planned to form as one. However, as mentioned above because of fairness to select key-farmers from all the farmers who went to KATC, the pilot team decided to form two groups of key-farmers. Both groups have actually registered with the Social Services to be recognized by the government. The key-farmers in Nyando District formed a group called “Nyando Rice Key Farmers Group” and the key-farmers led by the one whom the Study Team initially contacted formed a group with members from Nyando and Kisumu Districts called “South West Kano Project Key Farmers Promotion Group”.

As in the course of the pilot implementation, the pilot team decided to establish a demonstration farm in Nyachoda Irrigation scheme, as well and the in charge of Nyachoda was then given to the Nyando Rice Key Farmers Group. The South West Kano Project Key Farmers Promotion Group subdivided the group into two to look after Gem Rae and Awach Kano.

Classroom type training was initially planned to conduct for Gem Rae and Awach Kano Schemes and the SW Kano Project Key Farmers Promotion Group had been assigned to conduct the training. As for Nyachoda Scheme, since it was not in the initial plan, the team planned only to carry out demonstration activity, but after discussion with the key-farmers, the pilot team agreed to conduct two-day classroom training in Nyachoda by the Nyando Rice Key Farmer Group.

The training for Gem Rae and Awach Kano was administered in mid June and 50 farmers in total were invited from the two schemes: two each from an irrigation block: 11 blocks in Awach Kano and 14 blocks in Gem Rae. Actual attendance was 48 (30males and 18 females). The venue was the store (community hall) of Awach Kano Scheme. As for the training for Nyachoda, it was conducted in the

end of June and the venue was a church located in Nyachoda site. Attendance was 58 (50 males and 8 females). Following were the training agendas.

Table 2.5.3 Programme of Classroom Training: Gem Rae and Awach Kano

Day	Lesson 1	Lesson 2
1	Seed selection	Land preparation
2	Nursery management	Yield components
3	Nursery preparation	Rice with growth phases
4	Soil productivity + Azola utilization	Sowing
5	Line transplanting	Water management
6	Pest and disease management	Harvesting
7	Marketing	Operation and maintenance
8	Basic knowledge on farm management	Seed production
9	Fabrication of improved farm tools	Leadership roles
10	Leadership structures	Conflict management
11	Financial management	Gender mainstreaming
12	Effect of HIV/AIDS in rice production	Summary and way forward

Table 2.5.4 Programme of Classroom Training: Nyachoda

Day	Lesson 1	Lesson 2	Lesson 3	Lesson 4
1	Land Preparation	Yield Components	Seed Selection	Nursery Preparation
2	Line Transplanting	Fertilizer Application	Water Management	Leadership Roles

For both trainings, the pilot team did not provide lunch. In Gem Rae and Awach Kano, the training was, therefore, carried out in morning time only. As for Nyachoda, farmers agreed to prepare lunch by themselves, so that training was carried out throughout the day.

After the trainings, the pilot team conducted a post-evaluation questionnaire. Figure 2.5.3 on right hand shows the result of the question on usefulness of the training. Farmers in Nyachoda gave the highest rate as 88% answered very useful, though the duration and curriculum are different from the one for Gem Rae and Awach Kano. Whereas Gem Rae gave the lowest rates as 23% answered very useful and 77% answered useful.

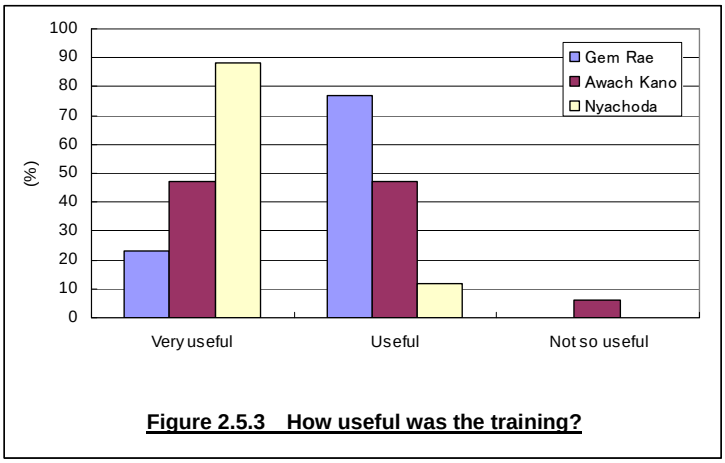


Figure 2.5.3 How useful was the training?

Most of the participants from the three schemes responded that they got new ideas from the topics of the training. The new ideas which most of the people acquired are seed selection method and line transplanting. Other ideas like weeding by manual push-weeder, nursery preparation, yield components, and fertilizer application were also new to them. Those who attended the trainings were expected to disseminate what they learned to their neighbors.

3) Demonstration

Demonstration activity started from the beginning of July. Water situation differed among the schemes. There was no water until the end of July in Gem Rae and therefore after the demonstration of band making, the demonstration in Gem Rae was suspended until the beginning of August. Consequently transplanting was done lastly in Gem Rae among the three sites. Nyachoda Scheme was also suffering from the shortage of water due to poor intake facility, but the demonstration was

able to start off in the mid of July and transplanting was complete in late August. Awach Kano has got enough water since late June, so the demonstration activities were carried out smoothly and the transplanting was complete in mid August.

In Awach Kano demo farm, harvesting was complete at the beginning of December and Gem Rae demo farm completed the harvesting at the mid of December. In both sites, basmati variety was planted so the harvest period came earlier since basmati is an early maturity variety. In Nyachoda demo farm, IR variety was planted and it took time to be matured so that the harvesting was completed at the end of December. Following tables are the summary of major demonstration activities in the three sites. Apart from the activities below, key-farmers went to the demo farms so frequently to monitor the situation and instruct farmers on water management etc.

Table 2.5.5 Demonstration at Gem Rae Irrigation Scheme

Date	Content	Attendance	Remark
Jul 5	Band making	41(28M, 13F)	
Aug 2	Nursery preparation / Seed selection	34 (24M, 14F)	Water shortage delayed activities.
Aug 14	Sowing	30	
Aug 27	Fertilizer application in nursery	15	
Sep 4	Leveling	10	There was a funeral.
Sep 5	Transplanting	10	There was a funeral.
Sep 19	Fertilizer application	10	
Oct 11	Weeding	10	
Dec 19	Harvesting	31 (21M, 10F)	Held as Field Day
Dec 20	Compost making	15	

Table 2.5.6 Demonstration at Awach Kano Irrigation Scheme

Date	Content	Attendance	Remark
Jul 7	Band making	44 (31M, 13F)	
Jul 17	Nursery preparation	14 (7M, 7F)	
Jul 26	Seed selection	12 (8M, 4F)	
Jul 31	Sowing	10 (3M, 7F)	There was a funeral.
Aug 7	Fertilizer Application (nursery)	10 (3M, 7F)	
Aug 14	Leveling	10 (7M, 3F)	
Aug 18	Transplanting	23 (13M, 10F)	
Sep 1	Weeding (Use of push-weeder)	31 (17M, 14F)	
Sep 18	1st Fertilizer application	18	
Oct 2	2nd Fertilizer application	15	
Dec 1	Harvesting	101 (56M, 45F)	Held as Field Day

Table 2.5.7 Demonstration at Nyachoda Irrigation Scheme

Date	Content	Attendance	Remark
Jul 15	Nursery preparation / Band making	33 (23M, 10F)	
Jul 24	Seed selection	22 (16M, 6F)	
Jul 27	Sowing	25 (12M, 13F)	
Aug 4	Fertilizer application (nursery)	16 (12M, 4F)	
Aug 21	Transplanting	20～25	Demonstration started from early morning and farmers on the way to their farm join the demonstration for a little time and then go.
Sep 12	1st Fertilizer Application	5～10	
Sep 14	Weeding (use of push-weeder)	20～25	
Oct 24	2nd Fertilizer application	10～15	
Dec 27	Harvesting	108	Held as Field day

Because the cultivation at the demonstration farms started earlier than the other farms around them, farmers in the schemes used to come to the farms only for participating in the demonstration. From August, farmers started cultivating their own farm and since then, they just come to see what is done at the demonstration farms and go to their own farm to work. Therefore, it has become difficult to define the number of attendance in the demonstration especially in Gem Rae and Nyachoda.

Apart from the demonstration above, key-farmers went to the plots several times to monitor and

supervise the dairy husbandry work of the land owners and some work like fertilizer application, leveling etc. were carried out with the landowners and key-farmers alone. As the demonstration farms serve as a showcase to the other farmers, they can come to see the new technology being practiced at the demonstration farms at any time. Anyway, the pilot team discussed the issue of lower attendance than we expected in August. Following are the opinions and suggestions made:

- Farmers in Nyachoda and Awach Kano are not uniformly cultivating rice. Some are at harvesting stage, others are transplanting stage and so on, though the majority of the farms are at the stage of first plough. This lack of uniformity as a scheme may have affected the interest of farmers in the demonstration.
- In Awach Kano, it is noticed that there are plots, which are rented out to the people who live rather far from the scheme, so that information of the demonstration does not reach them. Those who attended the classroom training are well aware of the demonstration and therefore the share of turnout who attended classroom are more in Awach Kano.
- Nyachoda has a problem with its intake so water cannot reach well to the entire scheme. Farmers who have not received water might not have been interested in the demonstration very much.
- Also in Nyachoda, election of the committee was recently carried out and the new committee has been elected. This situation might have also affected the activity, e.g. former chairman has never turned up again after the election.
- Demonstration activity has to be maintained since we cannot miss the cropping season, but as a merit the demonstration plots remain on the field so that those who did not attend the demonstration session can still see what the new rice cultivation technique looks like from the plots.
- Those who were trained at the classroom before the demonstration would demonstrate the new rice cultivation technique on their own plots, so that their own operation would supplement our demonstration activities.

4) Outputs

Field Interviews and Observations during the Demonstration

In the course of the demonstration activity, the team asked the farmer participants whether they have got new ideas from the demonstration. It has been confirmed that the demonstration is giving new ideas to the farmers in the target irrigation schemes and negative aspects were also heard. Following are the major voices from the farmer participants:

- Seed selection in Awach Kano: key-farmers demonstrated seed selection with salt water. Mixing salt into water increases the specific gravity of it and makes light seeds float, so that heavy i.e. healthy seeds are only selected. Among the demonstration participants, there are some farmers who used to carry out seed selection with water, but there was no one who applied salt water for the seed selection. Seed selection by salt water was, therefore, totally new idea for all the demonstration participants. Farmers learned to use salt water to select heavy and healthy seeds and the ratio between salt and water was taught to use a raw egg (salt should be put until raw egg float upright and around one–fifth should appear on the surface of water).
- Seed soaking in Nyachoda: Seed selection by salt water was also a new idea for most of the farmers in Nyachoda, who came to the demonstration. Another new aspect for Nyachoda

farmers was seed soaking. According to the discussion during the demonstration, farmers in Nyachoda said that they would soak seeds for seven days before sowing. Key farmers advised them that appropriate time for soaking is three days, otherwise seeds germination go too far before sowing and the root grows too long to be tangled with other seeds so that you cannot sow seeds uniformly on the nursery bed and even the roots are cut.

- Sowing in Awach Kano and Nyachoda: the appropriate sowing density of 100g/m^2, which the key-farmers advise farmers, are much less than the farmers practice. The recommended density by key-farmers are generally less than half or even one-third of what they used to sow. Key-farmers advised them that much dense sowing would not result in growing healthy seedlings.

- Band making in Gem Rae: farmers are likely to make band as thin as possible in order to keep the planting area as wide as possible, but it causes water leakage. Water management is so important for paddy that the key-farmers demonstrated to construct a wide and tall band (W=around 90cm, H=around 40cm). During the discussion at the demonstration, however, farmers in Gem Rae expressed their anxiety about conflict with neighbors in constructing such big band at the boundary of two farm plots, though they understood the importance of preventing water leakage.

- Harvesting / Threshing in Awach Kano: key-farmers demonstrated threshing by using threshing stand, which can reduce loss of harvest as well as workload. Threshing stand is like a table with the tabletop latticed, so that when one hits the straws on the stand, grains drop through the lattice. This prevents grains from scattering unlike the conventional way that farmers just hit straws on stones. Farmers at the demonstration enjoyed using threshing stand. But some women said that there are poor people who come to collect grains dropped on the ground after threshing. If the loss were reduced, those poor would not be able to find their share. The point is so informative to think about the negative impacts of the project and necessity to incorporate with other regional development programme to cope with the issue of job opportunities for all the people in the district.


Using Threshing Stand

Other new rice cultivation technologies like transplanting in line is visible once they apply on the field. Demonstration on transplanting was finished on August 18 in Awach Kano, August 21 in Nyachoda and September 5 in Gem Rae. Farmers in the Study Area traditionally transplant the seedlings in random, whereas key-farmers brought a method of transplanting in line from KATC. Transplanting in line gives adequate uniform space between plants so that it allows plants to increase tillers, prevents spread of pests and diseases and easies weed control (space can allow to use manual push-weeder). Farmers in Japan adopted transplanting in line around 100 years ago.


Key-farmer teaching how to use push-weeder

The Study Team also conducted a field survey to observe the adoption of the new technology particularly on transplanting in line in November to December 2006. It was found out from the field observation: 1) those who attended the classroom trainings showed higher adoption of line transplanting, 2) though the effect of demonstration was observed, it was also found that adoption of line transplanting by the farmers who cultivates near the demonstration farms was low in Awach Kano and Gem Rae, 3) there are certain number of farmers who attended neither the training nor demonstration, but still adopted line transplanting, and 4) many farmers were comparing the effect of line transplanting by transplanting both in line and random on their paddy fields.

Questionnaire Survey

A questionnaire survey was carried out with 120 sample farmers in the three shcemes The sample farmers were intentionally selected so as to includethe 4 categories: 1) those who attended the trainings and / or demonstrations frequently and adopted line transplanting, 2) attended trainings and / or demonstrations but did not adopt line transplanting, 3) those who attended transplanting demonstration but did not adopt line transplanting, and 4) those who did not attend trainings / demonstrations and did not adopt line transplanting.

Table 2.5.8 below summarizes the degree of adoption of the major new technologies introduced by the key-farmers. Since the sample farmers were intentionally selected in order to include the certain number of farmers who adopted line transplanting, Here we analyzed from the viewpoint of 'what else of the new technologies the line transplanting farmers have adopted'. The major new technologies introduced are 1) line transplanting, 2) seed selection by salt water, 3) nursery preparation, and 4) weeding by manual push-weeder.

Table 2.5.8 Adoption of Technologies

Number of Farmers who adopted new technologies						
Line transplanting	Seed selection	Nursery preparation	Push weeder	Number	% to those adopted line	% to total sample
4	4	4	4	4	5%	3%
27	27	27	—	27	36%	23%
1	1	—	1	1	2%	1%
15	15	—	—	15	20%	13%
4	—	4	—	4	5%	3%
24	—	—	—	24	32%	20%
75	47 (63%)	35 (47%)	5 (7%)	75	100%	63%
—	8	8	—	8	18%	6%
—	6	—	—	6	13%	5%
—	—	2	—	2	4%	2%
—	—	—	—	29	65%	24%
—	14 (31%)	10 (22%)	—	45	100%	37%
75 (63%)	61 (51%)	45 (37%)	5 (4%)	120	-	100%

Upon the sampling, we selected 62 farmers who adopted line transplanting, but as the result of the survey, the number has increased by 75 farmers (63% of total samples). Out of 75 farmers who adopted line transplanting, those who adopted all of the above 4 new technologies were only 4 farmers (5%). This low rate for comprehensive adoption is due to the difficulty to fabricate the manual push-weeder. Those who adopted 3 items and 2 items counted 28 farmers (38%) and 19 farmers (25%) respectively, while those who only adopted line transplanting were 24 (32%). There are farmers who did not adopt line transplanting but other technologies. Among the 45 farmers who did not adopt line transplanting, 14 farmers (31%) adopted seed selection by salt water, and 10 farmers (22%) adopted nursery preparation. Among them 8 farmers (18%) adopted both seed selection by salt water and nursery preparation.

<Technology Adoption: Seed Selection by Salt Water>

Seed selection by salt water has been adopted by 61 farmers (51%) of the total 120 samples (Figure 2.5.4). On how to do seed selection, 17 farmers (14%) answered by winnowing, 24 farmers (20%) by just water and 18 farmers (15%) did nothing. During the demonstrations and trainings nobody said they had known about seed selection by salt water. It is therefore considered that those who adopted the seed selection method had learned from the pilot project. Among the 61 farmers who adopted the method, 11 farmers answered that they learned the method not from the demonstrations or trainings but from other farmers who attended these activities.

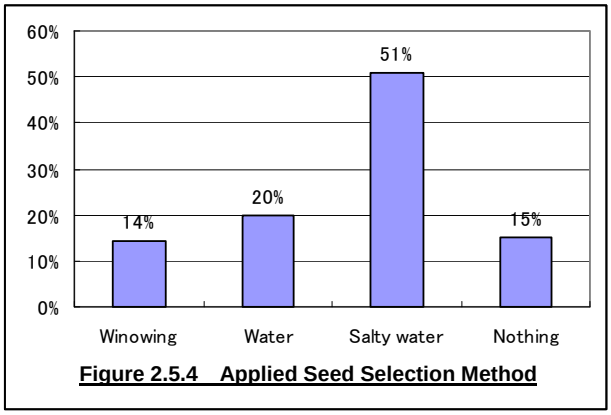


Figure 2.5.4 Applied Seed Selection Method

<Technology Adoption: Nursery Preparation>

The number of the farmers who answered that they learned on nursery preparation from the pilot project was 45 (37%) out of 120. Among them, 4 farmers told that they learned from the peer farmers who attended the trainings. Out of 120 sample farmers, 77 farmers including 37 who learned the technology from the pilot project gave valid answer on amount of seeds used and the size of nursery. From their answers, amount of seeds per m^2 was calculated and it was found that those who learned the technology from the pilot project use less seeds than others, i.e. those who learned the technology from the pilot sow seeds closer to the standard. Key-farmers introduce the standard amount of sowing seeds as $100g/m^2$ of nursery and the average amounts of seeds per m^2 for those who learned the technology from the pilot and for those who did not learn were $244g/m^2$ and $611g/m^2$ respectively (Figure 2.5.5).

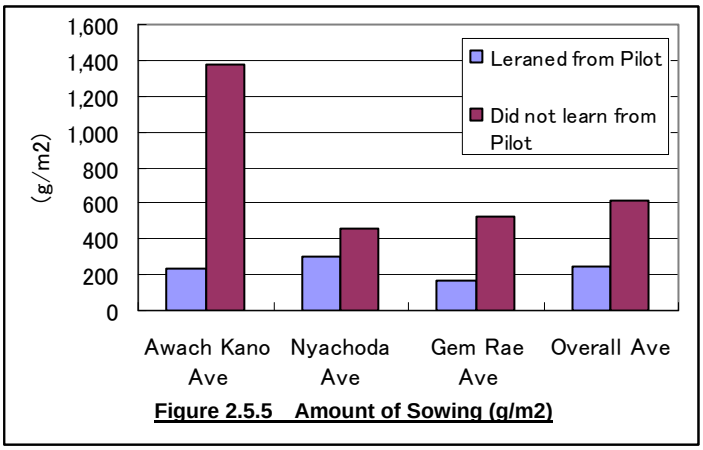


Figure 2.5.5 Amount of Sowing (g/m2)

<Technology Adoption: Line Transplanting>

Integrating the results of all the surveys (field observations, data collection from scheme committees, and the questionnaire survey), it showed that the adoption of line transplanting in each rice irrigation scheme is 107 farmers in Awach Kano, 88 farmers in Nyachoda and 60 farmers in Gem Rae. Considering the total number of cultivators in each site, the adoption ratios in Awach Kano, Nyachoda and Gem Rae are 38%, 23% and 15% respectively. In total of the 3 rice irrigation schemes, 255 farmers or 24% of the farmers in the 3 schemes adopted line transplanting in this crop season. This achievement is considered good because it seems the extension is much faster than SW Knao Irrigation Scheme, where key-farmers reside. It is presumed that low or slow adoption of new technologies in SW Kano would be due to the facts that the scheme is huge, there are many tenants who change the renting land every year and they are not keen on new technologies, and the work of key-farmers have also been limited.

As for Nyachoda Scheme, the scheme committee has prepared the list of members of both landowners and tenants, so that the adoption ratio by the status of land holding could be captured. The adoption ratios for line transplanting for landowners and tenants are 29% and 16% respectively indicating that landowners are adopting line transplanting more than tenants. Table 2.5.9 below shows the adoption of line transplanting by scheme.

Table 2.5.9 Adoption of Line Transplanting

Rice Irrigation Scheme		Awach Kano	Nyachoda	Gem Rae	Total
Total No. of Farmers	L. Owner	-	199	-	-
	Tenant	-	188	-	-
	Total	280	387	400	1,067
Adopted line transplanting	L. Owner	-	58	-	-
	Tenant	-	30	-	-
	Total	107	88	60	255
Adoption ratio	L. Owner	-	29%	-	-
	Tenant	-	16%	-	-
	Total	38%	23%	15%	24%

Note: Some landowners also rent land additionally. In this table, they are categorized as landowners.

As this year was the first time to introduce new technologies to the pilot irrigation schemes, farmers are still suspicious about the new technologies, so some of the farmers have been trying both line transplanting and random transplanting in their farms. Among 75 farmers who adopted line transplanting, 25 farmers or 33% tried both line and random. If they are convinced with the effect of line, the adoption will be higher in the next crop season.

<Technology Adoption: Weeding by Push-weeder>

Adoption of push-weeder remains low because it needs to order Juakari artisan to make one though the fabrication is not so difficult and it costs only around Ksh400. Among the 120 farmers interviewed, only 5 farmers or 3% used push-weeder for weeding. Although the adoption of push-weeder is low, line transplanting still greatly contributes to reducing the weeding labor and also the risk to damage the plants during weeding.

<Technology Adoption and Age>

The average ages of 75 farmers who adopted line transplanting and 45 farmers who did not adopt line transplanting are 44.3 years old and 42.0 years old. Figure 2.5.6 shows the distribution of farmers by age. As the figure indicates, there is no significant difference in age group about the adoption of line transplanting.

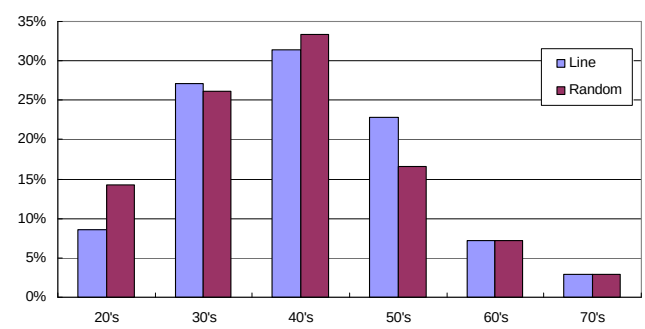


Figure 2.5.6 Transplanting Method by Age Group

<Technology Adoption and Education>

Figure 2.5.7 shows the education status of the sample farmers who gave valid answers (69 farmers who adopted and 40 farmers who did not adopt line transplanting). Education status of the farmers who adopted line transplanting is a little higher than that of farmers who did not adopt line transplanting. Among the farmers who adopted line transplanting, those who only completed up to lower grades of primary school is 15%, while those of the farmers who did not adopt line transplanting is 30%. On the other hand, there are farmers who did not go to school but still adopted line transplanting and vis-à-vis those went to up to secondary school, but did not adopt line transplanting.

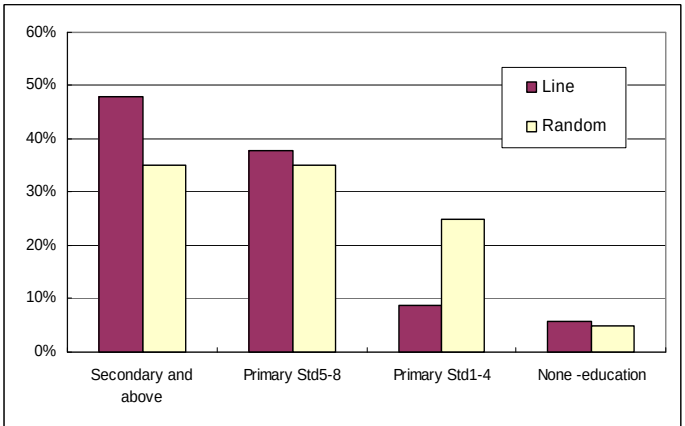


Figure 2.5.7 Transplanting Method by Education Status

<Comments on New Technologies>

Comments on the technologies introduced through the pilot programme were collected from the sample farmers and 103 farmers gave valid response. Most of the comments were positive about the technologies (Figure 2.5.8). The number one comment, which 50% of the farmers said, was "easy weeding by line transplanting" followed by "saving seeds by line transplanting" (35%), and "more tillers by line transplanting" (28%). Some farmers (7%) are also saying that the farm with line transplanting looks smart. Farmers also commend for seed selection and leveled nursery preparation technologies, as well. With these technologies, farmers see the effect of "uniform and good germination" (17%), and "healthy seedlings" (16%).

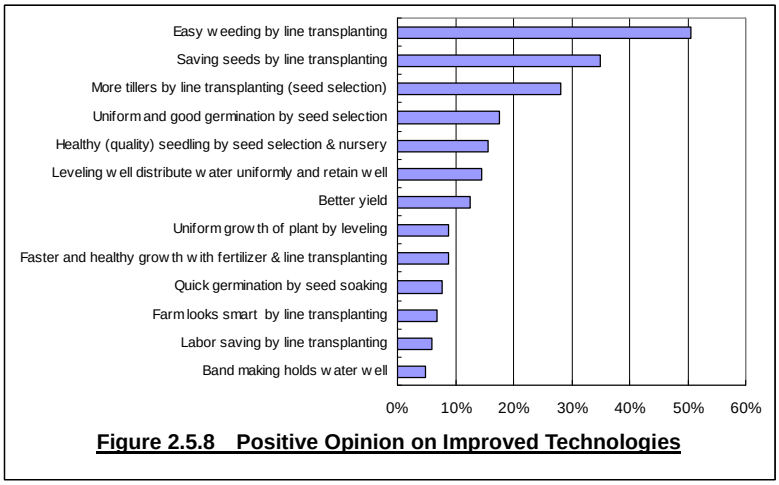


Figure 2.5.8 Positive Opinion on Improved Technologies

On the other hand, there are also negative opinions about the technologies (Figure 2.5.9). Among the farmers who gave valid answers, 17% of them gave negative opinions (some of farmers gave both positive and negative ones). Most heard opinion was "line transplanting is tedious and expensive" given by 9 farmers. On the contrary, there are 6 farmers who say, "Line transplanting saves labor and time". According to key-farmers, line transplanting would not give additional labor and time, but it would also be dependable on experiences.

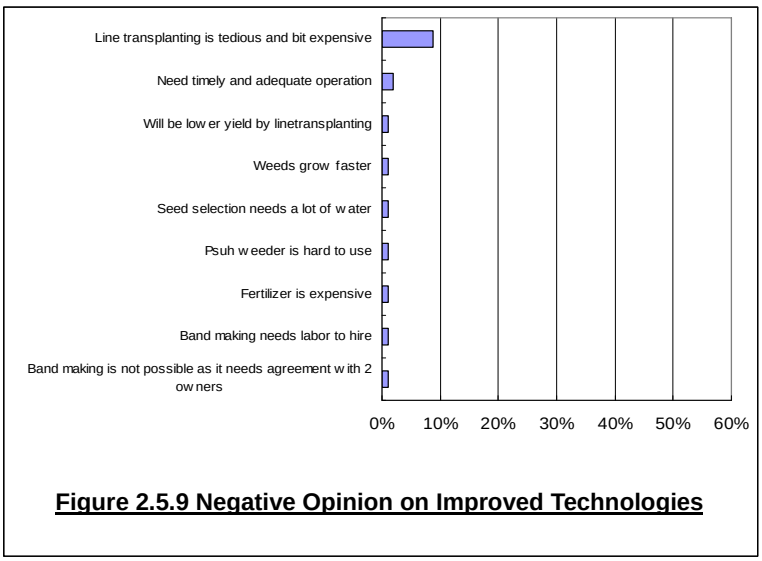


Figure 2.5.9 Negative Opinion on Improved Technologies

Nursery made by key-farmers (Awach Kano)
Surface is flat and water level can be easily controlled.

Conventional nursery (Gem Rae)
Surface is rough and uneven. Seeds cannot receive water equally, so unable to grow uniformly.

Transplanting in line (Awach Kano)
Transplanting in line allows the plants to get more sunshine and make weed control easy. It can increase number of tillers.

Transplanting in random (Awach Kano)
Random transplanting brings unequal growth of plants and makes weed control difficult. And it often leads to dense transplanting, which will cause poor tillering.

Plants transplanted in line (Nyachoda Demo Farm)
Number of tillers per hill is very high and uniform.

Plants transplanted in random (SW Kano)
Number of tillers per hill is less than the one in line and the growth is not uniform.

Yield Achievement

Out of 120 sample farmers, data on the yield of this crops season were obtained from 101 farmers. Of them 61 farmers adopted line transplanting (22 farmers grew basmati and 39 farmers grew IR and similar varieties to IR), and 40 farmers did not adopt line transplanting (3 farmers grew basmati and others grew IR and its similar varieties). As Figure 2.5.10 shows, the average yields of both basmati and IR[1] for line transplanting are higher than for IR. In total of the three schemes, the average yields of basmati for line transplanting and random transplanting are 2.4t/ha and 1.5t/ha respectively and the average yields of IR for line and random are 4.0t/ha and 3.1t/ha respectively. The line transplanting marked 161% higher yield than random transplanting for basmati and 129% higher yield for IR.

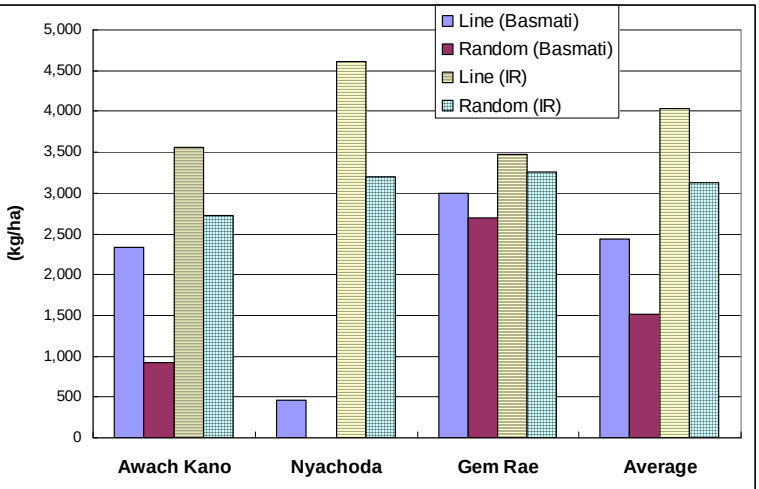


Figure 2.5.10 Average Yield of Sample Farmers

Floods attacked the schemes in this crop season of 2006/07 and many farmers suffered from them. Some farmers even got nil harvest, as well. Due to the floods as one of the causes, not all the farmers who adopted line transplanting were able to increase their yield compared to the previous crop season. Table 2.5.10 shows the number of farmers who increased yield compared to the last crop season from the questionnaire survey. The table only shows the result of IR variety. There are farmers who grew basmati with line transplanting. Because basmati yield is generally lower than IR and most of the farmers started growing basmati from this crop season, only the data for IR was referred. According to the questionnaire survey, 74% of farmers who adopted line transplanting increased the yield this year, while 33% of farmers who did random transplanting increased the yield this year.

The damage by floods was heavier in Gem Rae scheme. When the Study Team held evaluation workshops, the yield data were collected from the workshop participants. Although the information on the varieties which farmers grew were not collected, farmers who adopted line transplanting and increased yield compared to last year were 75% in Nyacoda and 71% in Awach Kano (Table 2.5.11). Whereas out of 12 farmers who adopted line transplanting in Gem Rae, only 3 farmers or 25% managed to increase the yield from last year.

Table 2.5.10 Yield Increase from Last Year (Q. Survey) (IR)

	Line	Random
Total Household	35	33
Yield Increased from last year	26	11
	74%	33%
100% - 150%	12	6
150% - 200%	5	-
200% -	9	5

Table 2.5.11 Yield Increase from Last Year (from WS)

Scheme	No. of Farmers Adopted Line	Yield increased	Min – Max	Remark
Nyachoda	16	12 (75%)	112% - 217%	
Awach Kano	7	5 (71%)	122% - 200%	
Gem Rae	12	3 (25%)	133% - 179%	Damage by flood was serious

[1] Similar varieties to IR such as BR, Nyaboda are represented by IR in the figure.

Apart from the interviews to farmers, the Study Team also conducted a cutting yield survey in the three schemes. Table 2.5.12 below shows the result of the survey. The data indicates that unit yield with line transplanting is higher than random transplanting mainly due to the number of tillers per hill and subsequently the number of tillers per m^2. In case of IR variety, the average number of tillers per m^2 for line transplanting is 473 while the one for random is 297. The yield of the demo farm in Nyachoda (IR variety) marked 11.7t/ha, which is considered maximum potential of the variety. As for basmati variety, both demo farms in Awach Kano and Gem Rae marked 5.9t/ha and 6.7t/ha respectively. These yields are also considered very high as basmati variety. A sample of basmati plot (No.3 in the table) marked as low as 1.9t/ha due to poor ripening ratio (46%). This case indicates the difficulty to grow basmati, which is much more sensitive than IR in this area. Although the farm gate price of basmati is as twice as IR, it requires intensive care to grow basmati rice.

Table 2.5.12 Result of Cutting Yield Survey

No.	Site	Condition				hill/m2	tiller/hill	tiller/m2	grain/tiller	Ripening ratio	g/1000 grains	Yield (Unmilled, Undried)		Target Yield kg/ac
		Variety	Seed Selection	Transplanting	Fertilizer							Kg/ha	Kg/ac	
1	A. Kano (demo)	**Basmati**	Salt water	**Line**	Applied	56	12.4	694	40	87%	24.6	**5,945**	**2,378**	2,250
2	Gem Rae (demo)	**Basmati**	Salt water	**Line**	Applied	47	13.0	611	51	85%	25.4	**6,728**	**2,691**	
3	Gem Rae	**Basmati**	Salt water	**Line**	manure only	42	11.3	475	40	46%	22.0	**1,921**	**768**	
4	Nyachoda (demo)	IR	Salt water	**Line**	Applied	34	19.6	666	80	77%	28.5	**11,699**	**4,680**	3,330
5	A. Kano	IR	Water	**Line**	applied 4kg	43	8.6	370	82	85%	31.5	**8,119**	**3,248**	
6	Nyachoda	BR	Winnowing	**Line**	not applied	54	7.1	383	89	76%	26.3	**6,820**	**2,728**	
7	Nyachoda	Nyaboda(IR)	Winnowing	**Random**	not applied	66	4.5	297	101	74%	25.1	**5,572**	**2,229**	
8	Gem Rae	Nyaboda(IR)	Winnowing	**Random**	not applied	44	5.8	255	86	71%	25.2	**3,927**	**1,571**	
9	A. Kano	IR	Water	**Random**	Urea (4kg)	52	6.5	338	57	75%	22.5	**3,251**	**1,300**	

2.5.5 Evaluation by the Implementers

The Study Team with the farmers in each irrigation scheme of the pilot project held an evaluation workshop from the end of January to the beginning of February 2007. The numbers of the workshop participants were 29 in Nyachoda, 50 in Gem Rae and 12 in Awach Kano. After the workshops at irrigation scheme level, a district level paddy cultivation evaluation workshop with the government officers from the Agriculture and Irrigation Offices, all the key farmers and representative farmers of each irrigation scheme was held on February 7, 2007.

At the scheme level workshops, farmers in the irrigation schemes evaluated the importance of new technologies introduced. Farmers voted to score the importance of each activity at mark 5 as highest and 1 as lowest. Evaluation was also carried out on project performance indexes, and formative (development) indexes at both scheme level and district level. Table 2.5.13 below summarizes the results of the evaluations by the irrigation scheme farmers.

For the review of the activities at scheme level, farmers in the three irrigation schemes marked high score for line transplanting, leveling, and nursery preparation, while they did not give high score for fertilizer application commonly in the three schemes and weeding by push-weeder except for Awach Kano. For the issue of push-weeder, farmers and key-farmers in Gem rae discussed the fact that at the early stage of the rice cropping in Gem Rae, the area was rather dry and the push-weeder could not work well on the dry soil. The farmers may have considered such situation upon the evaluation.

For fertilizer application, intensive discussion on the issue was made during the district level paddy cultivation evaluation workshop. Though some farmers insisted the land is fertile without fertilizers,

key-farmers and agriculture officers still pointed out importance and effectiveness of the fertilizer application for rice cultivation. Also it was pointed out that inadequate water management facilities hinder the effect of fertilizers (fertilizers are flown away with water).

For project performance indexes at scheme level, Nyachoda farmers marked the lowest for sustainability. They considered that they would still need more advice from the key-farmers to continue the activities. In Awach Kano, project impact was marked low and a farmer explained that the benefit of the project has not yet been felt by many farmers since this was the first year. The same reason was given to the low marking on the development index of change in community.

Development indexes ask the workshop participants how they have changed with the project as individual, as group / community, and as networking with outside the community. The three scheme farmers gave high marks for individual and networking changes but not for changes in community except for Nyachoda (the participants of Nyachoda workshop were mostly those who adopted and appreciated new technologies). During the district level workshop, the participants explained the reasons for low mark for the changes in community as: "people have not felt the positive impact of the project yet", "community members who rely on the labor work such as weeding might have been unhappy with the new technology that takes their job opportunity" etc.

Table 2.5.13 Results of Project Evaluations by the Three Irrigation Scheme Farmers

Irrigation Scheme	Nyachoda								Gem Rae								Awach Kano							
	Mark	Total	Number of Votes for Marking (1-5)						Mark	Total	Number of Votes for Marking (1-5)						Mark	Total	Number of Votes for Marking (1-5)					
1. Review of Major Activities	(1-5)	points	5	4	3	2	1	Total	(1-5)	points	5	4	3	2	1	Total	(1-5)	points	5	4	3	2	1	Total
Line transplanting	**4.0**	36	**4**	**2**	**2**	1	0	9	**4.9**	107	**19**	3	0	0	0	22	**4.82**	53	**9**	2	0	0	0	11
Nursery preparation	**3.4**	41	1	4	**6**	1	0	12	**4.23**	55	**7**	2	**4**	0	0	13	**4.2**	42	2	**8**	0	0	0	10
Seed sowing									**3.9**	66	**8**	**3**	**3**	2	1	17	**3.55**	39	2	**4**	**4**	0	1	11
Water management	**3.2**	32	2	2	**3**	2	1	10									**4.4**	44	**7**	0	**3**	0	0	10
Leveling	**3.1**	31	0	**3**	**5**	2	0	10	**4.3**	82	**7**	**11**	1	0	0	19	**4.82**	53	**9**	2	0	0	0	11
Push-weeder (weeding)	**2.9**	26	1	1	**4**	2	1	9	**2.8**	33	0	**3**	**4**	**4**	1	12	**4.27**	47	**5**	**5**	0	1	0	11
Band making	**2.8**	34	0	2	**7**	2	1	12	**4.17**	100	**16**	0	**5**	2	1	24	**4.7**	52	**8**	**3**	0	0	0	11
Seed selection	**2.6**	21	0	1	**4**	2	1	8	**4.22**	97	**9**	**11**	2	1	0	23	**4.5**	50	**6**	**5**	0	0	0	11
Bird scaring	**2.4**	29	0	1	3	**8**	0	12																
Fertilizer application (1st)	**2.3**	16	0	1	0	**6**	0	7	**4.1**	82	**6**	**10**	4	0	0	20	**3.9**	43	**5**	0	**6**	0	0	11
Fertilizer application (2nd)																	**3.50**	35	0	**5**	**5**	0	0	10
Harvesting									**4.0**	56	0	**14**	0	0	0	14	**4.30**	43	**5**	**4**	0	1	0	10
Fertilizer application in nursery									**3.6**	51	0	**9**	**5**	0	0	14	**3.6**	40	1	**5**	**5**	0	0	11
	Mark	Total	Number of Votes for Marking (1-5)						Mark	Total	Number of Votes for Marking (1-5)						Mark	Total	Number of Votes for Marking (1-5)					
2. Project Performance Index	(1-5)	points	5	4	3	2	1	Total	(1-5)	points	5	4	3	2	1	Total	(1-5)	points	5	4	3	2	1	Total
(1) Efficiency	**3.9**	54	3	**6**	5	0	0	14	**4.89**	137	**26**	1	1	0	0	28	**4.9**	54	**10**	1	0	0	0	11
(2) Effectiveness	**4.9**	74	**14**	1	0	0	0	15	**4.86**	141	**25**	4	0	0	0	29	**3.7**	41	1	**6**	**4**	0	0	11
(3) Impact	**5.0**	65	**13**	0	0	0	0	13	**4.3**	107	**11**	**10**	4	0	0	25	**3.6**	36	0	**6**	**4**	0	0	10
(4) Relevance	**5.0**	65	**13**	0	0	0	0	13	**4.94**	173	**34**	0	1	0	0	35	**4.6**	41	**5**	**4**	0	0	0	9
(5) Sustainability	**3.8**	38	0	**8**	2	0	0	10	**4.92**	182	**35**	1	1	0	0	37	**5.0**	55	**11**	0	0	0	0	11
	Mark	Total	Number of Votes for Marking (1-5)						Mark	Total	tes for Marking (1-5)						Mark	Total	Number of Votes for Marking (1-5)					
3. Formative (Development) Index	(1-5)	points	5	4	3	2	1	Total			5	4	3	2	1	Total	(1-5)	points	5	4	3	2	1	Total
(1) Individual	**5.0**	80	**16**	0	0	0	0	16	**3.4**	51	1	4	**10**	0	0	15	**5.0**	55	**11**	0	0	0	0	11
(2) Scheme / Community	**5.0**	80	**16**	0	0	0	0	16	**3.1**	71	0	2	**21**	0	0	23	**3.4**	41	0	**7**	**3**	2	0	12
(3) Networking	**5.0**	70	**14**	0	0	0	0	14	**5.0**	180	**36**	0	0	0	0	36	**4.3**	51	**4**	**7**	1	0	0	12

At the district level workshop, again the project performance and formative (development aspects) were evaluated as a whole programme. Table 2.5.14 shows the evaluation result at the district level. The participants rated the project performance and development aspects severely but fairly, although the Study Team felt the efficiency, effectiveness and sustainability would be higher than their marks. The participants gave reasons for the mark of effectiveness as: this has been the first season (effect not yet seen), and those who were trained were mainly landowners (most of farm laborers were not trained).

As for development indexes, they rated scheme / community / organization as the lowest among the indexes. The participants indicated the reason of the low mark as: the programme is rather individual approach, training related to communal / organizational aspects was missing, and non-rice farmers, i.e.

farm laborers need to be invited to the training as heard in the rating of project performance.

Table 2.5.14 Project Performance and Development (Formative) Indexes at District Level Workshop

1, Project Performance Index	Mark (1-5)	Total points	Number of Votes for Marking (1-5) 5	4	3	2	1	Total	Remarks
(1) Efficiency	**4.0**	103	3	**19**	**4**	0	0	26	
(2) Effectiveness	**4.1**	103	**4**	**20**	1	0	0	25	This has been the first season. Landowners were trained, but most of farm laborers were not.
(3) Impact	**3.8**	105	0	**21**	**7**	0	0	28	
(4) Relevance	**5.0**	145	**29**	**0**	0	0	0	29	We are rice community / farmers. Some have not harvested yet and it will be even higher next year.
(5) Sustainability	**4.0**	115	4	**20**	**5**	0	0	29	
2. Development Index	Mark (1-5)	Total points	Number of Votes for Marking (1-5) 5	4	3	2	1	Total	Remarks
(1) Individual	**4.0**	117	**5**	**20**	4	0	0	29	
(2) Scheme / Community / organization	**3.1**	94	0	**6**	**22**	2	0	30	It is individual approach and community is a spillover. Some part of the training was missing. Non rice farmers need to be invited also.
(3) Networking	**4.3**	126	**10**	**19**	0	0	0	29	

2.5.6 Issues Arisen and Lessons

1) Demonstration Arrangement

In the course of the demonstration activities, farmers who attended a demonstration in Gem Rae showed a feeling of little unfairness: although they are happy learning new rice technologies, they feel that they worked for the owner of the demonstration plot without any compensation other than learning. The same issue was anticipated to come up in other sites especially at the time of transplanting. The pilot team discussed this issue and came up with a few measures: 1) we need to clarify the role of the owners and should ask the owners to compensate the farmers who worked in their plots according to their culture, e.g. owners to give a piece meal to other farmers, share their harvest with those who worked for them etc. 2) we can shift the demonstration site as we find other farmers catching up with the new rice cultivation technologies.

During the demonstration, the government officers of the pilot team talked to the land owners of the demonstration plots and settled with the issue that the landowner in Gem Rae prepared a piece meal to the demonstration participants who worked for his plot and the landowners in Nyachoda and Gem Rae hired labor for the day of transplanting, so that the other farmers just worked a little to learn about line transplanting and the remaining work was done by the workers hired by the land owners. When establishing the demonstration farm, it would be necessary to agree with the owners on their role so that everybody would feel fair and happy to attend the demonstration.

2) Wait and See Attitude

Key-farmers have been practicing the new rice cultivation technologies since 2003, but even in their irrigation scheme, South West Kano, majority of farmers are still practicing conventional rice cultivation technologies. We picked up the issues of land tenancy and hired labor as the hindrance of dissemination, and there is also a factor that farmers have a wait and see attitude. Even though they hear of new technologies, they would not go for them straight away, but see first the others trying to do them. If they see some goodness in them, they start thinking to try themselves. This attitude makes the uptake of technologies slow though it may be reasonable for farmers in their risk

management.

Also crop husbandry is a comprehensive process, so that new technologies are not always able to result into better harvest due to factors like water shortage, poor land preparation, pest and disease prevalence etc. Having such risks in mind, continuous extension activities over the crop seasons are, therefore, necessary.

3) Refresher Seminars

From the questionnaire survey, it was found that there are some farmers who misunderstand the new rice cultivation technologies. Some farmers gave answered to the questionnaire that line transplanting is applicable only for basmati variety. Farmers also have different views on labor force for line transplanting. Some say line transplanting reduces labor but others say opposite. Merits of line transplanting should be further checked and disseminated to the farmers.

Even during the evaluation workshop, farmers discussed intensively the effects of chemical fertilizers and key farmers and government extension officers clarified that with proper water management and timing of application, chemical fertilizers will contribute to increasing the yield. To rectify those misunderstanding of farmers or their insufficient absorption of knowledge on new technologies, refresher extension activities in the same place would be required to convey accurate knowledge to the farmers.

4) Gender Consideration

On the questionnaire survey, among 82 valid answers, it was found that in 60 households (73%) husband is the landowner and in 17 households (21%) wife is the landowner (Figure 2.5.11). Out of the 17 households in which the landowner is wife, 10 households are women headed family. As for farm manager, the case husband is the farm manager was in 24 households (29%) and the case wife is the farm manager was in 48 households (59%). It is said that generally husband is landowner while the actual farm manager is wife.

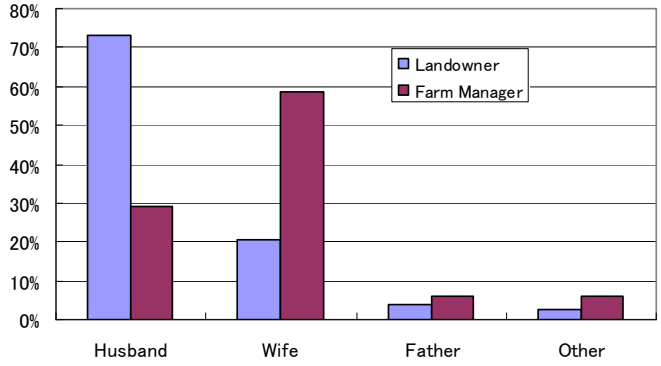


Figure 2.5.11 Distribution of Landowner and Farm Manager

Table 2.5.15 below shows the labor distribution for farming operations (only those dealt with the pilot) by men, women and children and by own labor and hired labor. Relatively heavier labors or the ones using a draft animal such as band making and leveling / puddling are mainly worked out by male. For transplanting, the share of children (upper grades of primary school and secondary school students) is the highest occupying 81% of the whole labor. Time for transplanting would have contributed to highest share of the children for the operation since the transplanting season overlaps the school holiday. But in general many children are helping parents for transplanting since it needs intensive labor.

For weeding, share of women labor is the highest as it occupies 94%, of which 82% is shared by hired women labor. The survey result revealed that harvesting labor almost equally shared by men and women though it is observed on the field that women labor seems dominant for harvesting work. It would be considered that threshing process in harvesting is mostly borne by women labor, which makes women labor for harvesting dominant. In overall, share of the labor by women is the highest with 44% of the total labor, out of which 33% is hired labor.

Table 2.5.15 Distribution of Labor by Operation

Operation	Men		Women		Children		Total	
	Own	Hired	Own	Hired	Own	Hired	Own	Hired
Band making	30%	38%	15%	8%	9%	0%	54%	46%
Leveling / Puddling	13%	38%	11%	31%	6%	1%	30%	70%
Nursery Preparation	35%	14%	31%	9%	11%	0%	77%	23%
Transplanting	1%	1%	5%	11%	11%	70%	17%	83%
Weeding	3%	2%	12%	82%	1%	1%	16%	84%
Harvesting	7%	38%	13%	37%	6%	0%	26%	74%
Overall	9%	17%	11%	33%	7%	24%	27%	73%

As the survey result indicates, women are mostly the actual farming manager or laborer vis-à-vis men are mostly landowner. Therefore gender consideration in disseminating new technologies should be considered. For instance, it should be taken into account to increase number of women attendance when we conduct trainings.

5) Hired Labor and Extension: Dissemination at School

As Table 2.5.14 above shows, 70% of rice cultivation labor is borne by hired labor. High degree of reliance on hired farm laborers would also face the issue of dissemination unless these laborers are taken into account. Farm laborers would go with conventional ways of cropping method unless the owners guide the workers to apply new technology. One issue observed in the field is significance of student labor. When school closes for long vacation, primary pupils and secondary students work on the fields of not necessarily theirs but often others. In August, students were working on transplanting in the irrigation schemes. If they are taught about new rice technologies at school, they can easily go on with them. It is therefore suggested that the government extension officers should hold seminars at school on new rice cultivation technologies.

6) Land Tenancy Custom and Extension

Land tenancy in the irrigation schemes in the Study Area has been prevalent and as a unique custom here in this area, there is frequent change of tenants. In Asia, tenants normally keep renting the same farm plots as long as they maintain the payment of rent for the landowners. But according to the field interviews, tenants in the irrigation schemes in the Study Area even change in one crop season and some tenants come from far away from the schemes. It has been said that this fact hinders extension of the new technologies, since they live far away from the schemes and do not receive information on demonstration or other dissemination function in time and change of tenants causes inconsistency of applied technologies. Regarding the issue, basin information on land tenancy system was collected through the questionnaire survey.

Duration of Tenancy Contract

On the duration of tenancy contract, among the 120 sample farmers, 20 valid answers from landowners and 48 valid answers from tenants were obtained. Among the 68 farmers, 39 farmers (57%) answered that they frequently change the renting plot (or tenant). Out of them, 32 farmers (47% to the 68 farmers) said that they change the plot to rent (or tenant to rent) every year. 6 farmers (9%) said they change the plot (tenant) every tow or three years. It was also found that about 40% of farmers keep renting the same plot in long term, though basically the contract is renewed every year.

Table 2.5.16 Duration of Tenant Contract

1) Valid Answer	68 farmers
2) Out of 1), change plot (tenant) frequently	39 farmers (57%)
3) Out of 2), change plot (tenant) every year	32 farmers (47%)
4) Out of 2), change plot (tenant) every 2 to 3 years	6 farmers (9%)

On major reasons for changing renting land (tenant), 13 landowners and 45 tenants gave valid answers. From the viewpoint of landowners, the most heard reason was "first come with money first serve basis" (from 6 landowners) and the second reason was "if the current tenant does not intend to crop next season (from 3 landowners). Other reasons were such as "agreement is violated", "tenant does not use land properly", "when I have plan to work myself", and "when I want more money for rent".

Table 2.5.17 Reasons to Change Tenant (by Landowners)

Reason for changing tentant	No.
First come (with money) first serve basis	6
If the curent tenant does not intend to crop next season	3
Anytime agreement is vilolated	1
Due to school fee presseure (decide to rent out)	1
If the tenant does not use land properly	1
When I have a plan to work myself	1
When I want more money for rent	1

On the answers from tenant side, the major reason was "landowner decides who to rent" (36%). As the same implication that decision is dependant on landowner, there were answers like "when landowner wants to cultivate himself (18%)", and "if yield is good, owner changes his mind (7%)". The same answers from the landowners were also heard like, "when someone pays before me (first come, first serve) (13%)", "when owner increases rent (11%)". These answers may imply existence of competition among tenants.

Table 2.5.18 Reasons to Change Renting Land (by Tenants)

Reason for changing land to rent	No.	
Depend on owner (Landowner decides who to rent)	16	36%
When owner wants to cultivate himself	8	18%
When someone pays before me	6	13%
When owner decides to increase rent	5	11%
if yield is good, owner changes his mind	3	7%
When I disagree with the owner on the condition	3	7%
Agreement is single crop season basis	2	4%
When owner withdraws agreement	1	2%
When tenant does not have enough capital	1	2%
When owner finds one to pay more	1	2%
When farm is not in good site	1	2%

Distance between Landowner and Tenants

On the distance between landowners and tenants, 27 landowners and 57 tenants, in total 84 gave valid answers. As Table 2.5.19 below shows, the case the distance between landowner and tenant goes beyond the location they live was only 9% in the total three sites. Majority of them were found living within their communities, as 48% of landowners and tenants both live within the same location (sub-location) and 43% live within the same village. In Nyachoda scheme, the case both landowner and tenant live within the same village was much higher than other schemes (72% for Nyahcoda while 32% and 21% for Awach Kano and Gem Rae respectively).

Table 2.5.19 Distance between Landowner and Tenant

Distance	Awach Kano	Gem Rae	Nyachoda	Total
Within the same village	10 (32%)	5 (21%)	21 (72%)	36 (43%)
Within the same location	15 (49%)	17 (71%)	8 (28%)	40 (48%)
Beyond location	6 (19%)	2 (8%)	0 (0%)	8 (9%)
Total	31 (100%)	24 (100%)	29 (100%)	84 (100%)

Note: Within the same location actually lives within the same sub-location except one farmer.

Instruction from Landowner to Tenant

Among the valid answers from 27 landowners and 63 tenants (total 90), 24 or 27% of landowners (tenants) instruct (are instructed) the tenants (by the landowners) (Table 2.5.20), i.e. less than one-third of landowners – tenants have communication on farm operation upon renting out the land. The most instructed issue by the landowners is about band making in order not to infringe on the neighbor's plot, followed by the issue about where to take water and maintenance of canals.

Table 2.5.20 Instruction from Landowner to Tenant

Instruction by Landowner	No. instructed (%)
1. Band making to maintain the border of neighbors	15 (63%)
2. Where to take water and maintenance of canals	12 (50%)
3. Drainage installment	4 (17%)
4. Place for nursery	4 (17%)
5. Disposal of rice stalks	1 (4%)
6. Variety of rice to crop	1 (4%)
7. Others	2 (8%)

It indicates that the landowners are opting to instruct tenants about issues relative to maintain common properties in order to avoid conflicts with neighbors. On the contrary, the landowners do not give much instruction about farm operations, which can be practiced independently by the tenants.

Rent

According to the questionnaire survey, it is estimated that the average land rent for paddy field is Ksh1,500 per quarter acre. Supposed that cropping IR variety in the quarter acre, applied with the yield of 3.5t/ha and unit price of 17Ksh/kg, the gross income from the quarter acre is calculated at Ksh5,950. The share of rent to the gross income is therefore about 25%. In Asia a share cropping system is prevalent, which is to share the production with 50 to 50 between landowner and tenant. Considering such system, the rent paid in the three irrigation schemes can be said not too expensive.

Summary

From the result of the questionnaire survey, it is pointed out that most of the tenants actually live near the landowners in the pilot schemes. Tenants who live far away beyond the location of the irrigation schemes are found few. Regarding the fact, it would be effective for not only landowners but also tenants to disseminate the new technologies through community gatherings such as chief baraza. Also landowners could begin instructing tenants on farming operation such as line transplanting when they see the benefit of the new technologies. Furthermore, the more farmers adopt new technologies, the more visible how the new technologies look like to many people regardless landowners or tenants, so that farmer to farmer extension my be able to overcome the disadvantage of current tenant system.

7) Negative Impacts of the Project

There might be possible negative impacts with new technologies. Following are the presumed negative impacts of the pilot project according to the field interviews to farmers and thre result of te questionnaire survey:

- The pilot introduces weeding with manual push-weeder in corporation with line transplanting. The technology drastically easies and saves weeding work. On the other hand, 94% of weeding work is borne by women, out of which 82% is hired labor. If weeding labor is drastically saved, those women who earn from weeding may lose their job opportunity.
- The pilot introduces threshing stand. Using threshing stand reduces loss of harvest because it minimizes the grains scattered when threshing. However, a few women at the demonstration of the threshing stand pointed out that there are poor people who come to collect grains dropped on the ground and if the loss is drastically reduced, they will not find their share on the ground.

These negative impacts should be kept in mind. If the project brings a situation that the rich gets richer and poor gets poorer, countermeasures to cope with situation must be thought. It is crucial to increase productivity of rice production, but also it should be harmonized with income distribution among the population.

For the case of weeding labor, women can learn how to use push-weeder and there might still be opportunities of weeding work since it has been observed that there are considerable numbers of farm plots in which weeding is not properly done. Provided that line transplanting and weeding by push-weeder were prevailed, farmers who used to neglect weeding work would do weeding more widely because of easy work, so that job opportunity for weeding work would still remain. As for the poor people who collect dropped grains, it would not be possible to solve the issue within the single project. Therefore, the regional development programme is necessary to create job opportunities to the population from various sectors.

8) Capacity Development of Government Extension Officers

Demonstration activities have been carried out in collaboration with key-farmers and government officers from agriculture and irrigation offices. It has been observed among all the pilot programmes in this Study that the government officers, who do not practice farming themselves on their land, in most cases teach farmers only about what is written in the textbooks. Textbooks will give theoretical aspects well to farmers, but theory does not always fit into the circumstances of each and every farm. Inputs from actual practices and experiences in the area can enrich the contents of the trainings.

Collaboration between the government extension officers and lead farmers in the area like the key-farmers can address the above issue and also can contribute to capacity development of the government extension officers. As for the rice cultivation, one of the officers in charge of this pilot is also a rice farmer, so that he exchanges his views with the key-farmers and that is contributing to enriching the demonstration activities.

9) Extension System Involving Lead Farmers

Involving key-farmers, i.e. local lead farmers, could contribute not only to capacity development of the government extension officers but also to increasing efficiency and effectiveness of the extension services. The strategy here is that the government provides local lead farmers with the venue and opportunity of being trainers, so that private initiative of extension services may come out. Considering the limited resources and manning of the government, the strategy would be able to extend outreach of the service delivery.

Key-farmers in Nyando and Kisumu Districts have registered their groups with the Social Services Department, so that they have been recognized as CBO by the government and the group from Kisumu District has already conducted trainings on new rice cultivation technologies in other areas sponsored by a local NGO. Also a farmer hires key-farmers for transplanting labor with additional cost for consultation of seed selection and line transplanting.

This privatization of extension services and the government extension function as catalyst is in line with the government policy stipulated in “Strategy for Revitalizing Agriculture 2004 – 2014” prepared by the Ministry of Agriculture and Ministry of Livestock and Fisheries Development and National Agricultural Sector Extension Policy (NASEP).

It may be a fear that without sponsorship lead farmers cannot grow as private service providers and also they may lose vigor of volunteer spirit resulting in the story that small-scale farmers who are needy may not be able to access to the teaching. Considering this point, “Strategy for Revitalizing Agriculture” emphasizes the role of Local Authorities to provide the services to all farmers within their area. Although the pilot sponsored to bring trainers (key-farmers) to the target irrigation schemes, farmers of the schemes also prepared lunch for the training. So there is a possible way that farmers organized by local authority could get fund to invite lead farmers to teach them as far as they recognize that they will benefit from it as individual farmers have been already paying to the key-farmers as mentioned above.

Also the Study Team discussed with the government officers the relevance of the trainer’s fee for the key-farmers and got consensus that the fee was adequate and would not discourage the volunteer spirit of the key-farmers. The fee for the key-farmers is actually less than 10% of the fee in case of hiring consultants or NGO personnel. It has been also observed that some of the key-farmers went to oversee the demonstration plots sometimes voluntarily. Key-farmers have sense of responsibility for disseminating their skills and that is giving them joy, which is more than the satisfaction of earning.

2.6 Local Cotton Industry Promotion Programme (Hand Spinning and Weaving)

2.6.1 Rationale

Popular cash crops in Nyando District are sugarcane, rice, and cotton with little magnitude. Though sugarcane is the major cash crop in Nyando District at present, trade liberalization to be implemented among COMESA countries in 2008 will threaten the sugar industry of Kenya, since other COMESA countries like Sudan can produce sugar at a cost as low as one-third of that of Kenya. Therefore, alternative industry development as well as strengthening sugar industry are urgently required.

Blessed with favorable rainfall, long hours of sunlight, high temperature and black cotton soil, cotton used to be grown widely in Nyando District. The area under cotton once reached 4,000ha in 1980s, but due to low international market price[1] of cotton and cut down of subsidy to cotton sector, farmers were discouraged to grow it. Currently the area under cotton in Nyando District is only 200 to 300ha. Revitalization of cotton sector is one of the alternatives to sugarcane sector in the district, but if raw cotton was sold to the ginneries in Kisumu, income of farmers would not be improved and also cotton related industries would not be developed. It is, therefore, expected to seek a way to add value to raw cotton by processing within the locality. One way of adding value is to process the raw cotton manually into thread and textiles in the locality, so called hand spinning and hand weaving cottage industry.

Production of Cotton by Country:

China:	6.32 Mton
US:	5.06 Mton
India:	3.00 Mton
Pakistan:	2.45 Mton
Brazil:	1.20 Mton
Uzbekistan:	1.15 Mton
Turkey:	0.90 Mton
Australia:	0.49 Mton
Greek:	0.36 Mton
Syria:	0.33 Mton

Source: FAOSTAT, 2004

2.6.2 Objectives

The objective of the Local Cotton Industry Promotion Programme is:

- Cotton is locally processed into high value added products, e.g. hand woven textiles, hand spun thread by the community members, and thereby the income of community members engaged in the local industry is improved.

2.6.3 Major Planned Activities

Cotton growers have been selling raw cotton at cheap price to the ginneries, but if they can process the raw materials by themselves, they can add value to their products and also contribute to creating job opportunity of processing work. Promotion of cotton industry involves not only cotton growers but also various actors who are engaged in value addition to cotton made products. Hence on February 9, 2006 the Study Team held a workshop with stakeholders for cotton industry. During the workshop, processing of cotton products and by-product were analyzed. Following figure shows the chart of cotton processing. The Ministry of Agriculture has been assisting cotton growers and it was clarified during the workshop that the JICA Study Team could assist in the processes of hand spinning and weaving as one of the pilot programmes.

The Government of Kenya is focusing on the revitalization of cotton industry and the responsibility for enhancing the cotton production has been given to the Ministry of Agriculture. In Nyando District, the Ministry has selected one farmer each from all the 72 sub-locations in the district and procured for them necessary inputs for an acre cotton farm such as cotton seed, fertilizers and pesticide[2]. In connection with the MOA initiated activities, the pilot facilitates trainings of

[1] Reasons for low international price is; 1) expansion of synthetic fibers, 2) oversupply from big suppliers such as China, US, India, and 3) big subsidy, reaching to as high as two thirds of the production cost, to the cotton farmers in the US, etc.

[2] Development budget of 1.25M Ksh for cotton industry revitalization was allocated Nyando District Agriculture Office in

processing raw cotton (from lint to yarn) by using manual spinning wheels. The pilot also assists the training participants to develop cotton products such as hand woven textiles, which can be sold at an attractive price.

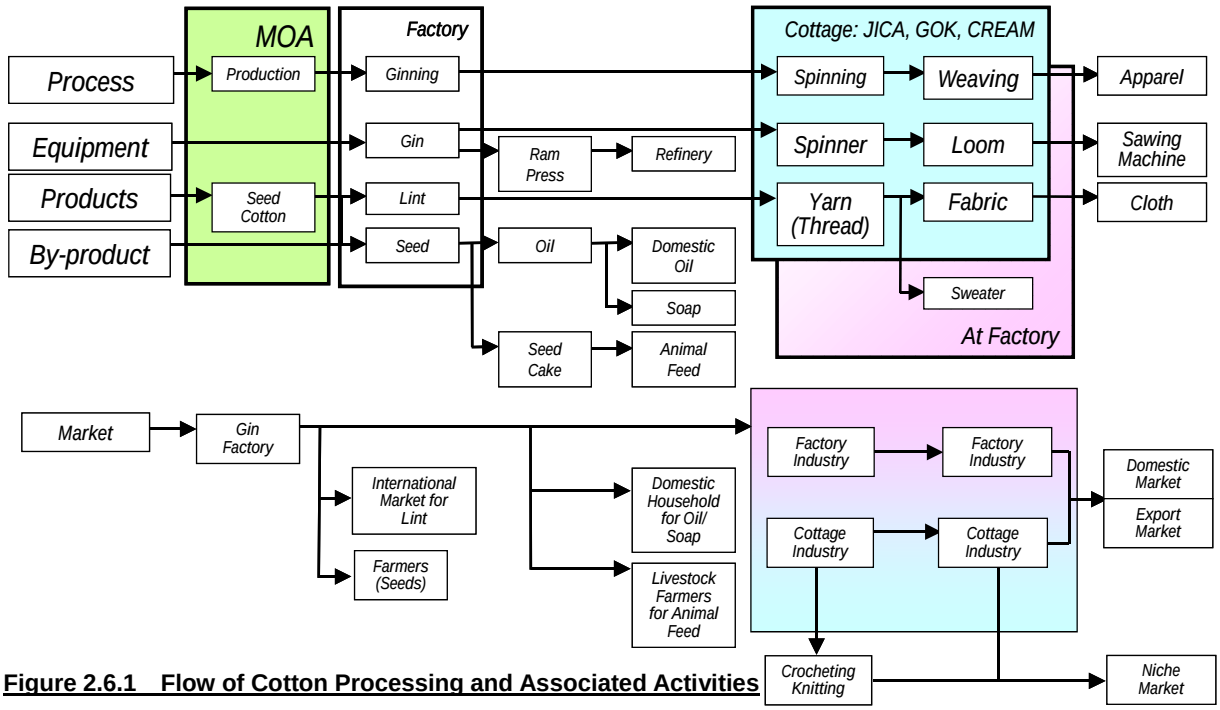


Figure 2.6.1 Flow of Cotton Processing and Associated Activities

The pilot programme was implemented in association with a local NGO, which is CREAM (Cotton Rehabilitation and Management), and with Ebenezer which is a faith based institute in Nyando District[3]. The pilot programme provided CREAM with necessary equipment such as spinning wheels and handlooms, and also facilitated trainings for manual spinning, weaving, as well as carpet making and tie & dying in order to create value additions to the local cotton industry. On the other hand, CREAM in association with Ebenezer provided a housing building where necessary equipment were placed (see photo), and also arranged the trainees.

Building where equipment were placed.

The equipment provided is summarized in Table 2.6.1. It would be noted that though the pilot programme arranges the trainers, the trainees must bear necessary expenses for the 6-week training such as lunch, tea, bedding, transportation, etc., reaching as high as over Ksh 20,000 per person. This condition may be very tough to solicit many trainees. However, the Study Team thinks that promotion of local cotton industry is a kind of business venture, and therefore certain commitment is necessary.

2005/06 FY.

[3] Ebenezer has grown up in a short period as it established a kindergarten, a primary school and a secondary school in 1996, 2000 and 2003 respectively. The principal of the schools is the representative of CREAM and also he serves as the chairman of National Cotton Development Forum in Kenya.

Table 2.6.1 Equipment and Training Arranged under the Pilot Programme

Activity	Resources Required	Unit	Quantity	Remarks
Spinning	1. Spinning wheel	Nos	5	
	2. Winder	Nos	1	
	3. Drum carder	Nos	2	
	4. Other equipment	LS	1	Accessories
Weaving	1. Hand loom	Nos	4	
	2. Leed	Nos	6	
	3. Flying shuttle	Nos	8	
	4. Winder large size	Nos	1	
	5. Spooler	Nos	2	
	6. Accessories	LS	1	
Training	1. Training	Week	6	4 trainers + 1 supervisor
	Hand spinning course			
	Hand weaving course			
	Carpet (rough) weaving			
	Tie and dying course			
	2. Materials	LS	1	Yarn, thread, dyes, etc

2.6.4 Implemetation Process and Achievement

Necessary equipment was ordered in late May 2006 to a private organization based in Nairobi, which has been engaged in production of not only hand spanned thread, hand woven textile but also equipment. The organization is called Masai Village Craft Ltd, which was started in the year 1988 by the current managing director. The organization has so far trained approximately 500 handloom weavers who are now scattered all over the country doing their own weaving businesses. Most of these people have been able to improve their standard of living, take their children to school and are now able to clothe their families.

History of the Organization:

In the year 1988, the current Managing Director of Masai Village Weavers started to weave rugs in her home garage for her own home use. She then trained two girls to do the art of Handloom Weaving and Spinning. The rugs were then sold to friends and the neighboring current residents who are mainly foreigners. The current director then decided to train more women this art as there was big need for job creation to cope with poverty. The people identified as needy case were single mothers, school leavers and orphans. By now the business was registered and moved to the Town centre of Ongata Rongai on Magadi Road about 30 km from Nairobi centre.

It took about two months to finish manufacturing of the equipment. The equipment was delivered to a building under Ebenezer institution in Ahero Town on August 4, 2006 as planned in the aforementioned table. Upon arrival of the equipment, training was meant to start soon. However, it took another two weeks to get the trainees ready. As mentioned before, JICA Study Team is responsible for equipment and trainers provision, while arrangement of the trainees, approximately 20, was rested on the CREAM in association with the Ministry of Agriculture in Nyando. The institute advertised for the training through its own network and the Ministry of Agriculture, not only in Nyando but also in other nearby districts.

Interested people, who are possible candidates, gave their intention in a prescribed application form, and after scrutinizing their educational backgrounds and intention to take entrepreneurship, acceptance letter were issued to the prospective candidates of the training. The institute has received as many as 38 application forms, and issued the acceptance letter to 32 candidates. The condition mentioned in the acceptance letter is:

- Ksh 500 for registration
- Ksh 1,000 for deposit (refundable but forfeited if drops out on the training course)
- Ksh 100 for tea and lunch arranged by the institute

- Arrangement for his/her own bedding

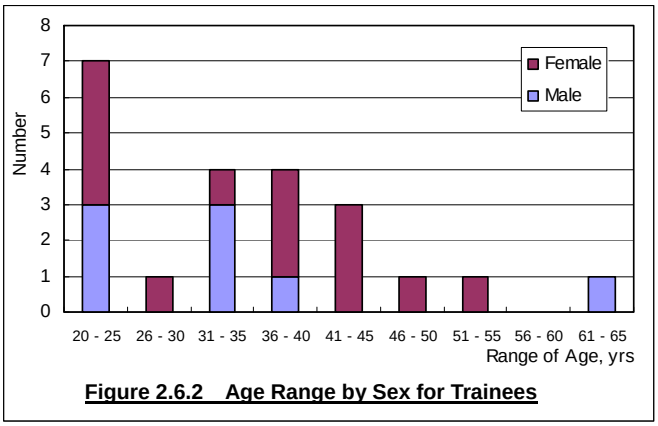
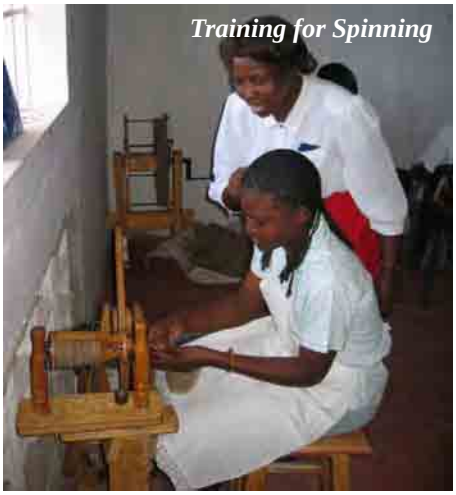


Figure 2.6.2 Age Range by Sex for Trainees

Even with the above conditions, nine trainees showed up on the commencement date of the training, 4th of September (Monday) 2006. Thereafter some more trainees came to the institute, and within a week a total of 22 trainees came to the training course which lasted six weeks (the training finished on 13th October, 2006). Trainees are summarized as; 1) there are 15 female and 7 male participants whose ages range mostly between 20 and 50 with an old woman of 62 years old, 2) trainees are from not only Nyando District (8) but also Siaya (4), Suba (6), Kisumu (1), Rachuonyo (1), Homa Bay (1), and even Kajiado (1), and 3) about 60 percent of the trainees are self funded and others are assisted by their group or otherwise project like Kenya Agriculture Productivity Project (for detail of the trainees, see the last page of this Chapter).

The training was composed of four courses; namely, 1) hand spinning, 2) fabric handloom weaving, 3) hand frame weaving (carpet making), and 4) tie & dying as mentioned below in detail:

1) Spinning



Training for Spinning

The participants were trained on the following areas with respect to the spinning;

- Combing or carding: The cotton lint is combing or carded to remove any obstacles to make it easy to spin. This process can also be called ginning[4]. This is being done by using drum carders or hard carders.
- Spinning of the cotton thread: This is a method of twisting the cotton using a spinning wheel to make a single ply thread of different sizes. The two single ply threads will then be plied together to make a strong thread, which can be used to make a fabric.
- The cotton thread dying: The cotton thread is dyed into different shades of colours. This process is done using chemical dyes or even plant dyes where necessary. After dyeing, the cotton thread is balled into balls of different weights and packed ready for sale.

Winding preparing warp threads

2) Fabric Handloom Weaving

Weaving is a process of interlacing a warp thread against the weft thread to make a fabric. The weaving process undertaken involves the following:

- Winding: This is a process of preparing the warp threads and arranging it in different colour to make

[4] Ginning the lint from cotton seeds is done in a ginning factory. Then, the lint is compressed in a bale and we buy this bale. However this bale still includes some obstacles, and therefore combing and carding is necessary.

the desired pattern. To make it easy to thread the warp into the loom, this process is done using a wider flame.

- Weaving: The warp is now taken to the loom and the preparation for weaving starts which involves beaming and threading. The weaving process then continues by using the weft thread across the warp using a shuttle to make the fabric. The weaving can be done using either machine spun cotton thread or the hand spun cotton thread as desired.


Training for Weaving

3) Hand Frame Weaving (Carpet Making)

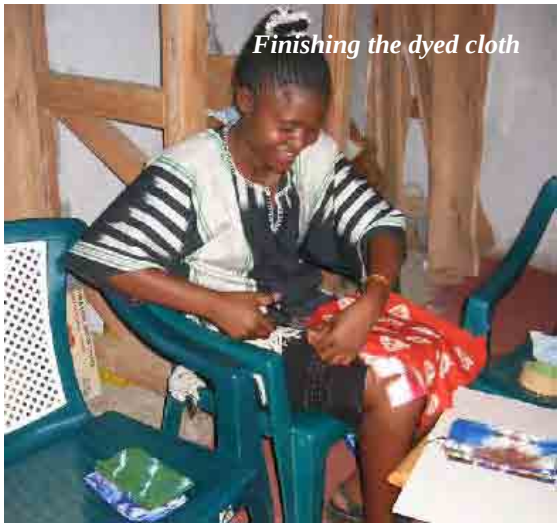
Frame weaving course is composed of frame loom, warping, shedding, plain weave fabric, rugs and carpets, and tapestry. This is a very simple technology to make thick rugs and carpets.


Training for Frame Weaving

- A wooden frame is placed on a wall, and then weft threads are stretched between the top and bottom beams. The beams have got nails in equal interval, say about two cm, at which the weft treads are fixed.
- Warp thread starts interweaving with the weft threads. To make colorful rugs or carpets, differently colored warp threads are used after every 5 – 10 cm in already woven parts as the weaver wishes.

4) Tie and Dye Course

It is a process where a plain cotton clothe is given different colour to increase its value in the market. Colours/dyes and required chemicals are bought, and then mixed accordingly before the clothes being boiled in constant fire for a required time. Then the clothes are exposed to dry in an open sun. Different designs/paterns can be made by folding the cloth in the desirable shapes. Usually the end product is permanent if correct procedure and mixing is used.


Finishing the dyed cloth

2.6.5 Training Evaluation by the Participants

After the training was completed, the Team carried out a post training survey using simple questionnaire. The questionnaire covered all the 22 participants. Following are the results of the survey:

1) Source of the Training Information

Pastor Orale, the chairman of Ebenezer and CREAM, took the responsibility of recruitment of the participants. He disseminated the training information through his institutes and also through the Ministry of Agriculture in Nyanza Province. Eleven participants got the information from Ebenezer/ CREAM, 9 through the Ministry of Agriculture, and the remaining 2 from JICA Study Team (see Figure 2.6.3).

2) Course taken by the Participants

Since the training duration was six weeks, which is not enough to go through all the sessions arranged, the participants were divided into groups and have undergone some courses. All the 22 participants were given tie & dyeing course and also (simple) business management course. The main courses such as spinning, hand weaving and rug (carpet) weaving were given by group. 11 participants took spinning course, 6 took hand weaving course and another 6 rug weaving course (see Figure 2.6.4).

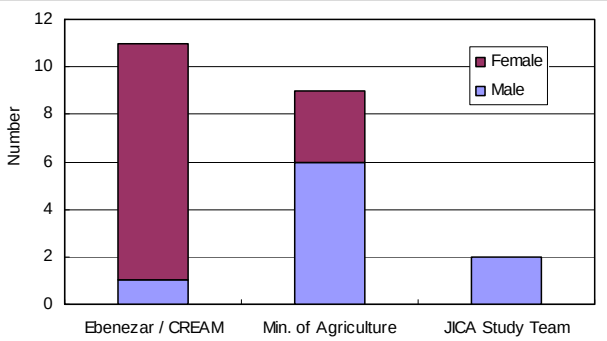


Figure 2.6.3 Source of the Training Information

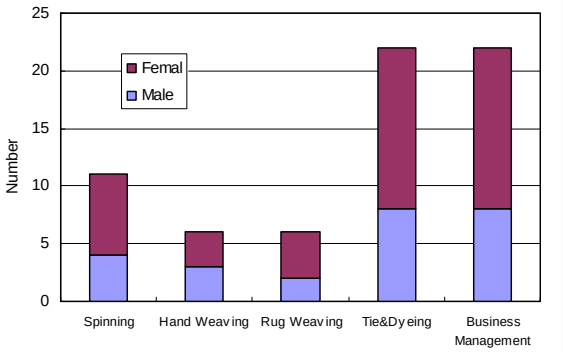


Figure 2.6.4 Course Taken by the Participants

3) Level of Satisfaction for the Course

The satisfaction level was asked in a scale of 1 (very dissatisfied) – 5 (very satisfied). All the percipients but one replied either very satisfied or satisfied with the latter majority. One participant replied neither satisfied nor dissatisfied, giving the reason that the pattern introduced was not enough due to time constraint and finishing still not yet of expected level due again probably to the time constraint. The reply of the satisfaction with their comments is given in the following Table 2.6.2 and the summary is illustrated in Figure 2.6.5.

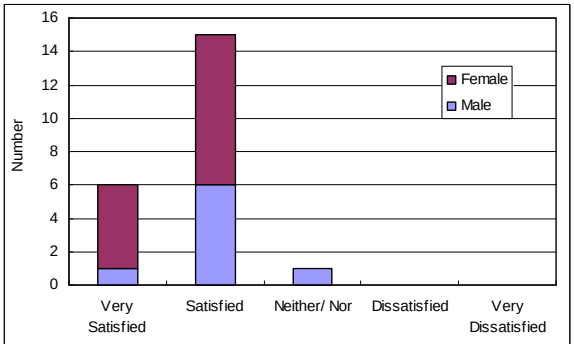


Figure 2.6.5 Satisfaction Level by the Participants

Table 2.6.2 Summary of the Satisfaction Level by the Participants

Rate	Male	Female	Comments
Very Satisfied	1	5	・ I can now do weaving, producing Kikoi, mats, etc. ・ I can now make threads both cotton and wool. ・ The trainers were so patient and encouraged participation from us. ・ The trainer was so loving, encouraging and helping us in all areas. ・ The trainer helped us very much to achieve all the skills. ・ I can now produce some products.
Satisfied	6	9	・ I can spin and do tie & dyeing. ・ Time and duration were just good. ・ Need for further advancement to be a TOT. ・ Instructors encouraged us and sacrificed his time to answer our questions. ・ I can now understand a little of spinning except a few areas. ・ I can now spin both cotton and wool in different sizes in good quality. ・ I only acquired primary skills but still there is much I need to know. ・ I can now manage the parts what the trainers taught. ・ Trainers were excellent but the duration was not enough to master other standard designs. ・ I can now train where given an opportunity of training others. ・ My dream has come true to do practical. ・ The trainer was lenient enough and ready to help. ・ I got everything I wanted to know on the hand weaving. ・ The trainer was so cooperative.
Neither/ Nor	1	-	・ Patters introduced were not enough. ・ Finishing still not of expected standard.

4) Level of Mastering the Course

Level of mastering the course was asked in a range of 4; about 80 % or more, about 50 – 80%, about 20 – 50%, and less than 20%. None of the participants replied that they mastered less than 50%. Nine participants (3 males and 6 females) replied that they mastered over 80%, and the remaining 13 participnats (5 males and 8 females) replied they mastered about 50 – 8% (see Figure 2.6.6).

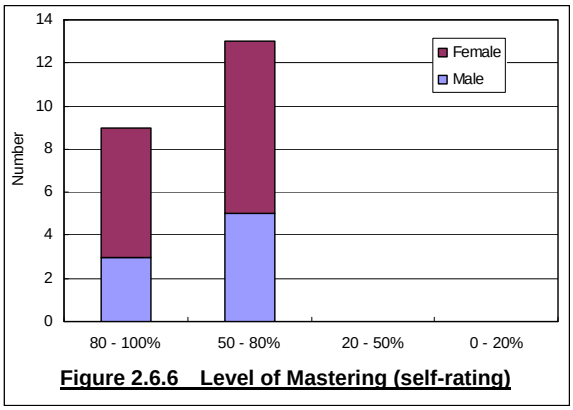


Figure 2.6.6 Level of Mastering (self-rating)

5) Future Plan and How to Materialize

Future plan was asked to all the participants. Following Table 2.6.3 summrizes the replies, and the majority, 16 out of 22, replied 'they are to start own business upon procuring necessary equipment/ materials', followed by 'to become a TOTs in cotton enterprize' by 12 participants.

Table 2.6.3 Summary of the Satisfaction Level by the Participants

Future Plan	Nr.	How to materialize the Plan.	Nr.
To start own business upon acquiring necessary equipment/ materials.	16	Through sponsorship. On my our sources. Through group contribution Through harambee No idea of how to avail of the capital Raise money through marry-go-round Get loan from relatives Write a proposals for grant	7 2 1 1 2 1 1 1
To become a TOTs in cotton enterprise	12	Further training. Seek for more fund through financial organizations. Organize training course or open a training centre.	1 2 1
To mobilize people in my area and educate them on whatever I have attained.	1	Donate fund from the youth group and ask loan to the Gvt.	1
To assist cotton farmers with the knowledge I gained.	1		
To buy spinning machine.	1	Need a sponsor to help.	1
To train the community members to improve the poverty.	1	Through an assistance e.g. from JICA	1
To take spinning and fabric weaving training	1		
To own a workshop	1	Need for help to market the product.	1
To get employed.	1		

6) Suggestions to Improve Training

Suggestions given by the participants to improve the training courses if once more given in future are as follows: The majority, 15 out of 22 participants, suggested that the training duration should be extended even to 3 months, then followed by 'advanced training' by 7 participants, which is also well related to the extension of the training duration. Other suggestions made were some financial assistance, full sponsership, training on other courses, central residence place, amongst others.

Table 2.6.4 Suggestions to improve the training

1. Training duration be extended, e.g. 3 months.	15
2. Advanced trainings be organized.	7
3. Some financial assistance be given to upkeep (partly be assisted).	4
4. Training be fully sponsored.	3
5. Be trained on other courses.	2
6. A central residence place be necessary.	2
7. Allowance be provided.	1
8. There should be more machines.	1
9. There should be more training materials.	1
10. Avail of the training at all the districts in Nyanza Province.	1
11. There should be more monitoring during the course.	1
12. Some necessary things be provided to start up the business.	1

2.6.5 Issues Arisen and Lessons

1) Allowance and Upkeep during the Training

One thing noted out of the 1st batch training is that although JICA Study Team provided necessary equipment, materials and the trainers, all the participants were requested to stay for the six weeks on their own. From Table 2.6.5, it can be seen that there are only two participants funded by other than self or than his/her group. Twelve trainees have managed to source on their own and eight are assisted by the group to which they belong. The necessary expenses would have gone beyond as much as Ksh 20,000 for those who needed lodging in Ahero Town.

All the participants excluding just one raised that the arrangement was not so good that in future upkeep should be provided (one replied JICA did the part, so it was OK). Though we know the arrangement was very hard to all the participants, we still believe that was the very drive of implanting the necessary skills to the participants very quickly. Seriousness or commitment in broader term very much lies on how they have managed the necessary fund. It was seen that the more they sourced their own fund, the more was their commitment.

Table 2.6.5 Source of the Fund by Trainee

No.	District	Sex		Age	Source of Fund			Past Experience if any
		M	F		Self	Group	Donor	
1	Nyando		✔	20	✔			N/A
2			✔	36		✔		N/A
3			✔	42		✔		Hand looming & carpet (Ahero)
4			✔	45		✔		N/A
5			✔	23	✔			N/A
6		✔		25	✔			N/A
7			✔	20	✔			N/A
8			✔	41		✔		N/A
9	Suba		✔	34		✔		N/A
10			✔	43		✔		N/A
11		✔		32	✔			N/A
12			✔	52	✔			N/A
13		✔		31		✔		N/A
14		✔		41	✔			N/A
15	Siaya	✔		24	✔			N/A
16		✔		32			✔(KAPP)	N/A
17			✔	24	✔			N/A
18		✔		62			✔(KAPP)	N/A
19	Kisumu		✔	35	✔			N/A
20	Rachuonyo		✔	24	✔			N/A
21	Kajiado		✔	30	✔			Carpet weaving (Nairobi)
22	Homa Bay		✔	45		✔		N/A
Total		**7**	**15**	**34**	**12**	**8**	**2**	

Note: KAPP stand for Kenya Agriculture Productivity Project

2) Follow up and Business Startup

In February 2007, follow up survey was done to not only CREAM, which is now the production centre, but also trainees who participated in the training. After the training, four have remained in the production centre, and engaged in production. In addition to what was produced during the training course, they have produced several items such as hand spanned thread, kikoi, table mats, etc (see photo right. From late October 2006 to January 2007, they have sold about Ksh 50,000 in gross at the centre (material cost constitutes about 30%, and hence the net profit is about Ksh 35,000).

Products sold at the Centre

Their products have not yet been at any other market outlets than the centre. This is because the production is not yet full-fledged. In addition to this, one may notice that the quality of the products may have worsened a bit as compared to those produced during the training. The training was supervised by well-qualified trainers, and hence at the end of the training they could produce competent products. To upkeep and also improve their products enough to compete in market, they may need to be further trained or otherwise they should make every effort to improve.

Table 2.6.6 below summarizes the present situation of the 22 trainees as of February 2007, four months later after the training finished. As the table shows, it is in fact not so easy to start the value addition to cotton in their locality. At Ebenezer where they are provided with equipment, six are engaged in production (name italics); six trainees from Suba District are struggling and of them two are engaged in tie & dying and others are still trying to produce; four from Siaya are waiting for equipment which are to be provided by the Ministry of Agriculture under Kenya Agriculture Production Programme (KAPP).

Table 2.6.6 Summary of the 22 Trainees for their Present Status as of February, 2007

District	Trainee	Achievement
Nyando (8)	***Quenter Akoth***	Engaged in spinning at Ebenezer and sold 30 kg spun wool to a carpet maker in Nairobi. Trained 1 person on spinning
	Elizabeth Nyamori	Works at Ebenezer as a spinner on cotton. The spanned cotton is used to make fabric at the same place. Trained 2 people at Ebenezer under widows programme on spinning.
	Norah Akil	Engaged in carpet making at Ebenezer and produced about 10 carpets. Participated in 2nd batch training as trainer.
	Jenipher Oluoch	Made a carpet making frame which she wants to use to make carpets on her own business.
	F. Ochieng, B. Ogada, R. Arianda, H. Atito	Still trying to raise fund to start their business.
Suba (6)	Joice Orale	Move to Nairobi, and did tie and dying on more than 30 clothes. She has sold them at a cost of about Ksh 800 – 1,200 each.
	Daniel Akoko Owili	Equipments were provided by MOA, Suba. Has managed to weave a whap of Kenyan flag on world AIDS day (demonstration)
	Raphael Odwar	Has made a frame for carpet making, and made spinning wheel locally which costed Ksh.5,000. Now doing spinning but has not sold yet. Will sell carpets to hotels around and ICIPE.
	Cleon Ambogo	Have made about Ksh 700 out of tie and dye-Jeans trouser cost Ksh100 while T shirt costs Ksh50. Participated on divisional and district level field days and displayed Kikois which we have made so far
	Mary Akoth Orwa	Hand loom was provided by MOA in August 2006. Trying to link with another trainee to arrange a fungi to help them fit the looming machine to work properly.
	Linet Otiende	Group has bought materials worth Ksh 40,000.00 from Nairobi. They contributed cash jointly for the materials. One more member has gone for training in Kerugoya Central on fabric and machine Maintenance. But so far no production was made yet.
Siaya (4)	P. Owino, L. Atandi, A. Odera, F. Omolo	Have discussed with the MoA, Siaya. The MAO is to provide necessary equipment such as spinner, hand looms, etc. They are waiting for.
Homa Bay (1)	***Maren Otieno***	Do spinning at Ebenezer. Trained 6(4F,2M) on spinning at Ebenezer, and I talked to farmers on cotton planting.
Rachuonyo (1)	***Beatrice Akech***	Do production of Kikois at Ebenezer center (Kikoi sell for 300/-, Bag sell for 300/-, Table mats Set of 6 sell for 1200/-, Shirt made of kikoi 500/-, etc.)
Kisumu (1)	M. Onyisi	Looking for funds.
Kajiado (1)	***Dinah Orlale***	Move to Ebenezer. Has so far made bags, mats, Kikois for cream at Ebenezer. Hhave sold so far about 7000/- to 8000/-. Have trained 13 candidates on fabric making, and also trained all the 13 on tie and dye.

3) Production Institute as well as Training Centre supported by the Ministry of Agriculture

From February 5 to February 15, 2007, an additional two-week training had been carried out at

CREAM. There were 11 trainees from Nyando and Homa Bay Districts. The list of the trainees is shown below, and they were all supported by the Ministry of Agriculture for their training expenses (not including subsistence allowance which was on them). The participants are all engaged in cotton production at their farms, which was a condition why the Ministry recommended them for the training. As the Government of Kenya is now committed to revitalize cotton production, each district agriculture office has been receiving about Ksh 1 million or more since 2004/05. With the budget, the Ministry has been promoting cotton production as well as value addition to cotton. The training course was a part of value addition trial.

Table 2.6.7 Summary of the Participants for the Second Training Course

Course	Nyando	Homa Bay	Remarks
Spinning	3 (0M, 3F)	1 (1M, 0F)	
Hand Loom Weaving	2 (2M, 0F)	1 (1M, 0F)	
Hand Frame Weaving	2 (2M, 0F)	2 (1M, 1F)	
Total	7 (4M, 3F)	4 (3M, 1F)	

The 2nd batch training course had three trainers who in fact had been trained during the 1st batch of the training financed by JICA Study Team. Although their skills are not yet as good as that of the 1st batch trainers who came from Nairobi, the training course was much cheaper and hence may be suitable as first-step training. Although what they can produce out of the 2nd batch training cannot yet be competent in the market either, the training course can work as preliminary training from which only better trainees could be given advanced course. Also, the trainers have improved their skills through teaching others.

Since value addition to cotton takes long time to become full-fledged cottage industry, the CREAM should not only produce the product but also work as training centre in conjunction with the Ministry of Agriculture just as demonstrated in this 2nd batch training. As many cotton producers are engaged in value addition, the cotton cottage industry will have broad outskirt. The broad outskirt would facilitate the cotton cottage industry to be full-fledged.

LIST OF THE PARTICIPANTS TO THE COTTON TRAINING

No	District	Name	Sex M	Sex F	Age	COURSE	Source of fund	Source of information	Past Exp if any	Future Plan	Adress	Tel
1	Nyando	QUENTER AKOTH		X	20	SPINNING	Self	Ebenezer	NA	Employment in a spinning organization	Nyando Dist, Nyando Div, Kakola Loc, Tura sub	0723-874722
2		FELIX M. OCHIENG	X		25	CARPET	Self	MOA/Ebenezer	NA	Carpet making business	Nyando Dist,L.Nyakach Div, Rangul loc, Jimmo middle	0735-619003
3		NORAH AKILI		X	23	CARPET	Self	Ebenezer	NA	Own weaving business,Employment at masai weavers	Nyando, Nyando Tura sub loc.	
4		JENIPHER OLUOCH		X	41	CARPET	Self	Ebenezer	NA	Train students at Ebenezer	Nyando, Nyando Tura sub loc.	0723-436728
5		BENTER A. OGADA		X	36	SPINNING	Self	Ebenezer	NA	Employment in a spinning indistry	Nyando Dist, Nyando div, Kakola loc Tura	
6		ELIZABETH NYAMORI		X	42	SPINNING	Self	Ebenezer	handloon and carpet in Ahero	Spinning in Ebenezer	Nyando Dist, Nyando Div, Kakola Loc, Tura sub	0727-785160
7		ROSELINE AMOLO ARIANDA		X	45	SPINNING	Ebenezer widows	Ebenezer	NA	Employment at Ebenezer handloom machine	Nyando dist, Nyando div, Kakola loc, Tura	
8		HILDA AWITI ATITO		X	21	SPINNING	Self	MOA	NA	Employment in spinning ornagization	Nyando, L.Nyakach, NE Nyakach Awach sub	0733-959043
9	Suba	CLEON ODOYO AMBOGO	X		31	SPINNING	Self	MOA	NA	Group training and cotton use promotion	Suba Dist. Gwasi Div. Gwasi east, Kibler sub.	0726-160515
10		JOICE ORLALE		X	52	CARPET	Self	Ebenezer	NA	Own weaving business	Suba Dist. Lambwe Div Kamato Loc.	0721-490253
11		RAPHAEL OKOTH ODWAR	X		41	CARPET	Self	MOA	NA	Group business,Training students	Suba Dist, Central div, Ruma loc, Nyatoto sub	0736-530227
12		LINET OTIENDE		X	34	FABRIC	Wasemata youth group	MOA	NA	Own business and work for my group	Suba-Mfangano east, Wakula loc, Senna Village	0725-514289/0720768958
13		MARY AKOTH ORWA		X	43	FABRIC	lak Nyiero self help group	MOA	NA	Laknyiero Looming machine	Suba -West Rusinga IslandMbita Div	0727-311767
14		DANIEL AKOKO OWILI	X		32	FABRIC	Self	MOA	NA	St Florence community Dev self help group Looming machine	Suba central div Ruma loc. Nyatoto sub	0725-926361
15	Siaya	PETER OMONDI OWINO	X		24	FABRIC	Self	MOA	NA	Forming a group and starting Weaving/Spinning as business	Siaya Dist, Uranda Div, Kaugagi sub, S.W.Alego	0736-911105
16		LUCAS ODIMA ATANDI	X		32	SPINNING	Kenya Agri Prod Proj	MOA	NA	Train farmers on cotton value addition	Siaya dist,Karemo Div, South Alego Loc, Nyajuok Sub.	0735-761476
17		ALICE AWINO ODERA		X	24	CARPET	Self	MOA	NA	Own businee in carpet making and would like to learn spinning also	Siaya Dist, Karemo Div, South Alego Loc, Udindi	0721-220344
18		FESTO OMOLO	X		62	SPINNING	Self	MOA	NA	Train farmers on spinning	Siaya,Karemo, S, Alego, Nyandiwa	0724-776831
19	Homa Bay	MAREN A. OTIENO		X	45	SPINNING	Self	Ebenezer	NA	Own business in a spinning industry	H/bay Rangwe div, Kagan W. Koko Sub	0726-100641
20	Rachuonyo	BEATRICE AKECH		X	24	FABRIC	Self	Ebenezer	NA	Employment in a weaving group	Rachuonyo dist,east rachuonyo Div, Wangchieng loc, kobala sub	0725-447220
21	Kisumu	MARY AKINYI ONYISI		X	35	SPINNING	Self	Ebenezer	NA	Employment in a spinning organization	Kisumu Dist,Kadibo Div, Bwanda loc, Kabonyo sub	0724-399617
22	Kajiado	DINAH ORLALE		X	30	FABRIC	Self	Ebenezer	Carpet	Business in weaving and carpet making	Kajiado District Ongata Rongai Div.	0721-490253

2.7 Ecological Farming Promotion Programme (Push-pull, etc)

2.7.1 Rationale

Damage of maize by striga weeds (*Striga hermonthica*) has been prevalent in Homa Bay District. Damage by maize stem borers have also been observed in the district. Striga are parasitic weeds, which attach to the roots of cereals and absorb the nutrient and it is said that the cereal production, if infested with striga, can be reduced from 30 to 100%. Stem borers are also important insect pests of maize. Stem borer moth lays eggs on plants and the egg hatches into larva, which first feeds on young leaves and soon enter into stems. In this process the plant is destroyed.

It is expensive for ordinary farmers to purchase herbicides and insecticides. Furthermore, farmers are hardly using chemical fertilizers as well as hybrid maize seeds, which are also expensive for them. Although black cotton soil prevalent in the district is fertile, exploitative farming without returning organic matter to the land will reduce the productivity. During the community workshops, the participants picked up the issue of reduction of soil fertility, as well. Degraded soil will bring favorable environment for striga weeds to grow rigorously. There is a need of seeking alternative farming method without using chemicals. The pilot hence introduces to ecological farming method.

In the draft development programme of Homa Bay District, under the approach of "We have enough food", strategies of "we are using proper crop and animal husbandry practices", "we plan for agricultural activities", "We do not have pests and diseases in crops", and "We have proper weed control" were identified. Then, "Crop Management and Development Programme" was proposed under such strategies and the pilot of Ecological Farming Promotion Programme forms a part of the programme to be implemented in Homa Bay District.

2.7.2 Objectives

The objectives of the pilot are:

1. Ecological farming techniques are adopted by farmers of the project area, and
2. Crop production of the farmers is stabilized by applying the ecological farming techniques

2.7.3 Major Planned Activities

The pilot aims at disseminating Push-pull method (see the box), which was developed by the researchers of ICIPE (International Center of Insect Physiology and Ecology) to alleviate the crop damage from striga weeds and maize stem borer. Push-pull method has been disseminated in some areas of Homa Bay and Other Districts, as well. This method is based on ecological farming method so that farmers who cannot afford chemicals can apply for it to improve their crop production.

Push-pull Method

The method intercrops legume called *desmodium* with maize and also plant napier grass around the maize field. *Desmodium* suppress as striga weeds while at the same time produces odour that "pushes" away stem borer moth. Napier grass planted around the farm is more attractive to stem borer moth so that it "pulls" the moth. Besides, napier produces sticky substance like glue, which traps stem borer larvae and most of them die.

During the kick-off workshop in February 2006, priority divisions of this pilot were identified as Asego and Kobama Divisions. However, because striga weeds are prevalent throughout the district, it was decided that the other divisions in Homa Bay would also send representatives to the training on Push-pull method. The government extension officers were to undertake the extension of the method to farmers with the government resources except for desmodium seeds. Because it is difficult for farmers to get desmodium seeds at current status, the Study Team planned to purchase desmodium seeds of 60kg (as much as 40 to 60 acres) and provide them to each divisional agriculture office.

Upon the agreement at the workshop, the Study Team visited ICIPE in Mbita, Suba District in mid February 2006 and had a meeting with the administrator and principal scientist. The Team briefed about the Study and told them the intention to extend push-pull method to the Study District, by way of giving trainings to the agriculture extension officers in the District and they are to disseminate the technology to farmers in their jurisdictions. The Team inquired about the training offer by ICIPE about the push-pull method. Then ICIPE agreed to offer the training in early June 2006.

The Team discussed the schedule of the pilot programmes with the District Agriculture Officer, Homa Bay District in late February 2006. The team explained DAO about the two-day training on push-pull method at ICIPE and also conducting four-day training on non-tillage farming (referred to following section) at Farmers Training Center, Homa Bay. The Team asked DAO to select officers to attend the trainings, which would be administered in early June considering the appropriate time for training at ICIPE.

The Team and DAO agreed to include most of the agricultural officers and field extension workers in Asego and Kobama Divisions, since they were selected as the priority divisions to implement the pilot programmes. The Team also asked to select 24 trainees in total, which consist of three from the district and 21 from the divisions. Because transfer of officers in the ministry had not been completed at that time, the DAO told the Team that the selection should be conducted after the transfer of officers was complete. Tables 2.7.1 and 2.7.2 show the initially planned schedule for the pilot:

Table 2.7.1 Training Schedule for Ecological Farming and Non-tillage Farming

Time	Date		Activitiy	Venue	Trainer
June 5-7	Day 1	AM		ICIPE	ICIPE Assigned Trainer
		PM	Arrival of Trainees at ICIPE, Mbita		
	Day 2	AM	Training on Push-pull Method		
		PM	Training on Push-pull Method		
	Day 3	AM	Field Visit for Push-pull Method		
		PM	Closing for ICIPE Training		
Early July	Day 4	AM	Non-tillage Farming Method	FTC	JICA Assigned Trainer
		PM			
	Day 5	AM	Non-tillage Farming Method		
		PM			
	Day 6	AM	Non-tillage Farming Method		
		PM			
	Day 7	AM	Preparation of Action Plan on Ecological Farming & Non-tillage method		
		PM	Closing for FTC Training		

Table 2.7.2 Activities for Ecological Farming and Non-tillage Farming Programmes

Activity	Term	Remark
1. Training on Push-pull method at ICIPE	June 5 – 7, 2006	24 divisional and district officers will attend the training.
2. Training on non-tillage farming and other ecological farming mthods.	Early July, 2006	The same officers who attend ICIPE training will attend. At the end of the training, officers are to prepare an action plan.
3. Extension activities by the officers	From September 2006	JICA Study Team will provide Desmodium seeds for push-pull method promotion.

2.7.4 Implementation Process and Achievement

1) Training

Training of push-pull method was conducted from June 5th to 7th 2006 at ICIPE. As planned 24 officers from the district and divisions gathered on 5th of June and on 6th a classroom seminar and lessons in the experimental field were carried out. On 7th the participants were taken for a field visit to Rodi Kopany in Homa Bay District and Lambwe in Suba District and met five farmers who have

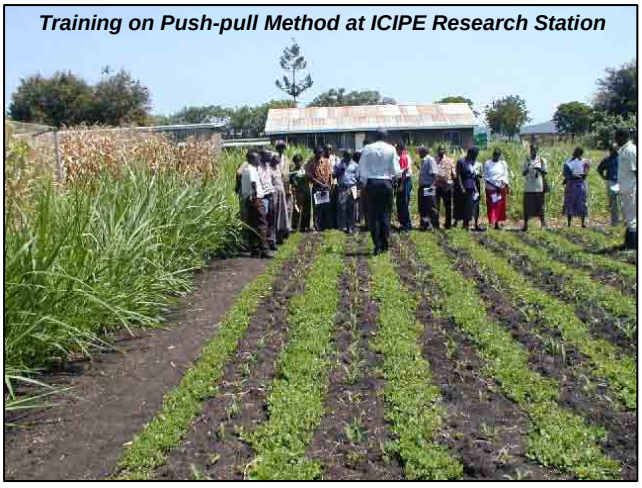
been practicing push-pull method on their farms. Table 2.7.3 shows the training agenda:

Table 2.7.3 Training Agenda for Push-pull at ICIPE

Date		Topic
Day 1	AM	
	PM	Arrival at ICIPE Guest House
Day 2	AM	Overview of the Station and Welcome Remarks Habitat Management • Introduction of Push-pull Technology • Powerpoint presentation • On Station Trials Visit
	PM	• On Station Trial Visit • Practical Layout of the Push-pull Technology • Fodder utilization Yam Bean & Bananas Silkworm Agro-forestry & Neem
Day 3	AM	Visit Farmer Fields: Lambwe, Suba & Rodi Kopany, Homa Bay
	PM	Recap, Way-forward and Departure

ICIPE initiated their extension activity in 1997, but most of the officers who attended the training did not know or only heard about the push-pull method. The officers were so attentive that the schedule was always delayed to spare time for question and answers between the instructors and officers. Questions raised from the officers were: comparison with striga resistant maize variety (IR), multiplication of desmodium, plot layout, land management after the harvest, utilization of desmodium as fodder, among others.

Moreover, some of the officers were talking to the instructors about the possible collaboration with ICIPE for disseminating push-pull method during the training. An officer from Agriculture Training Center (ATC) was also asking the instructor to advise the center to establish a demonstration farm for push-pull method. The purpose of this pilot is to facilitate the government agriculture officers to attend the training course and ask them to start the extension activity as a part of their recurrent activities. The officers' action communicating with ICIPE staff is so desirable that it already shows their own initiative without expecting assistance from JICA.



Training on Push-pull Method at ICIPE Research Station

Post-evaluation by questionnaire to the officers was conducted at the end of the training. In summary, 78% of the officers answered they understood the method very well and the remaining 22% answered they understood it fairy well. As for the question of whether push-pull is practical or not, 57% answered very practical while 43% answered practical. Those who did not give answer of very practical would have considered about procurement of desmodium seeds, which are as expensive as Ksh1,400 per kg. On the question of how to disseminate push-pull, the ideas of the officers were summarized into: 1) establish demonstration plot, 2) organize farmers field visit, 3) establish seed bulking plot of desmodium among others.

On July 12, 2006 after the training on non-tillage farming (referred to following section) finished, the 24 officers made action plans in their jurisdictions toward dissemination of push-pull method as well as non-tillage farming.

2) Progress of Action Plan

An evaluation workshop of the pilot was held with the agriculture officers of the respective divisions and DAO office in late February 2007. At the workshop, officers from each division and DAO office confirmed the achievement of the activities against their targets set in their action plans. Their action plans are attached at the end of Section 2.8.

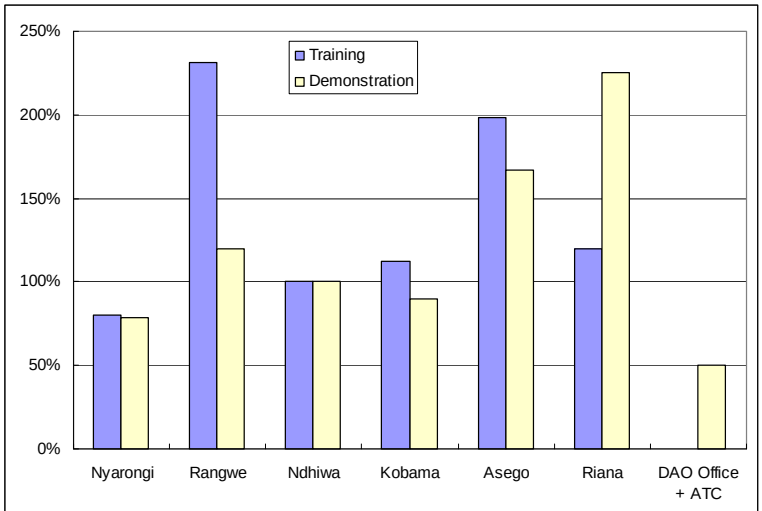


Figure 2.7.1 Achievement to Target by Division (Push-pull)

Because the unit of the target differs among the divisions (e.g. one division targets with the number of training session, while the others target with the number of farmers), achievement of the division to their target was calculated in percentage term. In terms of achievement ratio to the target, Riana, Asego and Rangwe Divisions have exceeded their targets for training and demonstration. As Figure 2.7.1 shows, Rangwe, Asego, Riana and Kobama Divisions exceeded their targets for training by 231%, 198%, 120% and 112% respectively and Riana, Asego and Rangwe Divisions exceeded their targets for demonstration with 225%, 167%, and 120% respectively.

In terms of actual number, Nyarongi achieved the highest number of farmers who attended the training, although their achievement against their target was 80%. In total except for Ndhiwa Division, 619 people attended the training on push-pull method. Kobama also showed a remarkable performance in establishing demonstration plot. Although their achievement against their target was 90%, the number of established demonstration plot is 36, the best among the divisions followed by Riana with 18 demo plots. Nyarongi also established 15 demo plots, the third best, though their achievement against their target was 79%. Total demo farms established in the district is 101. Figures 2.7.2 and 2.7.3 show the number of the trained farmer and demonstration plot in this crop season.

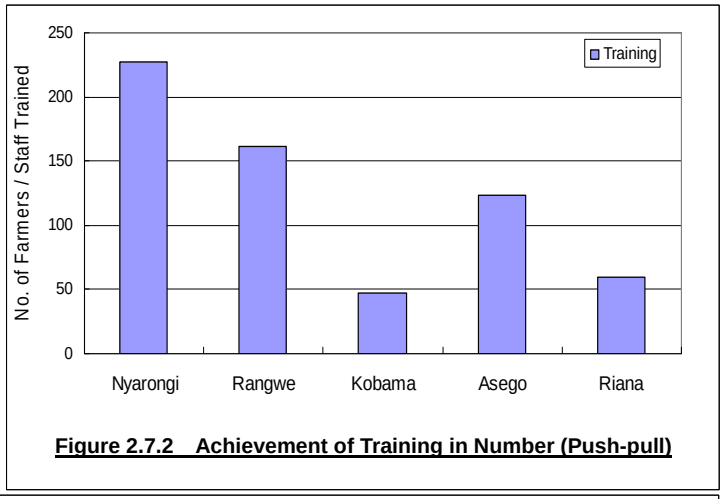


Figure 2.7.2 Achievement of Training in Number (Push-pull)

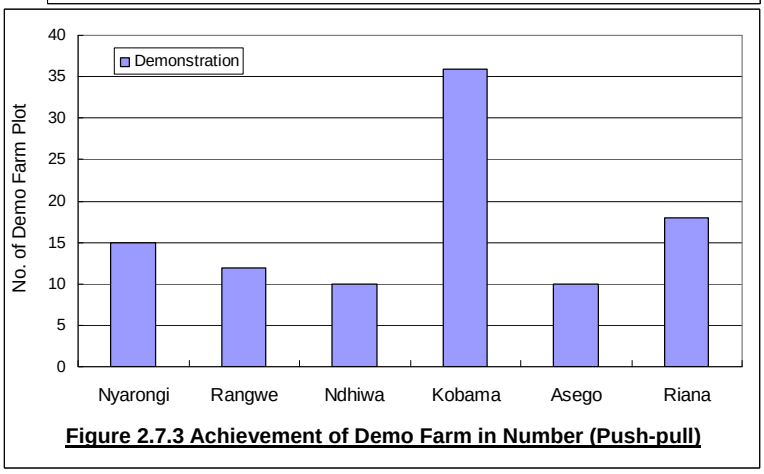


Figure 2.7.3 Achievement of Demo Farm in Number (Push-pull)

3) Reaction of Farmers

The Study Team visited several Push-pull demo farms and talked to the farmers of the farms. In Rangwe division, an active farmer who frequently comes to the divisional agriculture office has been selected as a demo farmer. As of December 2006, though the Push-pull farm had not been well established, desmodium had been growing. The farmer said he has seen the effect of desmodium and showed us a withered striga on the farm. In Kobama division, a demo farmer showed his demo farm but he was not able to get napier grass as of December and instead he was growing groundnuts around the demo plot. Procurement of napier grass was a part left for farmers to take their charge. The divisional extension officer said the farm still looks better than last crop season due to the effect of desmodium. It would be necessary to instruct farmers correctly on the function of each element such as role of napier, desmodium, plot layout etc.

4) Effects of the Ecological Farming

In total of the district, 102 push-pull demo plots have been established. The Study Team conducted a data collection on 29 push-pull demo plots out of the 102 plots to see the effects of the push-pull method, although it is difficult to assess the effects with only a single crop season. It was reported that the rainfall during the short rainy season period in 2006 was delayed and the germination of desmodium seeds in the demo plots were affected. It was reported that out of 29 demo plots surveyed, in 10 plots (34%) desumodium did not germinate or geminated poorly.

In 3 demo plots out of 29 (10%), napiar grass was not planted, out of which 2 plots were located in Kobama Division. The agriculture officers in Kobama reported that there was difficulty to acquire napiar grass within the division, so the farmers had to travel far to get napiar grass stalks. But once the stalks are brought in, napiar grass can be multiplied within the division.

As for the effect against striga weed, there was no observation of the effect in 8 plots (28%), but in 10 plots (34%), little effect against striga was observed and so were reasonable and significant effects in 7 plots (24%) and 2 plots (7%) respectively. It was confirmed that desmodium could suppress striga even in the first crop season as far as it is properly grown. As for stem borer, 18 plots (62%) did not indicate the effect of it. This would be mainly due to delay of napiar grass establishment around the plot. After 2 to 3 crop seasons, the push-pull plots would be established properly.

Yield increase in the demo plots were also observed. Compared to the yield of this crop season and previous crop season in the demo plots with desmodium reasonably or sufficiently grown, the average yield of this crop season was 463kg/acre (1,159kg/ha), while the average yield in previous season was 185kg/acre (463kg/ha). The yield is relatively very low anyway because the sites with the demo plots are striga prone areas. The average difference between this season and previous season was 250%. We also collected yield data from 25 plots near the demo sites and it was found that the average yields of this year and last year for these plots also increased from 316kg/acre to 442kg/acre, which is an increase of 140% from last year. Though rain came late in this crop season, the amount of rainfall was better than last year, so there was general increase of crop yield in this crop season, but the average data indicates higher increase in the push-pull demo plots than other ordinary farm. This result may accrue in part from the effect of striga suppression by desmodium.

2.7.5 Evaluation by the Implementers

1) Lessons the Implementers Learned

At the evaluation workshop, the agriculture officers listed the lessons learned through their activities of push-pull method extension. Following are the major lessons they came up with:

On Mobilization / Training:

- Response from farmers was very positive, but turnout will depend on the agency mobilizing.
- Dealing with interested farmers will be effective
- More farmers opt to take push-pull rather than conservation agriculture, since striga is the major problem in the area.
- Targeting groups would be more efficient to conduct trainings

On Demonstration / Field Day:

- Demonstration farm became a learning place for farmers and they learn better from fellow farmers.
- Performance varied from farmer to farmer (those who dedicated their time were very successful).
- Field day should be done twice during the growing period and harvesting period.

On Technical Issue:

- Timing of planting desmodium is critical for better germination (it takes longer time to germinate and requires good water supply at the time of establishment).

On Cost – Benefit Aspect

- Initial establishment is labor intensive and requires training farmers and supervision (initial cost of inputs is also high e.g. seeds of desmodium, mucuna and dolichos lablab).
- Push-pull farm might be tedious to establish in vast area.

2) Project Performance and Formative Evaluation

The workshop participants, namely the agriculture officers evaluated the pilot programme from the five aspects in Table 2.7.4 as Project Performance Index and 3 aspects as Formative (Development) Index. The participants rated relatively high marks in relevance, impact and efficiency. Sustainability was rated the lowest and they gave the major reasons for it as "communal grazing destroys the cover crops", "cost and availability of desmodium hinder the sustainability", "quality assurance of desmodium – fear of failure", and "land tenure system may not allow to spread the technology".

Table 2.7.4 Project Performance and Formative (Development) Indexes

1, Project Performance Index	Mark (1–5)	Remarks
(1) Efficiency	**4.27**	
(2) Effectiveness	**4.06**	
(3) Impact	**4.56**	
(4) Relevance	**4.94**	
(5) Sustainability	**3.94**	We need more training. Communal grazing destroys the cover crops. Cost and availability of desmodium. Quality assurance of desmodium – fear of failure. Tenure of the land. (There is no cultural interference.)
2. Development Index	Mark (1–5)	Remarks
(1) Individual	**4.59**	
(2) Community / organization	**3.31**	Too few demo farmers (ex. Only 16 for over 2,000 farming families in Nyarongi Division). Duration of the project is too short. Cost and availability of input. Poor information flow. Weather was not favorable.
(3) Networking	**3.47**	Not enough time for serious networking.

As for formative aspects, the participants rated individual changes, community / organization changes and networking changes. Individual changes were rated relatively high compared to other 2 aspects. They gave lower marks to community / organization changes and networking changes because “there are still too few demo farmers”, “duration of the project is too short to see the change”, “time of the project was not enough for serious networking”, etc.

2.7.6 Issues Arisen and Lessons

1) Availability of Desmodium Seeds

Eighteen officers out of 24, indicate that availability of desmodium seeds is a key factor and this was anticipated from the outset of the pilot programme. Therefore, the Study Team planned to provide desmodium seeds to each and every division. At the end of the action plan preparation workshop on July 12, 2006, the Study Team provided desmodium seeds to all divisions and Agriculture Training Center. However, the seed variety was green leaf, which ICIPE did not recommend very much due to low germination.

According to the advice from ICIPE researchers, the Team additionally procured silver leaf variety recommended by ICIPE. The officers tested both varieties on the ground when short rain season came. Due to drought at the beginning of the short rainy season, it was reported by the divisional officers that the germination of desmodium was poor. But after rain came fair germination of both green leaf and silver leaf were observed. These germinated desmodium in each division will be the source of the seeds for farmers to access.

2) Collaboration with ICIPE toward Government’s Recurrent Extension Activity

Even after the training at ICIPE research station in Suba District was complete, ICIPE staff has been communicating with the trainees of the Homa District Agriculture Office. In December 2006, the ICIPE instructor went around the Push-pull demo farms with the district and divisional agriculture officers to monitor the situation. With the advantage of the fact that ICIPE research station is located at the vicinity of Homa Bay and also ICIPE has been posting field staffs in Homa Bay District, it is expected that continuous collaboration between the ICIPE and the government will go on and dissemination of Push-pull will be incorporated in the recurrent activity of the agriculture office.

3) Crop Production vs. Communal Grazing

There is also an issue of communal grazing, but this issue will be discussed in the following section.

2.8 Pro-poor Non-tillage Improvement Programme

2.8.1 Rationale

Animal drafting for tillage has been well applied in Homa Bay District. Animal drafting with four to six oxen are applied for ploughing and sowing at the same time. Since ploughing is the heaviest burden for farming, animal drafting greatly contributes to labor saving. However, the number of farmers who lost oxen has been increasing due to poverty and tsetse flies from Ruma National Park. Rental fee for oxen costs around Ksh2,500/acre, hence poor farmers, who cannot afford the rental fee, go with so called pitting, which is to make a small hole by jembe and sew seeds in it.

This method applied by poor farmers could be a kind of non-tillage method, but due to no application of fertilizers and mulching or cover crop, weeds overwhelm the planted crop. If the pitting method is improved by applying fertilizers and mulching or with cover crop, the method will be elaborated to be a measure of conservation agriculture, which is an alternative way of sustainable farming. Non-tillage farming has been applied all over the world as a conservation agriculture method, which makes use of botanical ecology so as to reduce external inputs in farming vis-à-vis modern farming method applying intensive inputs including tractors or draft animals.

This pilot forms a part of “Land Management Programme”, which is formulated under the strategies of “Our soil is fertile” and “We put more land under cultivation”. These strategies are to achieve the approach of “We have enough food”. The programme aims at soil conservation as the basis of production, but at the same time, it targets farmers who cannot afford to rent ox for ploughing. Hence the programme is also considered as pro-poor targeting one.

2.8.2 Objectives

The objectives of the pilot are:

1. Non-tillage farming method is adopted by farmers who have no drafting animals, and
2. Crop production of the farmers is stabilized by applying the Non-tillage farming method.

2.8.3 Major Planned Activities

The pilot was planned to facilitate training on non-tillage farming based on pitting method to the officers who attended the push-pull training. The officers trained are to try out the method with farmers who have no drafting animals (oxen). The target farmers will be organized as a common interest group and the extension by the divisional officers is conducted to the group. This extension activity will be undertaken under NALEP framework. The trainings for Ecological Farming and Non-tillage Farming were planned to conduct to 24 officers and field extension workers in Homa Bay District. The schedule for the training and activities are shown in Table 2.7.1 above in Section 2.7.3.

2.8.4 Implementation Process and Achievement

1) Training

Training on non-tillage farming (conservation tillage) was conducted from July 10 to 12, 2006 at Agriculture Training Center (ATC) in Homa Bay. The participants were the same 24 agriculture officers and extension workers who attended the training on push-pull method at ICIPE in early June. The Study Team invited a trainer who is a private consultant and used to work for KARI (Kenya Agriculture Research Center, the Ministry of Agriculture). The training consisted of two-day lecture and one –day field trip. Table 2.8.1 below shows the training agenda.

Table 2.8. 1 Training Agenda for Non-tillage Farming

Date		Topic
Day 1	AM	Registration of the Participants Conventional Agriculture Conservation Agriculture Conservation Tillage
	PM	Principles of Conservation Tillage Conservation Tillage as a Production System Question and Open Discussion
Day 2	AM	Recap Conventional Tillage Vs Conservation Tillage Disease and Pest Control in Conservation Tillage Conservation Tillage Constraints Weed Control Cover Crop Importance
	PM	Economics of Conservation Tillage Conservation Tillage and Environment Conservation Tillage Area of Application Conservation Tillage Transfer Pathways
Day 3	AM	Field Observation
	PM	Field Observation Conservation Tillage Coordination and the Way-forward

The Study Team was initially to introduce non-tillage farming method, but the trainer introduced it in a broad context of conservation agriculture and added more knowledge such as introducing cover crops e.g. mucuna and dolichos lablab. Non-tillage or minimum tillage together with cover cropping was therefore taught as a package of conservation agriculture method and it encouraged the agriculture office to purchase cover crop seeds by their own budget. Before the planting time of short rainy season, the office of District Agriculture Office (DAO) actually procured 40kg of dolichos lablab and 20kg of mucuna for this crop season.

On the post-evaluation questionnaire, nine persons out of 23 participants or 39% of them indicated that the training was very good, and 12 persons or 52% indicated that the training was good. All the participants except one person think that non-tillage method is practical and among them 12 persons or 52% think that it is very practical. The person, who thinks that the non-tillage is a little practical, gave the reason as she thinks the technology is suitable in more arid area than Homa Bay. Importance of cover crops is addressed by the majority of the participants, The participants also indicated that they need to seek for farmers' interest in conservation agriculture.

On July 13 after the training, the officers held a planning workshop and prepared an action plan in each division and district office together with ATC. The action plan includes the extension of both push-pull and non-tillage-farming methods. It was agreed that seeds for cover crops for conservation agriculture such as lablab would be procured and delivered by the district agriculture office. By mid September, lablab seeds had been procured and delivered to each division by the district agriculture office. As mentioned above, the Study Team has also delivered desmodium seeds for push-pull method to the divisions. Extension activities by the divisions started at the beginning of short rain season. The action plans of all the divisions and the district agriculture office (together with achievement as of February 2007) are attached at the end of this section.

Field Visit: Conservation Agriculture

2) Progress of Action Plan

An evaluation workshop of the pilot was held with the agriculture officers of the respective divisions and DAO office in late February 2007. At the workshop, officers from each division and DAO office confirmed the achievement of the activities against their targets set in their action plans. Non-tillage or conservation agriculture component showed lower achievement than push-pull method. Because the agriculture offices put more emphasis on introduction of cover crops like dolichos lablab and mucuna rather than only non-tillage or minimum-tillage and the procurement of the cover crop seeds by the Ministry of Agriculture was less than their target (JICA Study Team did not provide cover crop seeds except for desmodium), the activities could not move as they expected. That is the reason the participants gave. Their action plans are attached at the end of the section.

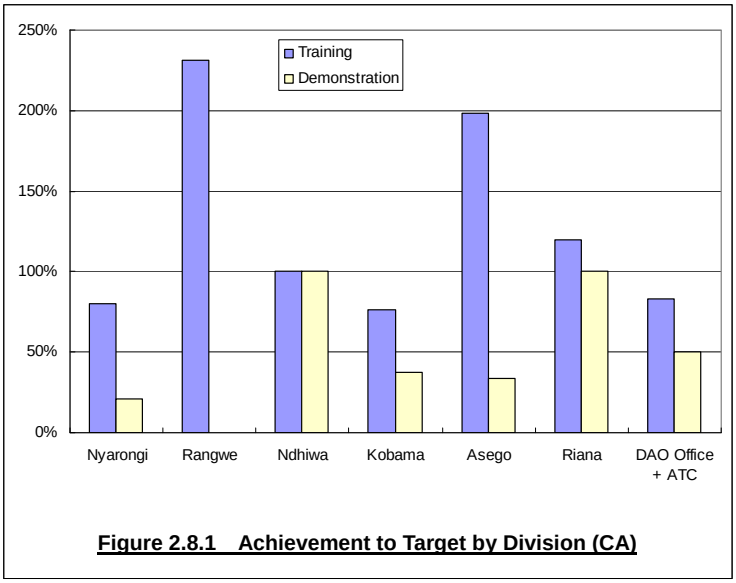


Figure 2.8.1 Achievement to Target by Division (CA)

Because the unit of the target differs among the divisions (e.g. one division targets with the number of training session, while the others target with the number of farmers), achievement of the division to their target was calculated in percentage term. As Figure 2.8.1 shows, Rangwe, Asego, and Riana Divisions exceeded their targets for training by 231%, 198%, and 120% respectively. They could achieve such high rates by combining with the trainings on push-pull method. As for the targets on establishing demonstration plot, only Ndhiwa and Riana Divisions managed to reach their targets. As explained above, this is mainly due to less procurement of the cover crop seeds.

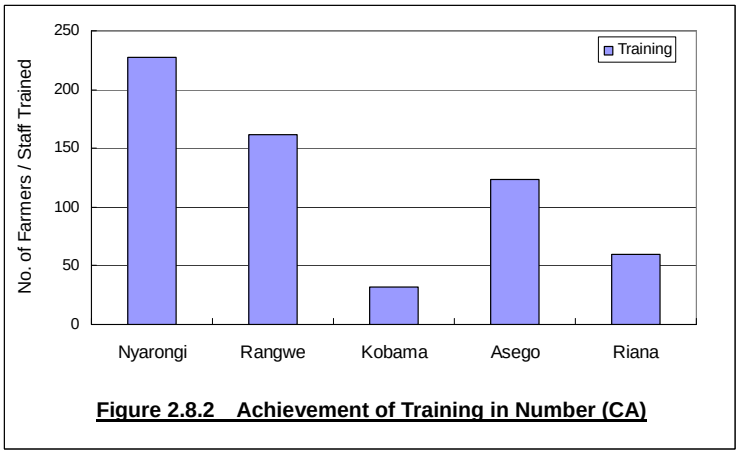


Figure 2.8.2 Achievement of Training in Number (CA)

In terms of actual number, Kobama marked the highest number in establishing demonstration plot. Although their achievement against their target was 38%, the number of established demonstration plot is 15, followed by Ndhiwa with 10 demo plots, Riana with 8 demo plots, and Nyarongi with 4 demo plots. Total number of demo farms established in the district was 40. Figures 2.8.2 and 2.8.3 show the number of the trained farmer and demonstration plot in this crop season. Total number of people who attended the training

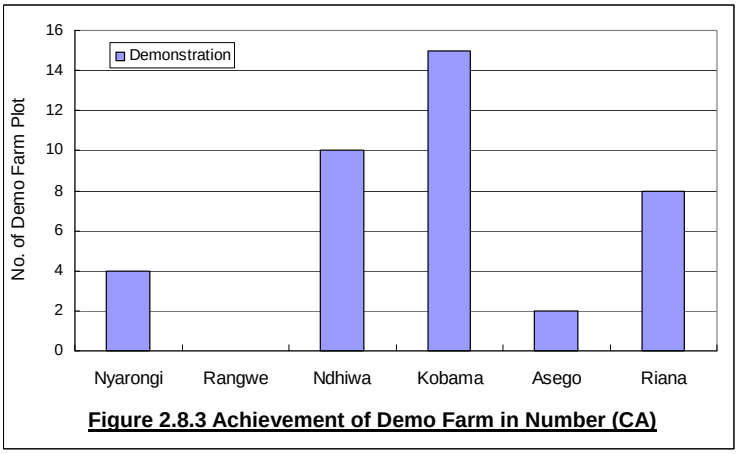


Figure 2.8.3 Achievement of Demo Farm in Number (CA)

on conservation agriculture in the district except for Ndhiwa Division was 604 in this crop season.

4) Effects of the Non-tillage (Conservation Agriculture)

In total of the district, 40 conservation agriculture demo plots have been established. The Study Team conducted a data collection on 18 demo plots out of the 40 plots to see the effects of the conservation agriculture method, although it is difficult to assess the effects with only a single crop season. Applied conservation agriculture method was to use cover crops such dolichos lablab and mucuna with pitting (non-tillage or minimum-tillage).

Because the conservation agriculture requires longer time than push-pull method to come up with the effects, in only 6 demo plots (33%) the effects of the technology were felt. Observed effects were: cover crops minimized the weed growth, maize grew taller and bore slightly bigger cob, soil moisture was retained and soil runoff was minimized. Yield increase in this crop season was also observed in the demo plots but the degree of increase from last year was 147%, as close as the increase observed in the ordinary farms (140% as mentioned in previous section).

2.8.5 Evaluation by the Implementers

1) Lessons the Implementers Learned

At the evaluation workshop, the agriculture officers listed the lessons learned through their activities of push-pull method extension. Following are the major lessons they came up with:

On Mobilization / Training:

- Response from farmers was very positive, but turnout will depend on the agency mobilizing.
- Dealing with interested farmers will be effective
- More farmers opt to take push-pull rather than conservation agriculture, since striga is the major problem in the area.
- Targeting groups would be more efficient to conduct trainings

On Demonstration / Field Day:

- Demonstration farm became a learning place for farmers and they learn better from fellow farmers.
- Performance varied from farmer to farmer (those who dedicated their time were very successful).
- Field day should be done twice during the growing period and harvesting period.

On Technical Issue:

- Mucuna has a difficulty in extension due to no alternative use other than cover crops (farmers prefer to intercrop plants which are edible or used as fodder).
- Dolichos lablab has to be trained in order not to let the vine entwine maize stalk (maize will be damaged by it).
- Conservation agriculture requires timeliness in planting both crop and cover crop.

On Cost – Benefit Aspect

- Analysis showed that conservation agriculture saves 30 – 40% of production cost as

compared to conventional agriculture once it is established.

- Initial establishment is labor intensive and requires training farmers and supervision (initial cost of inputs is also high e.g. seeds of desmodium, mucuna and dolichos lablab).
- Conservation agriculture needs spraying and it is cumbersome for farmers.

2) Project Performance and Formative Evaluation

The workshop participants, the same agriculture officers for Ecological Farming Promotion Programme, evaluated the pilot programme from the five aspects in Table 2.8.2 as Project Performance Index and 3 aspects as Formative (Development) Index. The participants rated relatively high marks in relevance, impact and efficiency but the marks were lower than ecological farming, namely push-pull method promotion, so they saw better performance of the project to push-pull than conservation agriculture as far as the pilot concerns.

Sustainability was rated the second lowest and they gave the major reasons for it as "farmers cannot refuse communal grazing", "availability of cover crops hinder the sustainability", "cover crops attract snakes", "farmers have not got enough time to judge the technology" and "land tenure system may not allow to spread the technology".

The lowest mark was given to effectiveness of the project. The major reasons the participants gave were: "it is a new technology for farmers", "inputs for the pilot programme was inadequate (amount was little and some inputs had been expired", "training of cover crop was not effective", "scale of the project was small", and "mucuna (cover crop) has no alternative utilization other than covering land".

As for formative aspects, the participants rated individual changes, community / organization changes and networking changes. Individual changes were rated relatively high compared to other 2 aspects. They gave lower marks to community / organization changes and networking changes because "there are still too few demo farmers", "duration of the project is too short to see the change", "time of the project was not enough for serious networking", etc.

Table 2.8.2 Project Performance and Formative (Development) Indexes

1, Project Performance Index	Mark (1-5)	Remarks
(1) Efficiency	**3.31**	
(2) Effectiveness	**3.06**	It is a new technology for farmers. Input (dolichoslablab: 5kg per division) was too small also expired chemical and water quality. Training of the cover crops was not effective. No utilization of mukuna (no alternative use). Only one demo farm farmer per division was too small. one season was too short. Timing for delivery of input was not good.
(3) Impact	**3.44**	
(4) Relevance	**4.56**	
(5) Sustainability	**3.25**	Tenure system of the land. Farmers can't refuse communal grazing. Availability of cover crop seeds. Cover crops attract snakes. Farmers don't have enough information to judge. No utilization of cover crops.
2. Development Index	Mark (1-5)	Remarks
(1) Individual	**4.59**	
(2) Community / organization	**3.31**	Too few demo farmers (ex. Only 16 for over 2,000 farming families in Nyarongi Division). Duration of the project is too short. Cost and availability of input. Poor information flow. Weather was not favorable.
(3) Networking	**3.47**	Not enough time for serious networking.

2.8.6 Issues Arisen and Lessons

The pilot for ecological farming, namely push-pull and non-tillage methods promotion, has been implemented only in Homa Bay District. Homa Bay Ditrict borders on Migori District in the south

and Suba District in the west, whose dominant industries are sugarcane and fishery respectively and have a defect of domestic food supply. Therefore, Homa Bay District has an opportunity and potential of producing cereals to export to these neighboring districts. Promoting push-pull and non-tillage farming methods will contribute to exploiting the potential of the district. The new District Agriculture Officer (DAO) is an advocate of conservation agriculture and he supports the idea of the pilot for the direction of agriculture development in the district.

During the workshop on action plan preparation, the officers raised an issue on the custom of communal grazing as a pitfall for disseminating push-pull and non-tillage farming. Communal grazing is a custom that the community members are allowed to graze their animals on others' farm regardless of their ownership during the off-season. This custom allows animals to get into the farms on which push-pull or non-tillage method is applied and destroy them.

Desmodium is a perennial plant, so that the plant can be retained on the farm for several years. Its leaves are used for fodder, as well. However, if goats get into the farm and eat the desmodium from its roots, farmers will have to renew the plant in a single year. Desmodium seeds costs Ksh1,400 to 1,600 per kg, so farmers could be discouraged to maintain push-pull farm. As for non-tillage farm, roots of the plant left under the ground are rotten and make apertures in the soil, so that the physical condition of the soil is improved. However, if cattle and other animals get into the farm, the soil will be trodden down and the effect of non-tillage will be lost.

Demo Plot Cover Crops: Dolichos Lablab

If these ecological and conservation farming methods are applied to small area, it will be possible to get consensus among the community members to keep animals away from the farm. However, if these farming methods were aimed at extending in large scale, the method of animal rearing would have to shift from grazing to semi-zero grazing, namely it would need to restrict grazing land and farmers have to harvest fodders for the animals.

Shifting from modern farming to ecological farming or conservation farming in large-scale would require structural change of production system in the area including livestock production. Therefore it would require long process to make the shift according to the gradual change of the people's livelihood. For the administration side, the Ministry of Agriculture and Ministry of Livestock and Fisheries Development will need to collaborate for the extension services. Individual choice of farming method will rely on the collective choice of shifting grazing custom, and therefore, close communication among stakeholders will also be required. It may be necessary to establish a forum for ecological and conservation farming promotion with the stakeholders.

Table 2.8.3 Action Plan for Push-pull and Conservation Agriculture: Asego Division
Prepared on July 13, 2006 and Evaluated on February 22, 2007

Name	Target by Feb 2007	Remark
James Gikonyo	10 farmers	
John Omoto	10 farmers	
Casmiel Akumo	10 farmers	
Clarice Achieng	10 farmers	
Dorcas Duma	10 farmers	
Others (12)	60 farmers	
Total	**110 farmers**	

Activity	Target	Resources	Who to Provide	Time	Indicators	Who to Implement	Achieved as of Feb	Lessons	Remarks
Training	7 staffs 5 CBOs 50 farmers	62 notebooks 62 pens 2 rolls of new print 1 masking tape Fuel	MOA	Late Jul - Early Aug 2006	No. of Staff, CBOs, Farmers trained List of Attendance Notes	MOA	7 staffs trained 1 CBO trained 115 farmers both CASRP	Limited time More interest shown farmers are willing to take up technology technology practical on control & striga weeds	Some staff still need assistance especially in the laying out Limited time due NALEP activities Lack of legumes e.g. mucuna, dolichos lablab & desmodium seeds lack of funds to purchase fertilizer & chemicals
Acquisition of Planting Materials	1.5 acre on PP 1.5 acre on CA	1.5kg desmodium 1.5kg dolichos lablab 120kg DAP 120kg CAN Napier grass 24kg of WH909 (for PP & CA)	MOA JICA	Mid Aug 2006	Inputs bought	MOA	2 acre PP 1.5 acre CA	Promptly got from the DAO	
Demonstration	6 CA 6 PP	Fuel Land Tots Farmers	MOA Farmers	Sep 2006	No. of Demo plots established	MOA Farmers	10 PP 2 CA	Poor germination of desmodium & napiar farmers don't like mucuna Farmers are willing to plant lablab & any other legumes	Prolonged drought Not edible Other edible legumes preferred
Monitoring & Follow-up	12 demo sites 50 farmers	Fuel Tots	MOA	Jul 2006 - Feb 2007	Notes Demo farms Work ticket	MOA JICA Other collaborators	12 demo sites CA & PP 100 farmers	Planting not done by most farmers	Prolonged drought Preferred legume e.g. dolichos not readily available scheduled for March 2007 due to late planting
Field Day / Utilization	3 days 300 farmers	Stationery Farming community	MOA Farmers Collaborators	Jan 2007	List of Attendance Work ticket	MOA Farmers Collaborators	Nil		
Evaluation	12 demo sites	Fuel Tots DAO's office	MOA Farmers	Feb 2007	Adoption rate Extension of striga infestication	MOA Farmers JICA Collaborators	Not yet done		

Table 2.8.4 Action Plan for Push-pull and Conservation Agriculture: Rangwe Division
Prepared on July 13, 2006 and Evaluated on February 22, 2007

Name	Target by Feb 2007	Remark
Total	**50 farmers**	

Activity	Target	Resources	Who to Provide	Time	Indicators	Who to Implement	Achieved as of Feb	Lessons	Remarks
Training (for staff)	20 staff + service providers	1 pad Flip charts 1 Masking tape 1 pkt Felt pens 20 notebooks & pens	GOK	Aug 2006	No. of Trainings	DAEO's Office	14	Combined some staff & farmers trainings	Need for more materials-write ups, brochures etc
Training (for farmers)	50 farmers	1 pad Flip charts 1 Masking tape 1 pkt Felt pens 50 notebooks & pens	GOK	Aug 2006	No. of Trainings	DAEO's Office	148	Group targeting more efficient	More trainings to be done
Monitoring & Evaluation	2	Transport Subsistence		Sep 2006	Attendance	DAEO's Office	2	Farmers are up beat about the technology	Availability & cost of desmodium are challenges
Demonstration	10 farms	Fuel, transport, seed maize, farm yard manure, desmodium seeds	MOA JICA	Aug - Sep 2006	No. of Farmers	DAEO Farmers (CIG) CBO Provincial Administration Opinion leaders	12	Rain shortage hindered proper germination of desmodium	More desmodium seeds needed Timing of planting critical to germination
Field Day	100 farmers	Transport Subsistence Fuel Stationery	DAO JICA	3rd week of Nov 2006	Attendance	DAEO's Office Farmers CBO	0	To be done later	

Note:
Only for push pull was done in this rainy season.

Table 2.8.5 Action Plan for Push-pull and Conservation Agriculture: Riana Division
Prepared on July 13, 2006 and Evaluated on February 22, 2007

Name	Target by Feb 2007	Remark
R. Opondo	10 farmers	5 PP, 5 CA
Mary Okumu	10 farmers	5 PP, 5 CA
M. Osio	10 farmers	5 PP, 5 CA
Others (5)	20 farmers	10 PP, 10 CA
Total	**50 farmers**	

Activity	Target	Resources	Who to Provide	Time	Indicators	Who to Implement	Achieved as of Feb	Lessons	Remarks
Mobilization	4 barazas	Stationery Posters	MOA	Aug 2006	List of Attendance	MOA Prov. Adm.	4	Many opted to take push pull technology CA-few farmers opted for it	Striga is major problem New technology Price of the chemical
Training	50 farmers	Stationery Transport Subsistence Allowance Posters	MOA JICA AEP	Aug 2006	List of Attendance Topics covered	MOA MOLD AEP	60	Push pull -high interest due to striga effect CA-farmers interested Reduced cost of production in the system	High attendance by farmers Reduced cost of production in the system
Land Preparation	50 farms (12.5 acres)	Farm tools	Farmers	Aug 2006	Land cultivated in acre	MOA Other collaborators	12.5 acres PP-8 CA-4)	PP tedious to establish vast area	Not all land prepared was planted due to lack of inputs
Demonstration	8 demos	Desmodium Fertilizer Farm yard manure Napier grass Maize / sorghum Cover crop (lablab, mucuna etc.)	JICA (Desmodium) Farmer (Main crop + labor) MOA + Others (Technology and cover crop)	Sep 2006	No. of Demos established	MOA Collaborators Farmers	PP-18 CA-8	PP Establishment is hard to farmers CA Spraying cumbersome to farmers	PP demos well established CA not very successful N/B training of trees cover
Planting	50 farms	Crop seeds Fertilizers Planting tools Cover crop seeds (desmodium, lablab and mucuna)	Farmers MOA + Collaborators JICA (Desmodium)	Sep 2006	Acres planted	MOA Collaborators Farmers	36 farms PP-26 CA-10	CA requires timeliness in planting both crop and cover crop	Inadequate inputs limited the acreage planted
Monitoring	9 visits (3 each)	Transport Subsistence Allowance Stationery (Records)	MOA Other collaborators	Sep 2006 - Jan 2007	Progress report	MOA Other collaborators	10 visits	CA farmers didn't train the beans PP dry spell interfered with the desmodium germination	Inadequate transport CA requires constant visits
Field Day	2 days	Stationery Transport Subsistence Allowance Posters	MOA Collaborators Farmers	Nov - Dec 2006	List of Attendance	MOA Collaborators Farmers	1	High acceptance of the 2 technology	Over 200 farmers attended 10 collaborators attended
Harvesting	125 bags (90kg)	Gunny bags Granary Harvesting tools	Farmers	Dec 2006 - Jan 2007	No. of Bags harvested Maize stores (Crop Pros)	Farmers	PP-528 kg	Increase in maize yield & less /No striga infestation in PP	Harvesting not yet complete

Table 2.8.6 Action Plan for Push-pull and Conservation Agriculture: Ndhiwa Division
Prepared on July 13, 2006 and Evaluated on February 22, 2007

Name	Target by Feb 2007	Remark
David Oketch	15 farmers	
Elizabeth Sasita	15 farmers	
Marsline Okungu	15 farmers	
Others (3)	20 farmers	
Total	**65 farmers**	

Activity	Target	Resources	Who to Provide	Time	Indicators	Who to Implement	Achieved as of Feb	Lessons	Remarks
Mobilization	65 farmers CA 20 PP 45	Fuel Stationery	NALEP-GOK	Jul 2006	List of Attendance	Divisional Office	16 PP 11 CA		
Training	20	Stationery (Poster) Fuel Seeds	NALEP-GOK	Aug 2006	List of Attendance Photograph	Divisional Office	20		
Land Preparation	16 acres	Labor Jembe String	Farmers	Sep 2006	Acreage plowed	Farmers	8 acres		
Demonstration	10	Seeds (Desmodium) Napier cuttings String Fertilizers	JICA NALEP-GOK	Sep 2006	List of Attendance Photograph	Divisional Office	10		
Field Day	4	Fuel Films Posters Stationery	NALEP-GOK	Nov 2006	List of Attendance Photograph Letters of Invitation	Farmers Divisional Office	Yet to be done		
Monitoring	All 65 farmers	Fuel Lunch for staff	NALEP-GOK	Nov 2006 - Feb 2007	Photo Progress report	Divisional Office			

Note:
Officers of Ndhiwa did not attend the WS, so the achievement was given in another occasion.

Table 2.8.7 Action Plan for Push-pull and Conservation Agriculture: Nyarongi Division
Prepared on July 13, 2006 and Evaluated on February 22, 2007

Name	Target by Feb 2007	Remark
A. Ndunda	4 farmers	
W. Wafula	5 farmers	
Zipa O	4 farmers	
Others (3)	6 farmers	
Total	**19 farmers**	

Activity	Target	Resources	Who to Provide	Time	Indicators	Who to Implement	Achieved as of Feb	Lessons	Remarks
Mobilization	12 barazas	Stationery Transport Subsistence	NALEP-GOK	Jul - Aug 2006	No. of Farmers attending	Divisional trained staff	9 barazas	Response was very positive Turn out depended on the agency mobilizing	Using the interested farmers to bring others the response is good
Training	19 trainings	Stationery Transport Subsistence	NALEP-GOK	Aug - Oct 2006	No. of Trainings No. of Farmers trained	Divisional trained staff	16 training	The attendance & keenness was on striga elimination & yield increase The inputs became limiting	Attendance was always good Dealing with the interested farmers
Land Preparation	5 areas	Land Labor Tools	Farmers MOA	Aug - Sep 2006	Acres prepared	Farmers	3.25	Push pull was done in time CA tools were lacking should not have been a grazing land	Farmers practice communal grazing
Input Procurement	7.5kg Desmodium Mucuna 50kg Lablab 250kg DAP 250kg CAN 50kg Maize seeds	Capital	JICA NALEP-GOK	Aug - Sep 2006	Quantity of Inputs bought	JICA NALEP GOK	13 kg 5 kg 2 kg 0 0 50 kg	Desmodium germination was poor Not available locally (Dolichos lablab seeds) For mucuna no other use to the farmers apart from biomea/cover cropping Fertilizer use improved the yield	Accountable source for desmodium seeds fertilizer should be used in a decreasing rate of push pull Need desmodium and dolichos lab lab
Demonstration	19 demos	Stationery Transport Personnel Subsistence	NALEP-GOK	Sep - Oct 2006	No. of Demos Attendance	Divisional trained staff	16	Became a learning place/site for the farmer himself & the community around Farmers learn better from fellow farmers	Need more demos on new sites
Monitoring	58 times	Stationery Transport Personnel Subsistence	NALEP-GOK	Jul 2006 - Feb 2007	No .of Reports	Divisional trained staff	47	The performance varied from farmer to farmer Those who dedicated their time were very successful Monitoring tools should be in place in good time	Monitoring should be inclusive
Field Day	2 days	Stationery Transport Personnel Subsistence	NALEP-GOK	Nov - Dec 2006	No. of Farmers attending	Divisional trained staff	1	Should be done twice during the growing period (During targeting of maize & harvesting time)	Attendance was good Demanded training s & demonstrations on push pull & CA
Harvesting	19 plots	Labor Bags	Farmers	Dec 2006 - Jan 2007	Yields	Farmers	16	There was significant yield increase for the sampled plots There was significant decrease in striga population Significant increase in the height of the maize crop	Cob size is relatively big Maize stover size relatively big

Table 2.8.8 Action Plan for Push-pull and Conservation Agriculture: Kobama Division
Prepared on July 13, 2006 and Evaluated on February 22, 2007

Name	Target by Feb 2007	Remark
Peter O. Awak	16 farmers	8 PP, 8CA
Josephine Nyangor	16 farmers	8 PP, 8CA
James Karunga	16 farmers	8 PP, 8CA
Others (4)	32 farmers	16 PP, 16CA
Total	80 farmers	

Activity	Target	Resources	Who to Provide	Time	Indicators	Who to Implement	Achieved as of Feb	Lessons	Remarks
Mobilization on Push-pull	40 farmers	Personnel Transport	MOA Livestock	Jul - Aug 2006	List of Attendance	MOA & Livestock	36 farms 20x20m	*Desmodium takes longer time to germinate *I require good water supply at the time of establishment	Desmodium should be plant when there is steady rainfall have started Napair planting materials should be procured early so that plot be established in time Training of donkeys &mucuna is continuous
Mobilization on CA	40 farmers	Personnel Transport	MOA Livestock	Jul - Aug 2006	List of Attendance	MOA & Livestock	3 farmers (15x50m)	Napair planting materials should be procured early *Dolichos lablab not well trained affects maize field hence more trouble	
Training	Push-pull 2 staffs, 40 farmers CA 2 staffs, 40 farmers	Personnel Transport Posters Stationery	MOA Livestock	Aug - Sep 2006	Training Programme List of Attendance	MOA & Livestock	Push-pull 2 staffs, 45 farmers CA 2 staffs, 30 farmers	All participants e.g. relevant departments / ministries should be involved from the introductory stage	Demonstration package could not reach all interested farmers Drought
Demonstration	Push-pull (desmodium) 40 farmers Of 50m x 50m CA (Dolichos lablab) 40 farmers	Planting materials Seeds of desmodium	JICA Other collaborators	Aug - Sep 2006	Seed procurement Farmers being prepared (ripping)	Collaborators e.g. SNDCP	Push-pull 36 farmers (16 farmers implemented partially 4 fully i.e. napiar & desmodium) CA 16 farmers		The planned target was too high compared to inputs obtained hence only few could get materials on time e.g. Ripper and sub soilers are not available at farm levels
Land Preparation & Planting		Ripper Subsoiler	Farmers MOA Livestock	Sep - Oct 2006	No. of Farmers prepared and planted	MOA & Livestock Farmers			
Monitoring of Demonstration Plots	All 80 farmers	Transport	MOA Livestock	Nov 2006 - Jan 2007	No. of Farmers with PP and CA	MOA & Livestock Collaborators	36		
Field Day	2 sites	Personnel Posters Stationery Farming community Demo's equipment Tools & materials Subsistence	MOA-NALEP-GOK JICA Collaborators	Dec 2006 Jan 2007	Programme of field day Attendance list	MOA & Livestock Collaborators	Not held		

Table 2.8.9 Action Plan for Push-pull and Conservation Agriculture: DAO Office and ATC, Homa Bay
Prepared on July 13, 2006 and Evaluated on February 22, 2007

Item	Target by Feb 2007	
	DAO	ATC
Training others	12 officers	7 officers (ATC, ATDU)
Demos	2	2
Field day	1	1

Activity	Target	Resources	Who to Provide	Time	Indicators	Who to Implement	Achieved as of Feb	Lessons	Remarks
DAO Office Training	2 (24 officers)	Stationery (Ksh2000) Hall (Ksh800) Meals (Ksh7800)	DAO	Aug - Sep 2006	2 trainings held (1 PP &1 CA) 11 staff trained 2 training reports	DCDO, DLPO DDAO, DAPO Collaborators	20 on CA	Analysis showed that CA saves 30-40% as compared to conventional	Topic covered was CA using cover crops
Demonstration	2 (PP and CA)	Planting materials Desmodium, Napier Maize, Dolichos Ground nuts Starter fertilizers (Ksh1000) Meals (Ksh7800)	DAO DLPO Prisons JICA	Aug - Oct 2006	2 established demo plots	DCDO, DLPO DDAO, DAPO Collaborators	PP 1 CA 1 DAO purchased 40 kg of Dolichos 20 kg of mucuna of 576 kg of 516H seed (maize)	Cost of inputs high hence some farmers cant afford to buy desmodium, mucuna & dolichos 100kg Some input not readily available e.g. dolichos mucuna Need for bulking PNT Mutai Initial establish is labor intensive & requires farmers training & close supervision Collaboration is very necessary depth of planting desmodium is very crucial Silver leaf is more viable than the green leaf	Demonstrations to be established during long rains DAO in process of acquiring demo materials for CA&PP (dolichos fertilizer and maize) Collaboration with ICIPE being enhanced
Field Day	1 (200 farmers)	Ksh 50,000	DAO, DLPO Prisons, JICA	Dec 2006	Field day held Reports List of Attendance	MOA DLPO Collaborators	0		Planned for May & March 2007
Monitoring & Evaluation	Continuous		DAO DLPO		Reports		2	Mucuna not accepted by farmers(utilization) Farmers need more trainings soil fertility an issue	
ATC									

2.9 Youth Polytechnics Strengthening Programme

2.9.1 Rationale

There are five Youth Polytechnics (YPs) in Homa Bay District, of which three of them are public and the rest are Catholic institutions. Level of the facilities for the public youth polytechnics is not satisfactory at all. Also the ratio of orphans in Homa Bay District is high and is still increasing. Expenses for materials and tools necessary for training are supposed to be covered by the tuition fee, however many students, who are in many cases orphans, cannot afford their tuition. At one of the Youth Polytechnics, there are only two sewing machines available for as many as 30 students in the tailoring course. They can use only papers instead of clothes for sewing practice.

Primary education is basically free in Kenya since a change of the government in late 2002. The school attendance rate is more than 100% now, thanks to the free primary education system. Education system of primary school in Kenya is set at eight years, and then four years of secondary school, and pupils have to take KCPE (Kenya Certificate for Primary Education) at Class eight. Since secondary education is not compulsory and is not free accordingly, only those who rank higher at KCPE can proceed to secondary school. Limited capacity of secondary school does not allow majority of the graduates of primary school to enter. Therefore most of them stay in the rural area and become farmers, also some of them attend youth polytechnics. The outline of the three public Youth Polytechnics in Homa Bay District is as follows:

Table 2.9.1 Outline of the Three Public Youth Polytechnics in Homa Bay District (As of February 2007)

YP	Division	Enrollment	Electricity	Major Trades / Courses
Homa Bay	Asego	142	Yes	Motor Vehicle Mechanics (MVM). Carpentry & Joinery, Tailoring & Dress Making, Welding, Electric Installation (EII), Masonry and Computer
Sero	Asego	100	No	Garment making, Carpentry & Joinery, Welding & Fabrication, Plumbing, Masonry and Sign writing
Langi	Ndhiwa	82	No	Tailoring & dressmaking, Carpentry & joinery, Metal work – welding, Masonry, Plumbing, Motor Vehicle Mechanics (MVM) and General fitting

Note: Enrollment continues up to June.

There is almost no support from the government except for the subsidies of instructors' salary, which is about Ksh1,800 to 3,200 (USD30 – 50) and this is in fact less than one-third of the salary for primary school teachers. Training materials and tools are set to be procured from the tuition fee, however most of the Ksh5,000 to 10,000 (USD70 – 150) tuition fee per annum is unpaid. The ratio of orphan students is as high as 60% at Homa Bay YP, 90% at Sero YP and 80% at Langi YP as at end of 2005, worsening the payment of the tuition fee.

Since YPs cannot expect much from public funds at the moment, they have to put up their production units (PUs) or otherwise strengthen their existing production units (PUs) to become self-reliant. They need to take orders of school uniforms, desks, chairs and blackboards from neighboring primary schools and other institutions, produce and sell them. Through these activities, they can also establish a close network with primary schools and other actors in the local communities. Homa Bay YP already has a PU and earns about 40% of the income from the PU. Sero YP and Langi YP did not have PUs and did not get orders aggressively when the pilot programme was planned.

2.9.2 Objectives

Youth Polytechnic Strengthening Programme comes from "Polytechnic & Vocational Support Programme" of the first priority strategy of "We can acquire appropriate skills" under the fourth priority approach of "We get good education" in the draft Homa Bay District Development Plan.

The objectives of the Youth Polytechnics Strengthening Programme are:

- Financial viability of Youth Polytechnics is improved by taking orders and selling their products in the local communities, and
- Network of Youth Polytechnics in the local communities is developed through the above activities.

2.9.3 Major Planned Activities

The programme is implemented at all the three public Youth Polytechnics namely Homa Bay YP, Sero YP and Langi YP, and a three-day planning workshop with the YPs was carried out on 23, 24 and 28 February 2006. During the workshop, current financial status of the YPs were presented and the YPs and JICA Study Team agreed to strengthen or establish production units at YPs in order that YPs earn themselves by selling their products to the communities to be financially viable maintaining the venue of learning for the public.

Table 2.9.2 Major Planned Activities of Youth Polytechnic Strengthening Programme

Major Planned Activities	Schedule	Remarks
1. Planning Workshop	February 2006	Three-day workshop
2. Establishment / Strengthening of the Production Unit	May 2006	By each YP.
3. Taking Orders	May to June 2006	By each YP.
4. Procurement and Delivery of Tools and Equipment	July and August 2006	By JICA. See Table 2.9.7
5. Monitoring	August – December 2006	By JICA Study Team and Ministry of Labour and Human Resource Development
6. Management Training for Youth Polytechnic Instructors	August 2006	Trainers' fee by JICA Study Team.
7. Evaluation Workshop	February 2007	Workshop venue, participants' lunches and transportation by JICA Study Team

The YPs are expected to get orders from primary schools or any other institutions in the local communities through their PUs. The tools and equipment of the PUs, however, were not sufficient (see Table 2.9.3below).

Table 2.9.3 Existing Tools / Equipment of PUs before the Programme (As of February 2006)

YP	PU	Enrollment	Instructor	Tools / Equipment Available	Students per a tool
Homa Bay	Motor Vehicle Mechanics	66	2	Painting machine, Battery charger.	
	Carpentry & Joinery	10	1	Several tools.	
Sero	Garment Making	37	4	5 sewing machines.	7.4 students per sewing machine.
	Carpentry & Joinery	13	2	1 tool box.	13 students per tool box.
	Welding & Fabrication	20	1	1 Generator, 3 Welding machine.	
Langi	Tailoring & Dress Making	27	4	4 188U sewing machines.	6.7 students per sewing machine.
	Carpentry & Joinery	10	1	Nil.	
	Metal Work – Welding	23	1	Generator / welder,- out of order.	

Note: Two of the Garment Making Instructors of Sero Youth Polytechnic come to the YP only once a month. Also alll the tools for carpentry & joinery were stolen from Sero Youth Polytechnic by a former instructor.

Since it was noted that it was difficult to promote PUs with the existing tools and equipment, the JICA Study Team was to provide necessary tools and equipment after YPs got orders from neighboring institutions.

2.9.4 Implementation Process and Achivement

1) Three-day Planning Workshop

During the three-day planning workshop with the three YPs carried out on 23, 24 and 28 February

2006, several issues were identified, based on which they had put up future image of the institutions as:

- Homa Bay Youth Polytechnic: To improve in all the successes we've had in order to increase income for the development of the institution.
- Sero Youth Polytechnic: To improve trainees enrolment / to provide quality training / to increase the number of courses / to have electricity within the polytechnic / to have clean and safe water – student fetch water with villagers and sometimes there is no water.
- Langi Youth Polytechnic: To sustain and expand the project of sheep rearing: Students benefit by being able to rear their own after leaving the institution.

Following the future images, a strengthening plan for each YP was realized and the way-forward was agreed on. The way forward and agreement are that the production units are one of the most important areas to improve for sustainable development of the youth polytechnics. The three youth polytechnics worked on and decided which sections they need to improve first and which tools and equipment are needed to realize more production in these sections. They also forecasted the income from PUs in the year 2006. Tables 2.9.4 to 2.9.6 summarize, by youth polytechnic, their plans for PUs proposing necessary tools and equipment against what are now available and the target incomes as well:

Table 2.9.4 Homa Bay Youth Polytechnic Tools & Equipment Required (As of February 2006)

Production Unit	Tools Not Available	Unit	Cost (Ksh)	Tools Not Available	Unit	Cost (Ksh)
Motor Vehicle Mechanics	Wheel Alignment Spray Gun	1 2	30,000 16,000	Panel Beating Machine Welding Machine	1 1	40,000 20,000
Carpentry & Joinery	Tool Box Complete Sash Cramp (double)	1 2	50,000 10,000	Band Saw Machine Moulding Machine	1 1	150,000 150,000
Tailoring & Dressmaking				Embroidery machine	1	200,000
		Tools Total	**116,000**	**Equipment Total**		**560,000**
					Grand Total	**676,000**

Note: Tailoring & dressmaking did not become the subject of the programme.

Table 2.9.5 Sero Youth Polytechnic Tools & Equipment Required (As of February 2006)

Production Unit	Skills Available	Skills not Available	Material	Market	Existing Tools	Equipment	Type of Tools Required	Qty	Unit Price	Total (Ksh)
Garment Making	Technical skills	Management Book Keeping Sales & marketing	Suiting Materials, Kitenge materials 30 mts, Cotton Materials 10 mts	Local	5 sewing machines 2 pair of scissors 1 Thimble 3 Tracing Wheels	6 tape measures 2 curved rulers 1 hip curve rulers	Singer 188 Prof. Over lock Mach. Knitting machine Swan Iron Boxes	1 1 2 7 3	25,000 15,000 25,000 5,000 400	25,000 15,000 50,000 35,000 1,200
Garment Making Sub-total										101,200
Carpentry & Joinery	Technical skills	Management Book Keeping Sales & marketing	Timber 4x2 200ft Paint 4 ltrs	Local & External	2 Jack planes 2 hand saws 1 Bench Vice 2 Hand Drills	1 tape measure	Tool Kit Sash Cramp 4ft, Sash Cramp 6ft Jack Planes No.5	1 1 1 3	50,000 4,000 4,500 6,000	50,000 8,500 18,000
Carpentry & Joinery Sub-total										76,500
Welding & Fabrication	Technical skills	Management Book Keeping Sales & marketing	Flat Bars Welding Rods Angle Links	Local & External	Generator & Transformer Weld. Machine (out of order) Vice benches	2 Tape measures	Transformer Weld. Machine Bench Vice	1 2	20,000 2,000	20,000 4,000
Welding Sub-total										24,000
									Grand total	201,700

Table 2.9.6 Langi Youth Polytechnic Tools & Equipment Required (As of February 2006)

Production Unit	Item Required	Quantity	Unit Price (Ksh)	Total (Ksh)
Tailoring & Dressmaking	Sewing Machine 20U	1	40,000	40,000
	Other sewing Machines	4	10,000	40,000
	Over-lock Machine	2	10,000	20,000
Section Total				100,000
Carpentry & Joinery	Woodworking Tool Kits	1	50,000	50,000
Metal Work – Welding	Generator	1	150,000	150,000
	Drilling Machine	1	15,000	15,000
	Grinder	1	10,000	10,000
Section Total				175,000
			Total	**325,000**

2) Procurement and Delivery of Tools & Equipment

After getting the production units' progress reports, following tools and equipment were procured by JICA in June – September 2006 for the respective YPs.

Table 2.9.7 Tools and Equipment Provided by JICA

YP	Production Unit	Tools / Equipment Provided
Homa Bay	Motor vehicle Mechanics	Wheel Alignment (1), Spray Gun (2), Compressor (1), Welding Machine (1)
	Carpentry & Joinery	Sash Cramp (2), Woodworking tool Kits (1), Molding Machine (1), Band Saw Machine (1)
Sero	Garment Making	Sewing Machines (Singer 188 Prof. (1), Swan (7)), Over-locking machine (1), Knitting Machine (2), Iron Box (3)
	Carpentry &Joinery	Sash Cramp (2), Woodworking Tool Kits (1), Jack Plane (2),
	Welding & Fabrication	Welding Machine (1), Bench Vice (2)
Langi	Tailoring / Dressmaking	Sewing Machines (Singer 20U (1), Swan (4)), Over-locking Machine (2)
	Carpentry & Joinery	Woodworking Tool Kits (1)
	Metal Work - Welding	Generator / Welding Machine (1), Drilling Machine (1), Grinder (1)

Generator-Welding Machine Newly Provided

A Sawing Machine Newly Provided

3) Five-day Management Training for Youth Polytechnic Instructors

From the three-day planning workshop and also from monitoring, Ministry of Labour and Human Resource Development recognized that the instructors of Youth Polytechnics did not have enough knowledge on management of Youth Polytechnics, workshops and projects or occupational health & safety. The Ministry planned and facilitated one-week management training for Youth Polytechnic instructors,

In Langi YP, tools are well organized but in others there is a case not so.

accordingly. Manager and five instructors of Homa Bay YP, Manager and one instructor of Sero YP, and Manager, Treasurer, Chairman of the Management Committee and two instructors of Langi YP participated in the training voluntarily.

Table 2.9.8 Curriculum of Management Training

Time	28 August 2006 Monday	29 August 2006 Tuesday	30 August 2006 Wednesday	31 August 2006 Thursday	1 September 2006 Friday
9:00 AM – 11:00 AM	Registration, Introduction, Official Opening	Functions of Management	Gosting and Pricing	Leadership and Managemeng	Marketing your Products / services
11.30 AM – 1.00 PM	Overview of Project Management	Management of Youth Polytechnics	Workshop Management (Occupational Health & Safety)	Record Keeping	Review of the Previous Work Plans
2.00 PM – 4.00 PM	Understanding the Concept of Management	Functions of Management continue	Group Discussions and Presentation	Group Discussions and Presentation	Training Evaluation, Way Forward and Closing

4) Orders Received and Income Generated by Production Units

Before procurement, JICA Study Team received PU progress reports from the three YPs in July 2006 on orders received. The team also received the final reports on 21 February 2007. The outline of the final reports and the progress reports is shown below:

Table 2.9.9 Orders Received by each Youth Polytechnic (as of February 2007)

YP	Production Unit	Orders Received
Homa Bay	Motor vehicle Mechanics	**99,555 Ksh** since June 2006. Spraying for 46 vehicles, welding for 4 vehicles, wheel alignment for 20 vehicles, service and maintenance for 28 vehicles and press service for 10 components.
		35,300 Ksh *from March to June 2006. 22 orders.*
	Carpentry & Joinery	**114,370 Ksh** since June 2006. 10 chairs, 5 tables, 11 CDF desks, 4 beds, 3 doors, 2 sets of stool, 2 wall units, 4 windows, 4 coffins. 2 sets of semi sofas, 5 door frames, 5,500 ft of timber planes, 27,000 ft of timber reverted, 12,570 ft of molding design and 50 lockers.
		31,500 Ksh *from March to June 2006. 9,800 Ksh in April and 10,200 Ksh in May,*
Sero	Garment Making	**131,700 Ksh** since June 2006. 20 bush jackets, 30 boys uniforms, 20 girls uniforms, 40 school sweaters, 28 baby sweaters, 11 women dresses and 32 long trousers.
		170,800 Ksh *(1) from March to June 2006. 20 boys' uniform (20,000 Ksh (2)) from Rarage Secondary School, 30 boys' uniforms and 40 girls' uniforms (70,000 Ksh) from Sero YP. 30 girls uniforms (30,000 Ksh) from Wiobiero Secondary School. 4 kaunda suits, 6 women suits and 3 full suits (5,700 Ksh) from individuals. 2 dust coats for instructors, 22 aprons for students, 12 sports shorts & shirts for boys' and 8 game skirts for gilrs (28,000 Ksh) from Sero YP. 20 bush jackets (24,000 Ksh) from individuals. 30 boys' uniforms (30,000 Ksh) from Okok Secondary School. 20 girls' uniforms (20,000 Ksh) from St Juliana's.*
	Carpentry &Joinery	**91,800 Ksh** since June 2006. 4 panel doors, 4 wood windows, 2 sets of easy chairs, 40 desks and lockers, and 4 office tables.
		68,500 Ksh *from March to the first week of June 2006. 20 desks (10,000 Ksh) from Sero YP, 30 froms (9,000 Ksh) from Sero S.D.A. Church, 10 arm chairs (4,000 Ksh) from St. Juliana's, 20 school lockers (10,000 Ksh) from Wiobiero Secondary School, 5 coffee tables, 4 cupboards, 1 jumbo sofa, 2 beds, 4 panel doors, 4 wood windows and 2 easy chairs (35,500 Ksh) from individuals.*
	Welding & Fabrication	**104,500 Ksh** (3) since June 2006. 1 donkey cart, 6 arm chairs, 10 steel windows, 3 steel doors, 4 jaggery tanks and 30 jikos.
		71,900 Ksh *from March to the first week of June 2006. 3 steel doors (16,800 Ksh) from Kiseke S.D.A. Church, 10 steel windows (22,000 Ksh) from Luora Secondary School, 1 gate, 4 steel windows, 1 donkey cart and 6 arm chairs (33,100 Ksh) from individuals.*
Langi	Tailoring & Dress Making	**19,250 Ksh** since June 2006. 80 trousers, 30 skirts, 30 blouses, 15 shorts, 2 Kaunda suits, 50 shirts, 3 aprons, 5 long sleeves, 3 Kanda units and 15 uniforms.
		81,950 Ksh *from March to the first week of June 2006. 20 boys' shorts & shirts and 15 girls tonic & blouses (19,500 Ksh) from Ndere Primary School, 25 boys' trousers & shirts and 10 girls' skirts & blouses (32,900 Ksh) from Langi Secondary School, 20 boys' trousers and 13 girls' skirts (21,050 Ksh) from Okok Secondary School (4), and 15 trousers and 5 girls' skirts (8,500 Ksh) for Langi YP.*
	Carpentry & Joinery	**41,130 Ksh** since June 2006. 2 coffee tables, 3 spindle beds, 3 sofa sets, 10 lockers, 20 chairs, 5 doors. 4 windows and 3 chapatti boards.
		Lockers and chairs from Langi Secondary School from March to June 2006. (No figures available.)
	Metal Work - Welding	**45,400 Ksh** since June 2006. (No figures available from March to June 2006.) 4 beds repaired, 3 wheel barrows repaired, 1 watering can, 4 steel doors, 10 steel chairs, 2 donkey carts, 20 jaggery dishes, 20 improved jikos, 20 metal boxes, 20 dust bins, 4 decker beds and 5 steel windows.
		Construction of the principal's house of Waondo Secondary School from March to June 2006. (No figures available.)

Note 1: 170,800 Ksh does not much the total of orders. Also the sum of 98,000 Ksh out of 170,800 Ksh is from Sero YP itself.
Note 2: Unit price for uniform is 1,000 Ksh for Sero YP and is higher than Langi YP.
Note 3:104,500 Ksh is supposed to be the total amount of orders since June 2006, however the details of the orders show only 4 jaggery tanks and 30 jikos are new orders.
Note 4: Both Sero YP and Langi YP took uniforms orders from Okok Secondary school and the estimated price of Langi YP is about 70% of Sero YP.

Table 2.9.10 shows comparisons of the targets planned and gross income generated by the production units of each youth polytechnic. Actual gross income generated is more than the targets planned, though the figures for Sero Youth Polytechnic are not available due to inconsistency.

Table 2.9.10 Target and Gross Income of Production Units (Jan. 2006 – Jan. 2007)

YP	Production Unit	2005 Income (Ksh)	2006 Target (Ksh)	2006 Target / 2005 Income	2006 Actual (Ksh)	Actual / Target
Homa Bay	Motor vehicle Mechanics	60,000	90,000	150 %	122,310	**136 %**
	Carpentry & Joinery	40,000	60,000	150 %	152,170	**254 %**
Sero	Garment Making	14,800	30,000	203 %	Unavailable (1)	
	Carpentry &Joinery	5,000	28,000	580 %		
	Welding & Fabrication	10,000	30,000	300 %		
Langi	Tailoring & Dress Making	6,000	12,000	200 %	16,200	**135 %**
	Carpentry & Joinery	2,900	16,000	552 %	38,510	**241 %**
	Metal Work – Welding	10,000	30,000	300 %	31,124	**104 %**

Note 1: The gross income reported by Sero YP was 154,900 Ksh for Garment Making, 108,800 Ksh for Carpentry & Joinery and 112,100 Ksh for Welding & Fabrication, however, those figures are extremely high and are not consistent with the details of the orders.

5) Number of Trainers and Trainees

The number of trainers (instructors) had not changed at Homa Bay YP, decreased at Sero YP and increased at Langi YP from September 2005 to September 2006. Sero YP transferred several trainers who had deleliction problems so it is a sign of reconstruction. (See 2.9.5 Issues Arisen and Way-forward 2) Morale of Instructors.)

The numbers of trainees show the same tendency. It decreased slightly in Motor Vehicle Mechanic Course at Homa Bay but increased considerably in Carpentry & Joinery Course at Homa Bay and all the courses in Sero. It increased slightly in all the courses in Langi too. Though enrollment is still going on until June, the numbers of trainees for 2007 are more than the numbers of 2005 in many courses already.

Table 2.9.11 Present Status (as of 21 February 2007)

YP and Course	Number of Active Trainers		Year	Number of Trainees		
	September 2005	September 2006		2005	2006	2007 so far
Homa Bay			1st year	42 (38-4)	31 (28-3)	15 (15-0)
			2nd year	32 (29-3)	39 (36-3)	35 (34-1)
Motor Vehicle Mechanic	1	1 [0]	Total	74 (67-7) [100%]	70 (64-6) [95%]	50 (49-1) [68%]
Carpentry & Joinery	1	1 [0]	1st year	6 (6-0)	8 (8-0)	4 (4-0)
			2nd year	4 (4-0)	7 (7-0)	8 (8-0)
			Total	10 (10-0) [100%]	15 (15-0) [150%]	12 (12-0) [120%]
Sero			1st year	28 (5-23)	32 (12-20)	15 (5-10)
			2nd year	16 (6-10)	30 (5-25)	30 (10-20)
Garment Making	3	1 [-2]	Total	44 (11-33) [100%]	62 (17-45) [141%]	45 (15-30) [103%]
Carpentry & Joinery	2	1 [-1]	1st year	3 (3-0)	4 (4-0)	5 (5-0)
			2nd year	2 (2-0)	6 (6-0)	4 (4-0)
			Total	5 (5-0) [100%]	10 (10-0) [200%]	9 (9-0) [180%]
Welding & Fabrication	2	1 [-1]	1st year	2 (2-0)	3 (3-0)	4 (4-0)
			2nd year	2 (2-0)	3 (3-0)	3 (3-0)
			Total	4 (4-0) [100%]	6 (6-0) [150%]	7 (7-0) [175%]
Langi			1st year	16 (6-10)	23 (8-15)	10 (4-6)
			2nd year	11 (4-7)	13 (6-7)	23 (8-15)
Tailoring / Dress Making	3	4 [+1]	Total	27 (10-17) [100%]	36 (14-22) [133%]	33 (12-21) [111%]
Carpentry & Joinery	1	1 [0]	1st year	6 (6-0)	5 (5-0)	4 (4-0)
			2nd year	4 (4-0)	6 (6-0)	5 (5-0)
			Total	10 (10-0) [100%]	11 (11-0) [110%]	9 (9-0) [90%]
Metal Work – Welding	2	2 [0]	1st year	8 (8-0)	15 (15-0)	6 (6-0)
			2nd year	15 (15-0)	8 (8-0)	15 (15-0)
			Total	23 (23-0) [100%]	23 (23-0) [100%]	21 (21-0) [91%]

Note: Enrollment continues up to June. Number in parenthesis means male and female students, for example (31-2) means 31 male and 2 female students.

6) Evaluation Workshops

There was a one-day workshop for final evaluation of youth polytechnics strengthening programme on 21 February 2007 and 10 stakeholders including instructors, charman of the management committee and chief of each youth polytechnic participated. The participants reviewed major activities during the implementation period and identified the factors which have contributed the income generation most. The three major factors which got higher scores for each YP were as follows:

Homa Bay YP: [1] Availability of **electricity** for all the courses. (4.9 mark out of 5)
[2] **Nearness** to source of raw materials for all the courses. (4.8)
[3] **Large number of vehicles** in Homa Bay for MVM. (4.6)

Sero YP: [1] **Good marketing strategy** (display, fair pricing) for welding. (5.0)
[2] **Awareness creation** by management committee, instructors and students for all the courses. (4.8)
[3] **Skills and commitment** of the instructors for garment making and carpentry & joinery. (4.8)

Langi YP: [1] **Community mobilization** by management committee, PA and instructors. (5.0)
[2] Introduction of **Production Unit**. (4.95)
[3] **Skill and commitment** of the instructors. (4.9)

The factors identifeid for Homa Bay YP were mostly locational, but those for other YPs are more human. Community mobilization was ranked number one at Langi YP.

Then Project Performance Index and Development Index were voted.

Project Performance Index

Efficiency: 4.8, Effectiveness: 4.2, Impact: 4.3, Relevance 5.0 and Sustainability: 3.9.

Development Index

Individual: 4.0, Polytechinic / Community: 3.8, and Networking: 4.1.

Sustainability was marked low because 1) problems of transportaion and availability of materials especially at Langi YP, 2) external funding is still necessary, 3) full-scale production unit is necessary, and 4) training for trainers (instructors) done was only introduction and they need more.

The results of the participatory evaluation workshop for youth polytechnics strengthening programme were presented at the district evaluation workshop for Homa Bay District on 26 February 2007. After that, the district-level participants appraised the programme for district-wide expansion.

Program Appraisal Index

Efficiency: 4.7, Effectiveness: 5.0, Impact: 4.4, Relevance: 5.0 and Sustainability: 4.3.

Those marks are the highest among all the four pilot programmes implemented as pilot in Homa Bay District..

2.9.5 Issues Arisen and Lessons

1) Transfer of Youth Polytechnics

The authority of Youth Polytechnics was transferred from the Ministry of Labour and Human

Resource Development to Ministry of Youth at the beginning of this year, so that all the managers, instructors and even district officers are now applying for the positions in the new ministry. Qualification for managers and instructors is higher and those of the three YPs in Homa Bay are anxious about their future. At the same time they expect that more budgets will be allocated by the new ministry.

2) Morale of Instructors

The subsidies of instructors' salary from the government are delayed for several months now. That affects the morale of the instructors and they become more dependent on external resources such as production units and training allowances. The Study Team even found that some of the instructors come to YP only once a month to pick up salary and one of the instructors stole all the tools and equipment of the course and ran away. Some of them were not performing their duties at all. (Fortunately those instructors were already transferred last year.) High morale of instructors is expected to be the outcome of the production units.

3) Management and Occupational Safety

Managers and instructors of Youth Polytechnics do not have enough knowledge on management of YPs, workshops and projects or occupational health & safety. At one YP, new sewing machines were used by students improperly with no supervision of the instructors. Actually there was no instructor of garment making every time the Study Team visited the YP. There are no tool racks in some PUs, and the floor is full of wood chips. Some students are using machines without proper clothes and shoes. Those are the reasons why District Employment Officer and the Study Team decided to have one-week management training. The level of management, occupational health & safety needs to be monitored periodically.

4) Bookkeeping

There are a lot of inconsistencies and unrealistic figures of primitive level among net income, gross income and the orders received in the PU progress reports and still some in the final reports. Some figures were more than likely to be fabricated probably because there was no proper bookkeeping. It is impossible to practice efficient and effective production without proper and timing bookkeeping. All the instructors need to have appropriate business mind.

CHAPTER 3 PROGRAMME APPRAISAL

After the series of the evaluation workshops at each pilot programme level, a programme appraisal session at the District level workshop was carried out in Nyando District in mid February and in Homa Bay District in late February 2007. Adding to that, the Study Team itself also appraised the programmes based on the experiences of the Pilot programme implementation. This chapter presents the results of the programme appraisals at the District level workshops, appraisal by the Study Team and lastly the comparison between the appraisals by the Districts and the Study Team.

3.1 Appraisal by District

3.1.1 Nyando District

The programme appraisal at the District level workshop in Nyando District was carried out on February 13, 2007. The participants were the district development officer, district officers from the line ministries such as Health, Agriculture, Livestock and Fisheries, Water, Public Works, Environment, Education, Social Services, among others, County and Town Councils, CDF offices, and CBO representatives. At the morning session, the representatives of the Pilot programme implementers presented their activities and the result of their own evaluation of the pilot programme.

Based on the presentations and other information such as from the field visit (the Study Team facilitated a field day of the Pilot programmes on February 9, 2007), reports from their subordinate divisional officers etc., the workshop participants appraised the pilot programmes whether they can be extended to district-wide development. The appraisal was conducted from the viewpoints of efficiency, effectiveness, impact, relevance and sustainability and the participants voted for marking in range from 5 as the highest to 1 as the lowest. Tables 3.1.1 to 3.1.5 show the results of the appraisal by programme:

Table 3.1.1 Nyando District: Programme Appraisal Index: Health & Livelihood

Programme Appraisal Index (13/02/07)	Mark (1-5)	Total Point	No. of Votes for Marking (1 – 5)						Remarks
			5	4	3	2	1	Total	
(1) Efficiency	**3.6**	142	3	**19**	17	0	0	39	Management problems.
(2) Effectiveness	**3.8**	133	3	**22**	10	0	0	35	Dropout of the trained CHWs.
(3) Impact	**4.7**	191	**27**	14	0	0	0	41	
(4) Relevance	**5.0**	205	**41**	0	0	0	0	41	
(5) Sustainability	**3.3**	135	2	11	**25**	3	0	41	Voluntary nature of work. Attitude/behavior of the people doesn't change easily. Culture. Inheritance. Number of staff is small. Commitment of CHWs. Poverty level. Natural calamity. Donors syndrome.

Table 3.1.2 Nyando District: Programme Appraisal Index: Forestry

Programme Appraisal Index (13/02/07)	Mark (1-5)	Total Point	No. of Votes for Marking (1 – 5)						Remarks
			5	4	3	2	1	Total	
(1) Efficiency	**3.5**	131	0	**21**	15	1	0	37	
(2) Effectiveness	**3.6**	148	0	**25**	16	0	0	41	
(3) Impact	**4.6**	179	**24**	14	1	0	0	39	
(4) Relevance	**4.9**	202	**38**	3	0	0	0	41	
(5) Sustainability	**3.7**	132	1	**22**	13	0	0	36	

Table 3.1.3 Nyando District: Programme Appraisal Index: Cottage Industry

Programme Appraisal Index (13/02/07)	Mark (1-5)	Total Point	No. of Votes for Marking (1 – 5)						Remarks
			5	4	3	2	1	Total	
(1) Efficiency	**3.9**	166	2	**33**	8	0	0	43	Initial capital is big. Not so bad because only 8 votes for "3" just like Impact. Low production due to low technology.
(2) Effectiveness	**4.3**	185	16	**24**	3	0	0	43	
(3) Impact	**4.0**	170	10	**24**	8	0	0	42	
(4) Relevance	**5.0**	218	**42**	2	0	0	0	44	
(5) Sustainability	**3.7**	162	7	16	**21**	0	0	44	Need funds for training. Slow in adaptation. Competition (many players in the market). Diseases of poultry and other livestock. Legal aspects.

Table 3.1.4 Nyando District: Programme Appraisal Index: Paddy Cultivation Extension

Programme Appraisal Index (13/02/07)	Mark (1-5)	Total Point	No. of Votes for Marking (1 – 5)						Remarks
			5	4	3	2	1	Total	
(1) Efficiency	**4.1**	169	9	**28**	4	0	0	41	Capacity building of landowners and farmers is necessary. Capacity of NIB's supply of water is limited. Low rate of adaptation of technology.
(2) Effectiveness	**4.6**	187	**23**	18	0	0	0	41	
(3) Impact	**4.8**	200	**32**	10	0	0	0	42	
(4) Relevance	**5.0**	210	**42**	0	0	0	0	42	
(5) Sustainability	**4.1**	156	7	**28**	3	0	0	38	Market is there, but political power is lacking. Natural calamity. International competition. Some of the varieties have no market / low price; low yield because of diseases. Dependency of farmers.

Table 3.1.5 Nyando District: Programme Appraisal Index: Cotton Industry Promotion

Programme Appraisal Index (13/02/07)	Mark (1-5)	Total Point	No. of Votes for Marking (1 – 5)						Remarks
			5	4	3	2	1	Total	
(1) Efficiency	**3.7**	147	1	**28**	8	3	0	40	
(2) Effectiveness	**3.6**	143	0	**23**	17	0	0	40	
(3) Impact	**4.4**	169	18	**19**	1	0	0	38	
(4) Relevance	**4.9**	206	**38**	4	0	0	0	42	
(5) Sustainability	**3.5**	147	1	**20**	**20**	1	0	42	

The participants gave very high marks to relevance of all the programmes, while they gave low marks to sustainability of all the programmes. Efficiency was also relatively given low marks except for paddy cultivation programme (remarks are given to the low marks on the tables). Paddy cultivation promotion got the highest marks in overall.

3.1.2 Homa Bay District

The programme appraisal at the District level workshop in Homa Bay District was carried out on February 26, 2007. The participants were the deputy district development officer, district officers from the line ministries such as Health, Agriculture, Livestock and Fisheries, Water, Public Works, Environment, Education, Social Services, among others, Municipal Council, CDF offices, and CBO representatives.

Same as the workshop in Nyando District, the representatives of the Pilot programme implementers presented their activities and the result of their own evaluation of the pilot programme. Based on the presentations and other information such as from the field visit (the Study Team facilitated a field day of the Pilot programmes on February 23, 2007), reports from their subordinate divisional officers etc., the workshop participants conducted the appraisal of the programmes in the same manner with Nyando District. Tables 3.1.6 to 3.1.12 show the results of the appraisal by programme:

Table 3.1.6 Homa Bay Disrict: Programme Appraisal Index: Health & Livelihood (1) Livelihood

Programme Appraisal Index (26/02/07)	Mark (1-5)	Total Point	No. of Votes for Marking (1 – 5)						Remarks
			5	4	3	2	1	Total	
(1) Efficiency	**4.4**	171	15	**24**	0	0	0	39	
(2) Effectiveness	**4.2**	180	9	**33**	1	0	0	43	
(3) Impact	**4.3**	198	15	**30**	1	0	0	46	
(4) Relevance	**5.0**	240	**48**	0	0	0	0	48	
(5) Sustainability	**3.6**	152	0	**26**	16	0	0	42	Element of joint extension could be a weakness for the line ministries. Possible conflict among the producers. Need a lot of follow-up. Inadequate staff of livestock, veterinarian, agricurture officers. Climatic changes. Availability of dariy goats / also costs. Inputs (seeds, fertilizer and chemical) are expensive.

Table 3.1.7 Homa Bay Disrict: Programme Appraisal Index: Health & Livelihood (2) Health

Programme Appraisal Index (26/02/07)	Mark (1-5)	Total Point	No. of Votes for Marking (1 – 5)						Remarks
			5	4	3	2	1	Total	
(1) Efficiency	**4.2**	176	9	**32**	1	0	0	42	CHWs are volunteers and the voluntarism as a strategy dies out. Motivation / incentive can sustain the strategy. Budget for forms and other materials is not available. Limited resources. Refresher training is not there. Emerging new diseases are a challege.
(2) Effectiveness	**4.4**	169	17	**21**	0	0	0	38	
(3) Impact	**4.2**	156	8	**29**	0	0	0	37	
(4) Relevance	**5.0**	235	**47**	0	0	0	0	47	
(5) Sustainability	**3.6**	142	2	18	**20**	0	0	40	

Table 3.1.8 Homa Bay Disrict: Programme Appraisal Index: Health & Livelihood (3) Combination

Programme Appraisal Index (26/02/07)	Mark (1-5)	Total Point	No. of Votes for Marking (1 – 5)						Remarks
			5	4	3	2	1	Total	
(1) Efficiency	**4.4**	166	14	**24**	0	0	0	38	
(2) Effectiveness	**4.3**	159	11	**26**	0	0	0	37	
(3) Impact	**4.4**	154	14	**21**	0	0	0	35	
(4) Relevance	**5.0**	214	**42**	1	0	0	0	43	
(5) Sustainability	**3.7**	143	1	**24**	14	0	0	39	

Table 3.1.9 Homa Bay District: Programme Appraisal Index: Forestry

Programme Appraisal Index (26/02/07)	Mark (1-5)	Total Point	No. of Votes for Marking (1 – 5)						Remarks
			5	4	3	2	1	Total	
(1) Efficiency	**3.0**	96	0	0	**32**	0	0	32	
(2) Effectiveness	**3.8**	170	9	17	**19**	0	0	45	
(3) Impact	**3.0**	121	0	10	**20**	10	1	41	
(4) Relevance	**5.0**	228	**44**	2	0	0	0	46	
(5) Sustainability	**3.8**	174	7	**24**	13	2	0	46	

Table 3.1.10 Homa Bay District: Programme Appraisal Index: Cottage Industry

Programme Appraisal Index (26/02/07)	Mark (1-5)	Total Point	No. of Votes for Marking (1 – 5)						Remarks
			5	4	3	2	1	Total	
(1) Efficiency	**4.5**	170	18	**20**	0	0	0	38	
(2) Effectiveness	**4.4**	166	14	**24**	0	0	0	38	
(3) Impact	**4.2**	160	8	**30**	0	0	0	38	
(4) Relevance	**5.0**	195	**39**	0	0	0	0	39	
(5) Sustainability	**4.0**	168	11	**20**	11	0	0	42	

Table 3.1.11 Homa Bay District: Programme Appraisal Index: Ecological Farming

Programme Appraisal Index (26/02/07)	Mark (1-5)	Total Point	No. of Votes for Marking (1 – 5)						Remarks
			5	4	3	2	1	Total	
(1) Efficiency	**4.5**	204	**26**	17	2	0	0	45	
(2) Effectiveness	**4.4**	186	19	**22**	1	0	0	42	
(3) Impact	**4.6**	197	**25**	18	0	0	0	43	
(4) Relevance	**4.9**	200	**36**	5	0	0	0	41	
(5) Sustainability	**3.9**	161	9	**21**	10	1	0	41	Desmodeum is too expensive for poor farmers. (Can be multiplied though.) Availablity of desmodeum is a problem. Lack of attractive use of Mukuna. Communal grazing interferes cover crops.

Table 3.1.12 Homa Bay District: Programme Appraisal Index: Youth Polytechnics Strengthening

Programme Appraisal Index (26/02/07)	Mark (1-5)	Total Point	No. of Votes for Marking (1 – 5)						Remarks
			5	4	3	2	1	Total	
(1) Efficiency	**4.7**	202	**31**	11	1	0	0	43	
(2) Effectiveness	**5.0**	228	**44**	2	0	0	0	46	
(3) Impact	**4.4**	195	19	**25**	0	0	0	44	
(4) Relevance	**5.0**	220	**44**	0	0	0	0	44	
(5) Sustainability	**4.3**	193	15	**28**	2	0	0	45	

The participants gave relatively higher marks than Nyando District. Also same as Nyando, relevance of the programmes was all given very high marks (all 5.0 except for ecological farming programme) and sustainability was given the lowest marks. Forestry programme got relatively low marks in overall. The participants indicated the availability of water for growing tree seedling as a constraint to extend the programme.

3.2 Appraisal by JICA Study Team

After the appraisal sessions in Nyando and Homa Bay Districts ended, the Study Team also rated the programmes in the same manner of the appraisals at the district level workshops. The four team members who were assigned longest in the Study rated the programmes individually from the five aspects once and assessed the aggregate marks of the four members. Then again the team members rated the programmes as the final vote. Tables 3.2.1 to 3.2.9 show the Result of the appraisal:

Table 3.2.1 Programme Appraisal Index: No.1 Livelihood Improvement

Programme Appraisal Index (13/02/07)	Mark (1-5)	Total Point	No. of Votes for Marking (1 – 5)						Remarks
			5	4	3	2	1	Total	
(1) Efficiency	**4.3**	17	1	3				4	
(2) Effectiveness	**3.0**	12			4			4	In Nyarongi, due to distance from town transportation cost for chicken feed amounts Ksh5,000 and it cuts the profit. As for dairy goat, if the feed is not good, milk production will remain only around 2 liters per day, which cannot financially support orphanage well.
(3) Impact	**3.5**	14		2	2			4	
(4) Relevance	**4.3**	17	1	3				4	
(5) Sustainability	**3.5**	14		2	2			4	

Table 3.2.2 Programme Appraisal Index: No.2 Health Improvement

Programme Appraisal Index (13/02/07)	Mark (1-5)	Total Point	No. of Votes for Marking (1 – 5)						Remarks
			5	4	3	2	1	Total	
(1) Efficiency	**4.0**	16		4				4	
(2) Effectiveness	**3.3**	13		1	3			4	
(3) Impact	**3.3**	13		1	3			4	
(4) Relevance	**4.5**	18	2	2				4	Dropout of CHW is expected. For information sharing system, regular supply of the forms to fill the collected data is required. Also data collection for information sharing would be burden for CHW, hence it might be difficult to keep up with monthly data collection.
(5) Sustainability	**3.0**	12			4			4	

Table 3.2.3 Programme Appraisal Index: No.3 Forestry

Programme Appraisal Index (13/02/07)	Mark (1-5)	Total Point	No. of Votes for Marking (1 – 5)						Remarks
			5	4	3	2	1	Total	
(1) Efficiency	**3.8**	15		3	1			4	
(2) Effectiveness	**3.3**	13		1	3			4	
(3) Impact	**3.0**	12			4			4	Activities are not in so large-scale as to make considerable impact.
(4) Relevance	**3.5**	14		2	2			4	
(5) Sustainability	**3.0**	12		1	2	1		4	Sustainability is threatened unless supply of seeds and pots are secured.

Table 3.2.4 Programme Appraisal Index: No.4 Cottage Industry

Programme Appraisal Index (13/02/07)	Mark (1-5)	Total Point	No. of Votes for Marking (1 – 5)						Remarks
			5	4	3	2	1	Total	
(1) Efficiency	**3.3**	13		1	3			4	Not all the representatives could meet with their expectations.
(2) Effectiveness	**3.5**	14		2	2			4	Those who started business during the pilot period remained only 30% of the community representatives.
(3) Impact	**3.0**	12			4			4	
(4) Relevance	**3.8**	15		3	1			4	
(5) Sustainability	**3.5**	14		2	2			4	

Table 3.2.5 Programme Appraisal Index: No.5 Paddy Cultivation

Programme Appraisal Index (13/02/07)	Mark (1-5)	Total Point	No. of Votes for Marking (1 – 5)						Remarks
			5	4	3	2	1	Total	
(1) Efficiency	**4.5**	18	2	2				4	
(2) Effectiveness	**4.8**	19	3	1				4	Adoption of technologies were faster than the South West Kano Scheme, where original key farmers come from and some farmers managed to double the yield with the new technologies.
(3) Impact	**4.0**	16		4				4	
(4) Relevance	**4.5**	18	2	2				4	
(5) Sustainability	**4.5**	18	2	2				4	Stakeholders have made high commitment.

Table 3.2.6 Programme Appraisal Index: No.6 Cotton Industry

Programme Appraisal Index (26/02/07)	Mark (1-5)	Total Point	No. of Votes for Marking (1 – 5)						Remarks
			5	4	3	2	1	Total	
(1) Efficiency	**2.8**	11			3	1		4	Cost of procuring equipment and trainer's fee were relatively high.
(2) Effectiveness	**2.8**	11			3	1		4	To compete in the market of cotton products, the trainees will require further skill upgrading trainings.
(3) Impact	**3.0**	12			4			4	
(4) Relevance	**3.5**	14		2	2			4	
(5) Sustainability	**3.0**	12			4			4	

Table 3.2.7 Programme Appraisal Index: No.7 Ecological Farming

Programme Appraisal Index (26/02/07)	Mark (1-5)	Total Point	No. of Votes for Marking (1 – 5)						Remarks
			5	4	3	2	1	Total	
(1) Efficiency	**4.0**	16		4				4	
(2) Effectiveness	**3.5**	14		2	2			4	
(3) Impact	**3.3**	13		1	3			4	It needs 3 to 4 seasons to well establish push-pull farm.
(4) Relevance	**4.0**	16		4				4	
(5) Sustainability	**3.5**	14		2	2			4	Communal grazing may constrain the extension of the method. Farmers might not maintain desmodium because it is not edible for human.

Table 3.2.8 Programme Appraisal Index: No.8 Pro-poor Non-tillage

Programme Appraisal Index (26/02/07)	Mark (1-5)	Total Point	No. of Votes for Marking (1 – 5)						Remarks
			5	4	3	2	1	Total	
(1) Efficiency	**3.8**	15		3	1			4	
(2) Effectiveness	**3.5**	14		2	2			4	
(3) Impact	**3.0**	12			4			4	It needs 2 to 3 years to establish non-tillage farm, hence impact cannot be felt during the pilot project period.
(4) Relevance	**4.0**	16		4				4	
(5) Sustainability	**3.0**	12		1	2	1		4	Supply of cover crop seeds has difficulty. Communal grazing can destroy the soil texture developed by non-tillage method. Cover crop can also be damaged by animals.

Table 3.2.9 Programme Appraisal Index: No.9 Youth Polytechnics Strengthening

Programme Appraisal Index (26/02/07)	Mark (1-5)	Total Point	No. of Votes for Marking (1 – 5)						Remarks
			5	4	3	2	1	Total	
(1) Efficiency	**2.8**	11			3	1		4	Initial cost for procurement is high.
(2) Effectiveness	**3.3**	13		1	3			4	
(3) Impact	**3.3**	13		1	3			4	
(4) Relevance	**4.0**	16		4				4	
(5) Sustainability	**3.5**	14		2	2			4	

The rating by the Study Team is resulted severer than the appraisal by the Districts as external agency. The Study Team tended to rate that the more external inputs were given, the lower the marks are in overall such as local cotton industry programme and Youth Ploytechnics Strengthening programme. Among the pilot programmes, paddy cultivation extension programme was given the highest marks in overall.

3.3 Comparison of the Appraisals

Tables 3.3.1 and 3.3.2 below shows the comparison of the programme appraisal marks between the two Districts and the Study Team. As mentioned above, the Study Team marked more severely than the districts and Homa Bay District gave relatively higher marks compared to Nyando District. Common marks given by the two districts are the very high marks for relevance of the programmes and low marks for sustainability, which may indicate the anxiety of the districts to extend the programmes with absence of donors.

For the cottage industry programme, the district workshop participants in Homa Bay District gave the highest marks in all the five aspects. One reason could be the impressive presentations of the community representatives who started off their own business after the trainings facilitated by the programme. In fact, the 2nd best to 4th best performers among the 44 community representatives were chosen from Homa Bay District by vote at the evaluation workshop of the cottage industry programme held on February 5, 2007 prior to the district workshops.

As for paddy cultivation extension programme, the Study Team gave relatively higher marks in overall than the district workshop participants. Compared to the district workshop participants, the Study Team gave higher marks in three aspects, namely efficiency, effectiveness, and sustainability. The Study Team considered that with minimum external input the programme succeeded to achieve high project performance and also the Team counts high commitment of the stakeholders for extension of the programme..

For Youth Polytechnics Strengthening programme, the district workshop participants in Homa Bay District gave very high marks in overall showing drastic contrast with the marks given by the Study Team. As a recipient side, a big amount of external input would have been appreciated so much, while the Study Team did not give high mark to the programme because the project performance was not beyond the expectation to have been assumed with the input provided by the programme.

Table 3.3.1 Comparison of Programme Appraisal Index (1)

Programme Appraisal Index	(1) Livelihood			(2) Health			(3) Forestry			(4) Cottage Industry		
	N	H	S	N	H	S	N	H	S	N	H	S
(1) Efficiency	3.6	4.4	4.3	3.6	4.2	4.0	3.5	3.0	3.8	3.9	4.5	3.3
(2) Effectiveness	3.8	4.2	3.0	3.8	4.4	3.3	3.6	3.8	3.3	4.3	4.4	3.5
(3) Impact	4.7	4.3	3.5	4.7	4.2	3.3	4.6	3.0	3.0	4.0	4.2	3.0
(4) Relevance	5.0	5.0	4.3	5.0	5.0	4.5	4.9	5.0	3.5	5.0	5.0	3.8
(5) Sustainability	3.3	3.6	3.5	3.3	3.6	3.0	3.7	3.8	3.0	3.7	4.0	3.5

Note: N = Nyando District, H = Homa Bay District, S = Study Team

In Nyando District appraisal for livelihood and health programmes were made as a combination programme.

Table 3.3.2 Comparison of Programme Appraisal Index (2)

Programme Appraisal Index	(5) Paddy Cultivation			(6) Cotton Industry			(7) Eco. Farming			(8) Non-tillage			(9) Youth P.		
	N	H	S	N	H	S	N	H	S	N	H	S	N	H	S
(1) Efficiency	4.1	-	4.5	3.7	-	2.8	-	4.5	4.0	-	4.5	3.8	-	4.7	2.8
(2) Effectiveness	4.6	-	4.8	3.6	-	2.8	-	4.4	3.5	-	4.4	3.5	-	5.0	3.3
(3) Impact	4.8	-	4.0	4.4	-	3.0	-	4.6	3.3	-	4.6	3.0	-	4.4	3.3
(4) Relevance	5.0	-	4.5	4.9	-	3.5	-	4.9	4.0	-	4.9	4.0	-	5.0	4.0
(5) Sustainability	4.1	-	4.5	3.5	-	3.0	-	3.9	3.5	-	3.9	3.0	-	4.3	3.5

Note: N = Nyando District, H = Homa Bay District, S = Study Team

In Homa Bay District appraisals for Ecological Farming and Pro-poor Non-tillage were made as one programme.

CHAPTER 4 LESSONS LEARNED AND WAY-FORWARD

This chapter discusses lessons learned from and way-forward to the on-going pilot programme implementation. Apart from identifying some individual lessons which were mostly mentioned in the aforementioned sub-chapter 'Issues Arisen and Lessons' under Chapter 2, a generalization is also tried to enrich the formation and implementation of the district development plan. Lessons discussed hereunder are categorized into levels of; 1) planning and implementation approach, 2) implementation strategy, 3) norm embedded in the people's society, and 4) comprehensive implementation of the district development plan as well as monitoring and evaluation:

At the level of Planning and Implementation Approach:

- Integration of Livelihood Improvement and Health Improvement

At the level of Implementation Strategy:

- An Integrated Extension Mechanism: Combination of Centre Based with Outreach Oriented Programme
- Interaction Point between the People and the Government Officers
- Group Approach and Individual Approach
- Government Extension Officers and Local Lead Farmers

At the level of Norm Embedded in Local Society:

- Learning Attitude and Incentive

Related to Recommended Comprehensive Implementation of the Plan as well as the M&E

- Indicator Oriented M&E and Learning Oriented M&E

4.1 Integration of Livelihood Improvement and Health Improvement

Livelihood and health improvements are both higher prioritized development approaches in the Study districts. Nyando District ranked 'good income' as the first priority approach, 'enough food' as the second priority approach, and 'good health' as the third priority approach, first two approaches of which together constitute of livelihood improvement. In Homa Bay District, first priority approach is 'enough food', second is 'good health', and third is 'good income'. The first and third priority approaches together constitute health improvement. In the pilot implementation, an integration of the livelihood improvement and health improvement was sought, which was tried under a combination extension model.

Looking at the district situation from different perspectives, no one can disagree to recognize that livelihood and health improvements are almost foremost important. Poverty prevalence is very high especially in Homa Bay District in which we can see as high as 71 % population are below the poverty line, third worst position among 63 districts available for such data. Health status in the study districts is worse than most of the other

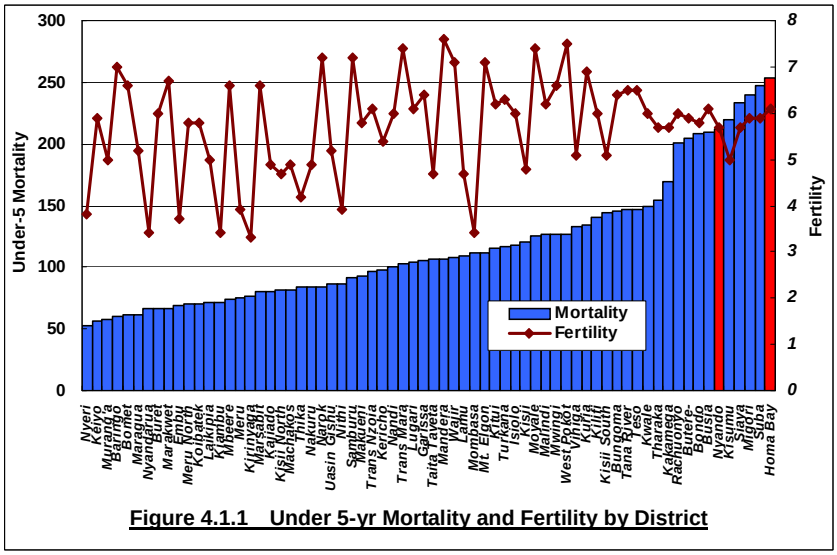


Figure 4.1.1 Under 5-yr Mortality and Fertility by District

districts as shown in such indicators as children's mortality, life expectancy, crude death ratio, etc. Under 5-year children's mortality for Homa Bay is ranked at the worst amongst the 63 districts and the one for Nyando is sixth worst.

It may be known there is a relationship between high children's death ratio (substituted by under 5-year children's mortality) and poverty prevalence. Given high children's mortality, the present poverty prevalence can even be inherited from the parents to the children, making them difficult to get out of poverty vicious trap. The logic here is, as suggested by W. Easterly[1] and others, that there is a tendency of high fertility where there is high children's mortality. To cope up with the high children's death the parents cannot help stop having many children. Fertility ratios in the Study districts are 6.1 and 5.7 for Homa Bay and Nyando respectively according to 1999 Census. Having many children means meager investment per child. There is also a big risk that the parents lose even the meager investment where high children's mortality ratio prevails. In this situation, poverty is inherited from the parent to the children.

Putting important sectors such as health, education, agriculture etc, major approaches identified in the (draft) district development plan is schematized as in Figure 4.1.2. Core approaches are livelihood improvement, consisting mainly of food and IGAs sectors, health improvement and education improvement, all of which should be supported by infrastructure approach from the physical point of view. Infrastructure approach can be supported by CDF fund which is nowadays the biggest development fund in the Study districts. Primary education is supported by the government commitment; free primary education for all. The difficulty associated with education sector comes from poverty as well as from high prevalence of HIV/AIDS. Orphans have difficulty to continue schooling even if it is free, and poverty hinders the pupils from attending school throughout terms. Therefore, it can be said that livelihood improvement together with health improvement can support the education sector in one way or the other.

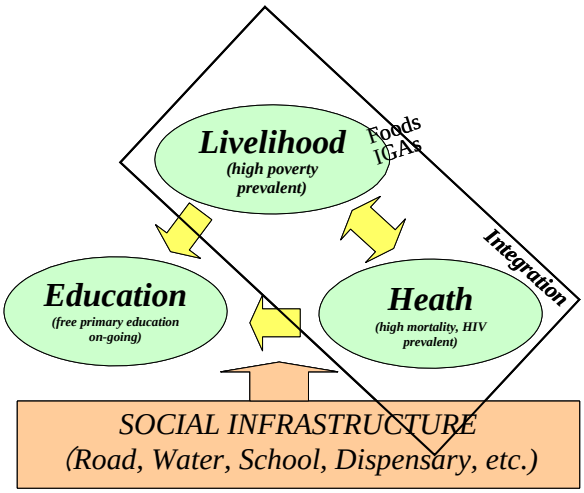


Figure 4.1.2 Core Sectors in Development

Aforementioned is the background why most of the pilot programmes have undertaken livelihood and health improvement sectors directly and in cases integration between the two sectors was tried. Out of the nine types of the pilot programmes, Youth Polytechnics Strengthening Programme does not deal with people's livelihood directly, however other pilot programmes have all undertaken the two core sectors in one way or in an integrated way. For example, Centre Based Livelihood Improvement Programme is carried out combined with Outreach Oriented Community Health Improvement Programmes. The trained community health workers realized the importance of nutritional aspect in improving their community's health status, which should be supported by balanced and nutritious food which can be now supported by Livelihood Improvement Pilot programmes.

Another example is forestry pilot programme which promotes neem and moringa trees. These trees can work as medicinal plant and also can produce marketable products, covering both health and livelihood improvement sectors. Since the pilot implementation period is not long enough to see such long-term effects as lower children's mortality, lower fertility, poverty mitigation, visible impact in those aspects was not available within this Study period though.

[1] The Elusive Quest for Growth, Economists' Adventures and Misadventures in the Tropics, William Easterly, 2002.

4.2 An Integrated Extension Mechanism: Combination of Centre Based with Outreach Oriented Programme

Livelihood improvement pilot programmes, No.1.1 & No.1.2, are of centre-based approach in terms of extension because it is to establish a demonstration unit to which villagers are invited to learn relevant skills. Though the trainings held at the centre are very open to anybody who is interested, extension may not well reach down to each corner of the target area, which in this pilot implementation is sub-location. Information for training held at the centre has to be delivered to the target population beforehand. This information flows through the organization members who are attached to the centre, through provincial administration at the sub-location level; namely, from area chief (assistant chief) to village elders and then to villagers. However, this is not yet enough to adequately disseminate the necessary information over the target sub-location. Hence, there has to be a supporting mechanism to dissemination.

There are so called outreach-oriented programmes that are health related pilot programmes. Out of the four health sector pilot programmes, three pilots; PHC Promotion, Health Information Sharing, and PLWHA targeting HBC promotion are very much outreach oriented. In these pilot programmes, community volunteers are trained as PHC promoter, health information collector and HBC TOTs, and all of them are supposed to make household visits. An idea is to combine this outreach oriented programmes with the above centre based extension programme. What is meant here is the possibility that the trained community health workers could function as agents of disseminating livelihood improvement information as well.

In fact, most of the livelihood improvement components are very much related to health sector, by saying nutrition can play a big role in improving the people's health status. Nutrition can be secured by adopting kitchen garden, poultry production, value addition, bee-keeping, etc. which are all provided with trainings under the Livelihood Improvement Programme. Therefore, this pilot implementation tries to construct an extension mechanism by combining the centre based livelihood improvement extension (under No.1.1 and No.1.2) with outreach oriented health improvement extension. With this combination, systematic collaboration between health and livelihood improvement sectors could be realized and the extension activities on both sectors would be strengthened. Figure 4.2.1 above draws the mechanism of the combination extension model.

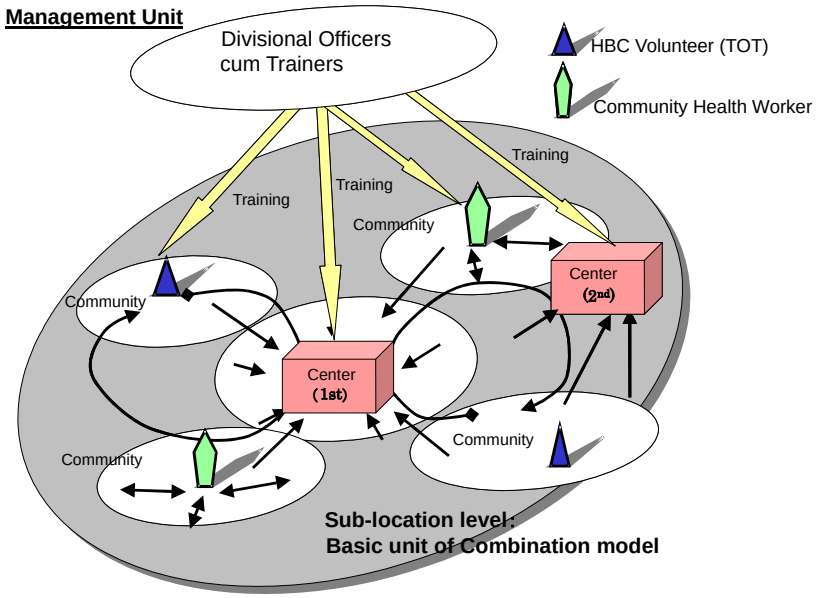


Figure 4.2.1 Combination of Center based and Outreach Type Programmes

In the Study districts, poverty incidences count 60% to 70% of the population, and about 20% to 30% of pregnant women are HIV positive. Furthermore, an infant out of four to five cannot see their 5-year birthday due to prevalent malaria cases, unhygienic water, etc. Under such situation, health and sanitation improvement is a crucial issue as well as income generation, or livelihood improvement in broader term, of the community members. Hence, this Study tries to bring about the synergy

effects with the above combination extension model in that health volunteers in the community encourage nearby families, especially those who are taking care of vulnerable people, to attend the trainings on income generation activities to be conducted at the centers of the community. Also, equipped with some skills of nutrition improvement and income generation, such community health workers themselves can teach the households they are allocated necessary skills while doing community health promotion activities. This combination model has been tried in all the following five places where the centre based pilot programme has been implemented.

Table 4.2.1 Venue of the Combination Extension Model

District	Centre Based Extension No.1.1 & No.1.2:	Outreach Oriented Extension: No.2.1, 2.2, 2.3:		
	Centre Based Livelihood Improvement P.	PHC Promotion Programme	Community Health Information Sharing Prg	PLWHA targeting HBC Programme
Nyando	Muhoroni Division Jaber Orphanage	Tonde Sub-location, where Jaber orphanage is located.		
	Miwani Division Masago HC (VCT)	Wangaya II Sub-location, where Masago HC is located.		
Homa Bay	Nyarongi Division Rapedhi Lwala Orphanage	North Kaganda Sub-location, where Rapedhi Lwala Orphanage is located.		
	Nyarongi Division Nguku Orphanage	South Kaganda Sub-location, where Nguku Orphanage is located.		
	Riana Division KINDA Women G (VCT)	Konyango Sub-location, where the VCT is located.		

Note: Essential Drug Management Programme is also one of the heath sector pilot programmes. This programme is to open a community chemist hence no intention of doing outreach activities. Therefore the above table does not have this programme combined with the centre based extension programme.

Synergy effects of the combination model observed are; 1) community health workers (CHWs) trained under Primary Health Care Promotion Programme have been delivering the information of the livelihood improvement trainings, and 2) community members have understood more about nutrition issue by linking the health aspect up with some livelihood improvement aspect.

In Tonde sub-location of Muhoroni Division, participants for health trainings have been always informed any livelihood trainings to come, so they delivered the information to their villages by taking such opportunities as household visit, church services, etc., and actually came to the livelihood training with their neighbors. In Wangaya II sub-location of Miwani Division, information of livelihood training has been distributed through CHWs to the villagers, contributing to high turn out to the trainings. It was observed that government extension officers do not have their own established means of delivering some information but in most cases depend on provincial administration, area chief and assistant chief. The provincial administration is in fact mandated to deliver government policy, thereby in charge of information delivery. However, if dependent only on provincial administration, it is very hard to disseminate information to each corner of the target sub-location. Involving CHWs as agents of information dissemination can contribute to improving the turn up of the participants as observed, thereby increasing the efficiency of the livelihood improvement programme.

A remark given by a woman surprised us very much. She remarked that vegetables are meant for income generation activities, which is very much true, but not meant for consuming. The woman did not know how nutrition can improve her health status and nutrition can be taken by vegetables, eggs, honey, etc. either. There may be more such women who do not know the relationship between health, nutritious food, and at the same time product of IGAs. Given health trainings, the participants become well aware of how important they should grow vegetables, do value addition out of food, take nutritious food, etc. Now the skills of those activities are all livelihood improvement activities, which are available under the Livelihood Improvement Programme. Those villagers who have learned the importance also attend livelihood improvement training with more seriousness. It can be

said that combination extension model undertaking both health sector and livelihood sector contribute to making them understand the relationship easily and also raising the people's commitment in taking up such activities.

4.3 Interaction Point between the People and the Government Officers

To examine the service delivery from the government officers to villagers, we should see the government technical officers' distribution starting at district level, divisional level, and below. Also considered is the physical extension of administrative stratum especially the one that affects information flow and distribution and easiness of organizing of people's groups. Table 4.3.1 shows that while there are technical officers at district level for all the line ministries, only few ministries deploy their technical officers to divisional level. They are agriculture, livestock & fishery, and health ministries, which are mandated to extend their services as close as possible to the people on the ground (MOA has extension staff assigned at location level, but they are few).

Table 4.3.1 Distribution of Gvt Technical Staff in Administrative Structure

Administrative Stratum	Government Technical Staff	Physical Coverage
District (appointed DC)	All the technical ministries	Nyando: 1,170km^2 (30x40km) Homa Bay: 1,160km^2 (30x40km)
Division (appointed DO)	Health, agriculture, livestock & fisheries (other ministries do not have)	Nyando: 5 division (234km^2, 15x15km) Homa Bay：6 division (193km^2, 14x14km)
Location (appointed chief))	Frontline extension officers under divisional agriculture extension officer	Nyando：29 loc (40km^2, 6x6km) Homa Bay：26 loc (45km^2, 7x7km)
Sub-location (appointed assistant chief)	No technical government staff	Nyando：76 S loc (15km^2, 4x4km) Homa Bay：63 S loc (18km^2, 4x5km)
Natural Village or Community (elders appointed by chief)	No technical government staff	Mostly there are 7 to as many as 20 villages per sub-location

In case of infrastructure projects such as road rehabilitation, construction of water supply system, public building construction, etc., technical officers assigned at the district level are in charge. These infrastructure projects are very much area specific (or rather pin-pointed), so that the government does not need to deploy relevant officers to lower cadres but to keep them at the district level and dispatch them to the site when need arises. The issue here is arrangement of the necessary funds and also its fund distribution accountable to the people rather than institutionalization of the interaction between the government technical officers and the people on the ground. An example of prioritization carried out under this JICA Study in formulating the district development programme can be a good tool to soundly allocate meager funds to various projects with accountability.

On the other hand, extension programmes need an institutionalization of the interaction between government technical officers and the people. Extension programmes here are mostly related to health sector and also livelihood improvement sector, the latter of which falls mostly under agriculture, livelihood and fisheries ministries. These sectors have their technical staff at division level, whereby institutionalization of how to relate the divisional officers with the people on the ground becomes an issue. Typical coverage of a division is 14km x 15km in the two Study districts, which is too large to cover at once. We need to start extension programmes at lower cadre such as location, sub-location or even a block consisting of several natural villages within a sub-location. The issue here is at which cadre should we start, and how to move to the next area to extend the outreach.

4.3.1 Livelihood Sector

Livelihood improvement is mainly undertaken by the Ministries of Agriculture, and Livestock and

Fisheries. Divisional officers carry out trainings to local people. Training components are kitchen garden, value addition, poultry, goat improvement, etc. The operation is based at sub-location, which is the smallest administrative unit in Kenya. Since the livelihood improvement programme carries out demonstration, a centre was required. The original plan was to put up a demonstration center at each per sub-location.

From physical point of view, a typical sub-location covers about 15 to 20 km^2, namely 4 x 5 square km, and involves about 10 natural villages. Natural village means place where people get together to stay and in most cases dominated by *Anyuola* in Luo land. As we continued the training sessions, we have observed that participants were becoming the same ones. Though at early stage people had come from even very corner of the target sub-locations, participants tend to be fixed who are mostly from nearby demonstration centre. Just one centre in a sub-location can hardly be the learning centre for all the villagers in the sub-location. It was observed that it was difficult for people who are far from the centre to come and especially if the centre belongs to a specific group, like the case in Riana Division, people tend to less appear.

Going down to lower cadre increases extension impact. If such learning centre is established in all the villages, many people can easily access and learn skills necessary for livelihood improvement. However, it requires more logistics and therefore funds. What is important is a balance taking into account the available fund. Also, how much deeper one can go is dependent on training components. Some training components such as kitchen garden, value addition, improved cooking stove, etc. do not require much input. These trainings should not be concentrated at the centre only but at least three to four sub-centres in the target sub-location be tried. In the target sub-locations, kitchen gardens are now being tried in three to five places, and value addition in two to four places. Poultry and goat rearing require some inputs, making it difficult to put up demonstration centres at many places. However, classroom type training which does not accompany demonstration can be tried in different parts of the target sub-location. In doing sub-centre level trainings, what the government technical officers are meant to deliver could reach deeper to the community members.

Kitchen garden and value addition trainings were very much accepted by the participants because these are easy to try by the villagers and also proceedings can be shared amongst the participants, which entails a sense of equity. Seedlings out of kitchen garden training can be distributed to participants to try apart from being transplanted to the demonstration farm. Value addition training usually carries out juice making, drying food, processing food during the session, and these practices with the proceeds can be easily shared. On the other hand, poultry, goat raising and bee-keeping can not be well shared amongst the participants in terms of the proceedings. Therefore those trainings which require certain input and cannot be shared easily in proceedings should be demonstrated at discreetly chosen institutes. Such institutes should be of pro-poor, e.g. orphanage.

Though VCT is also one of the demonstration centres being tried in pilot implementation, components having certain inputs are not recommended to demonstrate there. This is because community based VCTs are usually operated by specific CBOs which are already better-off as compared to other members of the same community. If richer becomes richer due to the inputs from donors and government, social conflict may arise as what has been observed in Riana Division of Homa Bay District. Lessons here is that instead of putting up few numbers of heavy-input demonstration sites we should rather have small-input demonstration sites at many places.

4.3.2 Health Sector

The Ministry of Health allocates clinics, dispensaries, and hospitals over the district, and also public health officers (PHO) at divisional level. There are staffs at these health institutions such as clinical officers, nurses, etc., and they provide their services at their places to the client who visits. They do

not go out to the people's place except the PHO. The PHOs are in charge of community based disease management and health improvement. However, there are only few PHOs per division and PHOs are not given transport in many cases. Faced with this situation, it is in fact very difficult for PHOs to visit each and every village in the division and directly teach the community members how to improve community health.

To extend community based health improvement programme, an idea is to train community volunteers as community health workers and PLWHA targeting home based care TOTs (trainer of trainings to PLWHA care takers). In this regard, the community volunteers are to become the PHO's copy. Since PHO cannot handle all the villages under her/his jurisdiction, there is no way but to create their clone at the community level. The trained community volunteers are expected that they can be liaison between community members and health institutions, and also in charge of health promotion in local disease management, etc.

Until mid September 2006, primary health care training has been completed in all the five target sub-locations; two batches each in the two target sub-locations in Miwani Division of Nyando and Riana Division of Homa Bay, one batch each in the remaining three target sub-locations (one batch training invited about 30 trainees). They have already started their activities in their locality; household visit, health promotion in schools and churches, and also some of them were deployed in measles campaign organized by the MOH. Of these CHWs trained under the Primary Health Care Promotion Programme, deployed in that campaign were three CHWs in Miwani Division (total 12 CHWs mobilized), two CHWs in Muhoroni Division (total two), and three CHWs in Nyarongi Division (total six), and no trained CHWs was mobilized in Riana Division (total mobilized was 16). The CHWs discharged a role of liaison between the government and the community members during the campaign.

Trainers of the PHC training came mostly from nearby health institutes with the divisional PHO being the coordinator. This arrangement must have got the trainees well acquainted to the trainers who are clinical officers, nurses, laboratory technicians, and physiologists. This may indirectly contribute to making referral easy. CHWs have been trained on referral skills, and with the acquaintance with the health officers they may feel a bit easy to make referral of an ailing villager to the nearby health institute where those already acquainted with the CHWs are stationed.

Critical issue associated with community health improvement is whether trained CHWs and also HBC TOTs can continue their voluntary work or not. Given past experiences, there should be some drop out. This leads us to an idea that increasing the numbers of the CHWs and HBC TOTs itself is important. Besides increasing of the volunteers, recognition amongst the community members is very important. Unless trained volunteers are recognized in their community, their work coverage cannot go beyond their family members and just some neighbors. Upon completion of PHC training, a baraza was always organized to let the community members know who the CHWs were. During such baraza, CHWs started talking about community health which could enrich what they learned during the training course. Apart from baraza, school and church services are now utilized as opportunities of disseminating community health promotion.

In summary, as health sector does not have enough staff at divisional level, promotion of community health needs some linkage between the health officers and community members. The linkages are called CHWs and/or HBC TOTs who can deliver health information to the community members and also bring back local disease information to health institutes. Thus, having CHWs and/or HBC TOTs in each village could be the best way in the health sector to establish a functional linkage between the government and the community members. Though there are drop-outs, at least necessary skills and knowledge is with the trained personnel, which can be useful for their family members and neighbors.

However, to cope with the drop out issue, the number of CHWs/ HBC TOTs should be increased and recognition of the trained CHWs/HBC TOTs should always be arranged by taking opportunities of people's gatherings.

4.4 Group Approach vs. Individual Approach

In nowadays contexts, many, if not all, community targeted projects operate on group approaches. We do not disregard the group approach at all, but here one of the lessons is that we should not always follow the group approach only but also individual target approach with even more emphasis. Of course, group approach has its own strengths for which if many people get together they can achieve bigger impact and also from donor or government point of view as supporter, group approach can entail less logistics expenses, and thereby may increase efficiency of project operation. However, group approach has its own weaknesses, and individual target approach can supplement some weaknesses of the group approach.

Individual approach in the pilot implementation applies to Centre Based Livelihood Improvement Programme. The approach calls whoever is interested in some livelihood improvement skills, and gives a series of trainings to anybody regardless of who belongs to which group or belongs to no group. This individual approach does not need any lead time, while group approach needs longer lead time, which turns additional so-called transaction cost in economic term. There are lots of vulnerable people in the Study districts such as HIV positive, AIDS orphans, AIDS widows, etc., who may not be able to bear such additional transaction cost. These vulnerable people need immediate benefit even if the benefit is small rather than big benefit sometimes after they have spent certain lead-time.

Simple skill-ups such as vegetable cultivation, local poultry, value addition, etc. can best apply to local vulnerable people by the individual targeted approach. Trainings for these simple skill-ups do not require big input, so that the training can be repeatedly carried out at a demonstration site or nearby, extending the outreach to poorer people. Also, this approach could increase the relationship amongst people, so called social capital amongst the people who belong to different groups. Nowadays, most of the people belong to at least one community based organization. Under this situation, group approach in a sense may work in such a way of segregating those who are not the members of the target group. Individual approach on the other hand could increase the social capital since people belonging to different groups can interact.

Through the pilot implementation, it was observed that people have come from different corners or different social groups of the target sub-locations (this in fact was not always the case if the demonstration site belongs to a specific group like the example in Riana Division of Homa Bay District. However, this happening is not associated with the individual approach but with the selection of the demonstration site). Another observation is that there are participants who have newly accompanied their friends to the successive training sessions; a person participated in a training session, then knew the training was open to everybody who was interested, and brought friends. Here individual approach disseminating simple skills-ups can be well adopted and can supplement some aforementioned shortfalls of group approach.

Weaknesses associated with group approach can also be discussed in relation to proposal driven funding method. Those weaknesses we think are; 1) supply led nature rather than demand led in today's development context, or in other words exogenously driven development rather than endogenously driven development, and 2) exclusivity exercised to non members which comes out of its nature and furthermore strengthened in the context of getting donor fund. The latter issue, exclusivity especially in cases associated with donor fund, might create even social disintegration between the funded groups and non-funded groups if fund administrator cannot be accountable to explain why some groups were funded and some were not.

Foremost strength of group approach may be of 'harambee', which means when people get together and work together they can do what is not possible by an individual or they can achieve much more than what an individual can achieve. But this is the case if such a group is endogenously formed. A group endogenously formed means that they have come out of their own initiative based upon their own necessity either for combating constraints facing them or for improving the status wherein they make their livings. This is so called demand driven. An inquiry is how many such endogenously formed groups are there especially in present day development context where development funds are meant for group.

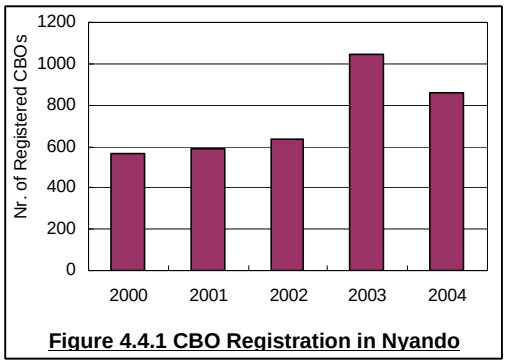


Figure 4.4.1 CBO Registration in Nyando

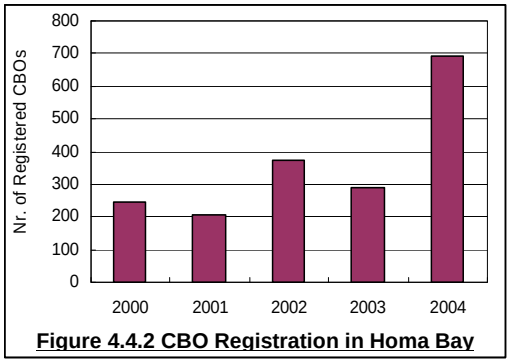


Figure 4.4.2 CBO Registration in Homa Bay

As of August 2005, there were as many as 7,155 CBOs registered in Nyando District and 4,992 CBOs in Homa Bay District. Figures on right hand show the trend of the registration of CBOs by year. In recent years the number has increased dramatically as proposal method became familiar to most of the rural communities. From the administration side of the fund, proposal method may be one of the most effective ways of disbursing the huge fund. However, this suggests that in present day context many groups are formed because of the fund availability, for we could say they formed such groups exogenously, not meant for solving their problems out of their own resources (human and physical resources) but rather for searching/ (or even) hunting some funds. Given such situation in that many groups are established having some motivation of soliciting funds at least to some extent, it may be said that because of the fund availability, groups are motivated to move onto demand-driven looking action that is proposal presentation, which however is very much exogenous in essence. Group approach thus easily turns exogenously driven development when we talk in relation to proposal based fund release method. Individual approach, on the other hand, being now tried under the pilot implementation may strengthen their own initiative based activities that are endogenously driven development.

There is also a possibility that funds availed through proposal method may be reaching relatively elite class only in the rural communities because the poorest and vulnerable groups which are in need of such assistances indeed may not have enough capacity to prepare attractive proposals because even those who have so far accessed some funds have asked someone else to prepare the proposal in many cases. It is said in the Study district, at least half to as much as over 90% of the proposals might have been written by someone else who is not the group member. This situation segregates funded group from non-funded group, leading to a possibility of jealous between them.

What is worse is most of the community development funds come to the bank account of approved groups directly from the funding administrations which are in most cases in Nairobi. This can mean that receiving of the money is not always publicly known to other community members (most of the groups do not necessarily cover all the community members but a fragmentation only, say 10 to 30 active memberships). Here, a question relating to accountability is raised. Whatever people perceive for such funds, these are public money which should be accountable not only to administration (donor) side but also to community side, needless to say, inclusive of non-funded members within the same community as well.

There should be therefore an accountability which can explain why a specific group within a

community was funded. However, this is a bit difficult under the present situation. Without this accountability, exclusivity from the viewpoint of fund sharing may easily lead to a possibility of social disintegration within the community. On the other hand, individual approach may work to supplement this weakness by targeting anyone/ everybody who is interested in a community due to the nature of non-exclusivity. Under the individual approach, opportunity for learning is given to anyone/ everybody in a community, not exclusive at all, though success is very much dependent on the person's effort and in fact it should be so.

4.5 Government Extension Officers and Local Lead Farmers

4.5.1 Capacity Development of Government Extension Officers

It has been observed among all the pilot programmes in the Study that government officers, who do not practice themselves on their farmland, likely teach farmers only about what is written in the textbooks. Textbooks will give theoretical aspects well to the farmers, but theory does not always fit into the circumstances of each and every farmer. Inputs from actual practices and experiences in the area can enrich the contents of the trainings and contribute actually to improving agriculture production of the farmers.

Here the issue is how to assist the government extension officers in developing their capacity. One way will be collaboration between the government extension officers and lead farmers in the area. Lead farmers have been practicing farming under the actual conditions in the area and they find out the suitable and effective ways of farming in the area and also are successful to have earned a living. Their knowledge should be so valuable that it would help other ordinary farmers improve their farming to get higher production and income. In cooperation with the lead farmers on the ground, the extension officers can get ideas on practical application of their theoretical knowledge obtained from textbooks, so that the trainings will be more effective and well received by the ordinary farmers.

In the pilot programmes, collaboration of the government officers with lead farmers has been tried out in three occasions: 1) Promotion of new rice cultivation technology in the three rice irrigation scheme in Nyando District, 2) Joint formulation and implementation of an on-farm training programme on dairy animal husbandry under the Human Resource-led Cottage Industry Programme, and 3) Kitchen garden training in Nyarongi Division in Homa Bay District under Centre Based Livelihood Improvement Programme.

For the new rice cultivation technology promotion, three government officers from the Agriculture Department and Irrigation Department have worked with the key-farmers who learned the technology in Kilimanjaro Agriculture Training Center (KATC) in Tanzania. The government officers have acquired the technology through the demonstration activity with the key-farmers. For the dairy animal husbandry training, four community representatives from Nyando and Homa Bay Districts attended it. The Divisional Livestock Officer was backstopping the farmer trainers but at the same time, he himself was developing further ideas of on-farm training towards the future activity of the department. In Nyarongi Division, a passion fruit farmer was invited to the training as a trainer. He and the agriculture officers prepared the contents of the training together before the training. This process stimulated the extension officers and they were able to get more practical ideas about passion fruits.

4.5.2 Extension System Involving Lead Farmers

Involving local lead farmers into extension activities could contribute not only to capacity development of the government extension officers but also to increasing efficiency and effectiveness of the extension services. The strategy here is that the government provides local lead farmers with the venue and opportunity of being trainers, so that private initiative of extension services may come

out. Considering the limited resources and staffing of the government department, the strategy would enable to extend the outreach of the service delivery.

In case of new rice cultivation technology promotion implemented as a pilot programme under the Study, the key-farmers in Nyando and Kisumu Districts have registered their groups with the Social Services Department, so that they are now recognized as CBO by the government and the group from Kisumu District has already conducted trainings on new rice cultivation technology in other areas sponsored by an NGO etc. This privatization of extension services and the government extension function as catalyst is in line with the government policy stipulated in "Strategy for Revitalizing Agriculture 2004 – 2014" prepared by the Ministry of Agriculture and Ministry of Livestock and Fisheries Development (see the box) and the National Agricultural Sector Extension Policy (NASEP).

"Strategy for Revitalizing Agriculture 2004 – 2014", Chapter 6, Section 6.1.2 Extension Services

The government will divest from the direct provision of inputs, mechanization services and marketing, and instead opt for the indirect and efficient support to the non-government actors. **Public extension will play a facilitating and liking role** between farmers or pastoralists or fishery people and research, other technology development institutions, input suppliers, and service providers including marketing and quality control agencies. This will require a change of roles so that the public extension service becomes a catalyzing agent for others to carry out their work while aiming to phase itself out in the future. The following measures will be taken to reform government extension services:

(i) Restructure the public extension service system to become an Agricultural Advisory Service (AAS) that is lean at the national level and devolved to district and location level. In addition, a study will be initiated to review weaknesses and strengths of current organizational arrangements and recommend new arrangements that would facilitate a better linkage between research and extension. This will include examining the feasibility and viability of combining extension with research in a new and autonomous organization.

(ii) Review the legal framework to enable the LAs take up primary responsibility for ensuring the extension services are adequately provided to all farmers within their areas. The majority of extension service provision for smallholders will continue to be financed by the government or LAs in the medium term. **There will be increasing private sector involvement in delivery to complement public extension providers**, however.

(iii) While some NGOs will be able to source funds independently, LAs will require funds and capacity in order to (a) strengthen the public sector extension service delivery and (b) **contract extension services to private providers, where this is more cost-effective**. LAs will coordinate public and private providers to ensure all stakeholders are served. The capacity of the LAs to prepare, administer and monitor extension provision will be improved.

(iv) The LAs will work with sectoral ministries to develop performance standards and a monitoring and evaluation framework for extension services and will evaluate all providers to ensure effectiveness of services.

(v) A National Extension Fund (NEF) will be established and allocated a proportion of government funds for agricultural extension. The LAs will complete for funds from the NEF to offset part of the costs of innovative schemes involving private sector provision of extension services. An institutional framework for managing the fund, including criteria for eligibility, will be developed.

(vi) **To facilitate the partial privatization of extension services and improve delivery, LAs will enter into partnership and cost-sharing arrangements with out-grower and contract farming schemes, projects, non-state actors, or farmer apex bodies for the benefit of smallholder farmers.** This might involve secondment or transfer of extension staff o the schemes. Out-grower or contract farming schemes in partnership with LAs will be eligible for support from the NEF.

<Bold and underline were put by the Study Team>

It may be a shortfall that without sponsorship lead farmers cannot grow as private service providers and also they may lose vigor of volunteer spirit resulting in the story that small-scale farmers who are needy may not be able to access the teaching. Considering this point, "Strategy for Revitalizing Agriculture" emphasizes the role of Local Authorities to provide the services to all farmers within their area. In case of the pilot programme for rice cultivation technology promotion, farmers of the target irrigation schemes at least prepared lunch for the training and the sub-chief of the area was also present at the training venue. The chief supervised such contribution by the farmers. To some extent, it may be possible that farmers organized by local authority could get fund to invite lead

farmers to teach them as far as they recognize that they will benefit from it.

In general, local lead farmers can accept the duty with fairly lower cost compared to the case of bringing trainers from NGOs or consulting companies. For all the cases of rice key-farmers, dairy farmers, and passion fruit farmers, their trainer's fee was even less than 10% of the professionals, say, coming from Nairobi. It implies that involving lead farmers in the government extension services (though it may phase out in the long term according to the strategy of the ministry) could not cost much but can enhance their extension activities.

Figure 4.5.1 simulates the effectiveness and efficiency improvement by involving lead farmers. The current extension services of the Ministry of Agriculture is to set focal area and concentrate on the area for a season and move to the next one in the following season, while the idea here is to provide the venue and opportunity of being trainer to the lead farmers and offer them the opportunity constantly so that they can keep training farmers. Thus, involving more lead farmers in the extension sphere could accelerate the extension of the technology.

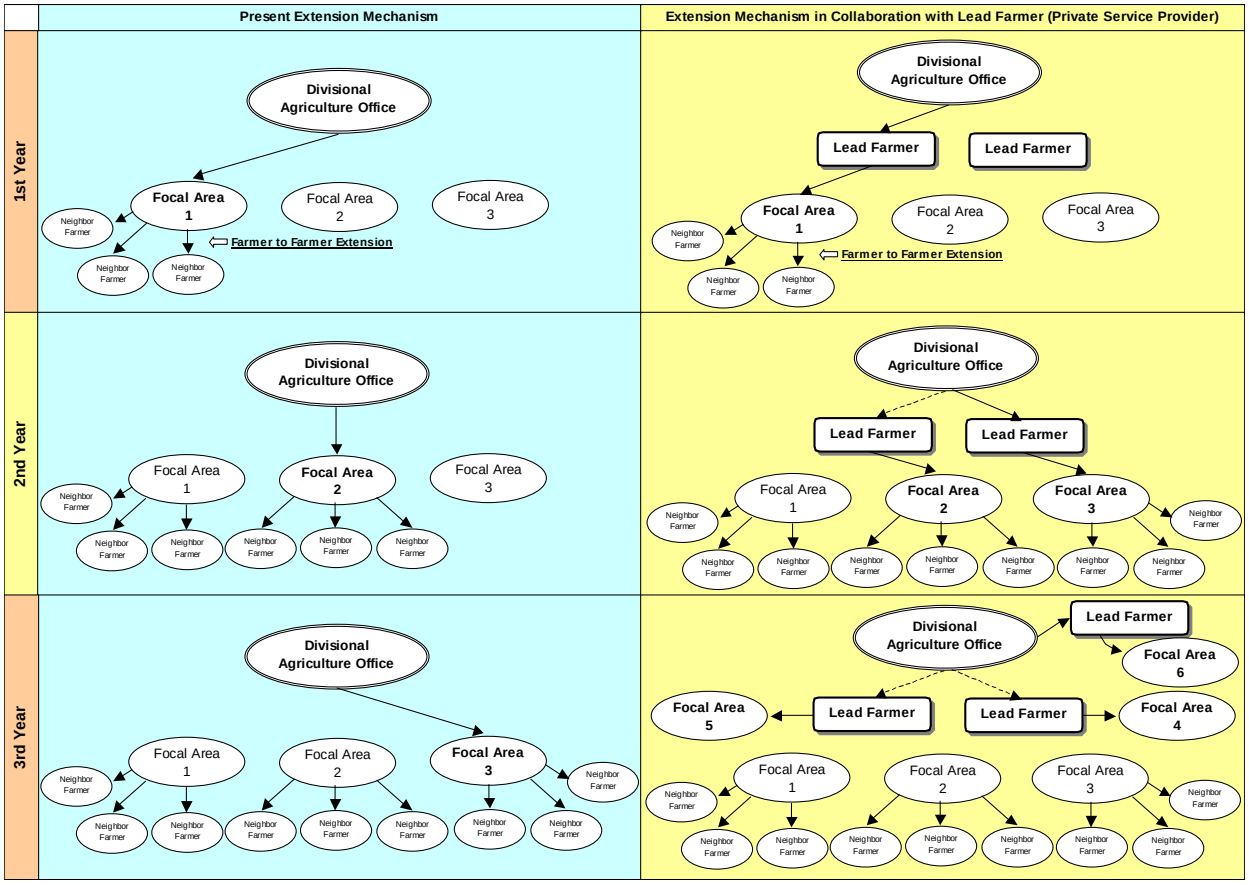


Figure 4.5.1 Extension Service Delivery Involving Lead Farmers (Private Service Provider)

The most cost-effective way should be farmer-to-farmer extension. But like the case of rice cultivation, new technology is so slow to reach to different irrigation schemes. Farmer-to-farmer extension is expected within the irrigation scheme and the lead farmers can contribute to extending the technology to the other irrigation schemes with the facilitation of the training by the Agriculture Department.

It has been also observed during the pilot implementation that some of the rice key-farmers went to oversee the demonstration plots sometimes voluntarily. The key-farmers have sense of responsibility

for disseminating their skills and that is giving them further commitment as trainer, which is more than the satisfaction of earning on the trainers' fee. It is envisaged that one of the roles of the government extension service in the future would be to find such lead farmers on the ground and provide them with opportunity of training to other ordinary farmers.

Above proposed model of extension has been actually observed taking place in the Study Area. Apart from the fact that a NGO facilitated the rice key-farmers to be trainers, they have also been invited by the farmers in NIB Ahero, and the NIB farmers hired the key-farmer with a group of farm laborers adding a fee of instruction to the ordinary labor wage. Normally they pay Ksh1,200 per acre for transplanting labor and they added Ksh500 to it to get instruction from the key-farmer on seed selection, nursery preparation and line transplanting.

Also the dairy animal husbandry group who conducted an on-farm training for Human Resource-led Cottage Industry Programme has received two youth groups from neighboring location. The trainee who attended the programme introduced youth groups to the dairy animal husbandry group and the youth did a kind of internship on-the-job training instead of paying the training fee. For the farmer who taught how to grow passion fruits in Nyarongi Division in a training session of the Centre Based Livelihood Improvement Programme, he has received 5 farmers who came to ask for further information on passion fruit cultivation, out of whom 2 farmers attended his training session under the pilot prgoramme. These private initiatives have already been observed.

4.6 Learning Attitude and Incentive

4.6.1 Feedback

From the observation of training being conducted by frontline implementers, the Study Team noticed some room for improvement. For instance if only few villagers participate in the training, there can be many reasons behind:

- The topics might not be what many villagers are interested in,
- Notice of the training might not have reached the villagers,
- The venue might be too far from where most of the villagers live,
- It is the busiest season of the year, so villagers might not be able to come in the morning hours,
- There might be too many training sessions in a row,
- It might be a market day, a church day or there is a funeral,
- The previous training was cancelled because the trainer did not show up,
- An association, a society or a group is trying to make the training exclusive,
- People might not understand the language the trainers are using,
- There might be a food-for-work or wage-for-work activity in the area, and / or,
- There is a conflict among different groups in the villages (for example settlers vs. indigenous villagers), etc.

Then it is necessary to change the venue, the way of invitation, date, time, or even the curriculum, etc. of the training, but the reactions seem to be slow usually. To observe and listen to the people, reflect on the situation, and react accordingly is a very important part of monitoring and evaluation (M&E), but many frontline implementers do not think that way. They may think just that M&E is for their supervisors to assess them and not for them to improve themselves. Hence there are cases that they conduct the same training using the same document for many years. Vertical division of the line ministries even at divisional level also makes it difficult for frontline implementers to work together

and learn lessons together. The same tendency can be observed also among the farmers. Line planting, for example, does not extend so quickly in the neighborhood. Strong clanship might work against quick progress, but individual attitude against learning seems to be there too.

4.6.2 Real Incentive not Incentives

It is really great incentive for instructors and facilitators to get feedback from the participants and thereby improve themselves. After each training or workshop, instructors and facilitators can meet together and discuss the lessons they have learned. They can always do better training or workshop the next day and on the next opportunity by doing that. Those are actually the fundamentals of M&E.

One of the good ways to change the attitude of implementers is to institutionalize learning oriented M&E (See **4.7 Indicator Oriented M&E and Learning Oriented M&E**). And as far as villagers are concerned, to follow clanship to do training and workshops could be the way to avoid at least jealousy. The other very simple approach, however, seems to be also possible. That is to choose the courses what villagers really want and/or to choose the villagers who really want to learn the courses.

In Human Resource-led Cottage Industry Programme, for example, 44 representatives of the villages were the ones to choose the training courses they want. In Handloom Training at Ebenezer (Ahero, Nyando), participants are the ones who pay the six-week board and lodging while JICA paid the instructors' fee and provided the handloom equipment. By observing the attitudes in the training and the outcome, the performance of the participants of these two programmes is better by far.

Three of the participants of Human Resource-led Cottage Industry Programme from a remote rural village in Homa Bay District contributed equal amounts of money and bought a Ksh 15,000 charcoal oven in Nairobi only a few weeks after the bakery training finished. If the training is what they really want and if the amount of money to get into business is not too big, they would start immediately (though, we found that milk processing requires too much money for most of the trainees). While some villagers even refuse to attend the training if only board, lodging and transportation are provided and daily allowance is not, the participants of Handloom Training at Ebenezer pay board and lodging by themselves for six weeks. Free education is good and necessary, but free training might not be always good and necessary. They definitely need real incentive to learn, but not incentives to just sit and attend.

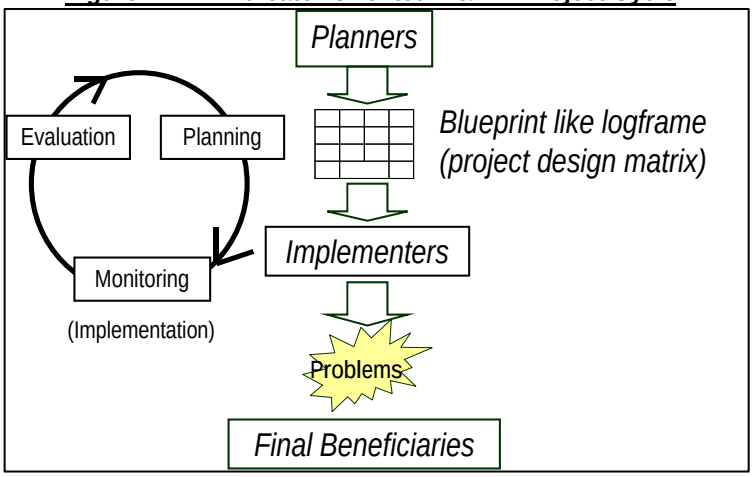
4.7 Indicator Oriented M&E and Learning Oriented M&E

4.7.1 Indicator Oriented M&E

In classical projects, planning, implementation, monitoring and evaluation go along with a project cycle. Planners make a plan, implementers materialize the plan into project according to the blueprint like a logframe (logical framework or project design matrix), and the third party or managers monitor and evaluate the project according to the logframe. Implementers are the ones to follow the blueprint and to be monitored and evaluated by somebody else in many cases. There are objectively verifiable indicators for the outputs and outcomes (which are also called the project purpose, overall goals and impacts) of the projects, and the performance of the projects is measured by these pre-set indicators, except for some impacts which are not foreseeable.

Under this indicator oriented monitoring and evaluation, monitoring is basically carried out to check the fitness to the blueprint, and evaluation is a sort of review of the blueprint by feed-backing the progress and outputs from the monitoring. This indicator oriented model fits the best to physical projects, but not much to social development projects because those projects are not only for the direct outcome of the projects but also for capacity building of the implementers and final beneficiaries as organizations and as individuals. In social development projects, capacity building can be the main objective of the projects and the direct outcome can be secondary.

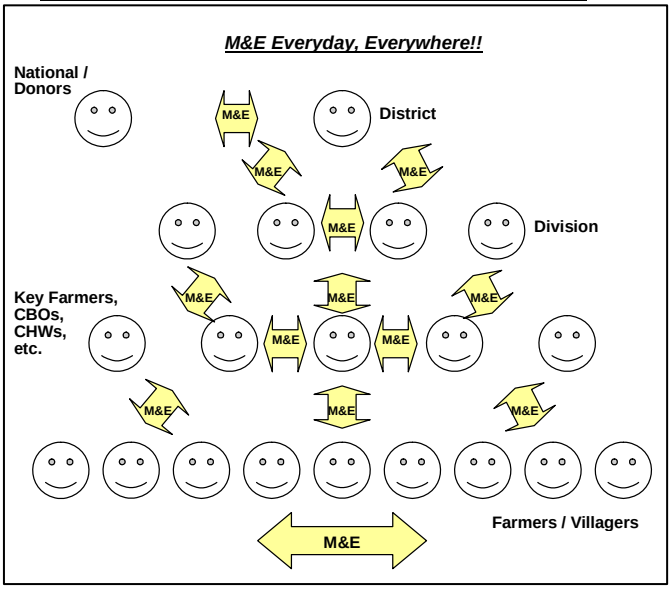
Figure 4.7.1 Indicator Oriented M&E in Project Cycle



4.7.2 Learning Oriented M&E

Another school of monitoring and evaluation come from education sector, especially adult education discipline. In that school, teachers are not the only ones to teach and decide. Teachers must also learn from the students, and ask the students for what they want to study. Where indicator oriented M&E values on the objectives (outputs and outcomes) of the projects, learning oriented M&E values on the development of organizations and individuals. In other words, indicators require unified mission and direction but that is not always necessary for learning. Indicators are more directional, and learning is more attitudinal.

Figure 4.7.2 Concept of Leaning Oriented M&E



These two principles of M&E are not exclusive and both are important for development. Indicator oriented M&E is usually more applicable at macro-level with quantitative evaluation, and learning oriented M&E is more applicable at micro-level with qualitative evaluation. Since indicator oriented M&E has already started to be institutionalized in the Ministry of Planning and National Development, it is time for learning oriented M&E to be introduced as an organizational culture.

To start learning oriented M&E is not difficult; namely,

1. Observe the people and listen to the people in the training or in the workshop. If you notice something (See the examples of **4.6 Learning Attitude and Incentive**), react immediately and do not do just as scheduled. For example, change the date and time of the training or workshop, change the venue, change the language you use, change the way of noticing the training or workshop, change the teaching material, change from theory to practicality, and change the curriculum, etc.
2. Get the feedback from the participants. How do they rate the training or the workshop? What

were good and what need some more improvement? What else do they want to learn or do?

3. Have a meeting among the trainers/ instructors/ facilitators after each training or workshop. Discuss how the training or workshop was and how they can improve the session.
4. Send the report of findings and lessons learned, in addition to the results of the conventional indicator oriented M&E, to the district offices of the line ministries.
5. Have periodical inter-ministry meetings at divisional level and discuss the findings and lessons learned. Share what was discovered as lesson, and reflect them in the on-going programmes.
6. Discuss the findings and lessons learned in the quarterly meeting at division level. Reflect them in the approaches, strategies and programmes/ projects of the district development plan.
7. Incorporate the results of learning oriented M&E in the M&E report in addition to the results of the indicator oriented M&E, which is to be submitted to the Monitoring and Evaluation Department, Ministry of Planning and National Development. Reflect the findings and lessons learned in the policy of the Ministry.

CHAPTER 5 BASELINE DATA

5.1 Introduction

The Study Team conducted the baseline questionnaire survey at five areas where the pilot programmes No.1, Livelihood Improvement Programme, and No.2, Community Health Improvement Programme, were implemented; Miwani and Muhoroni Divisions in Nyando District, Riana Division in Homa Bay District, and Rapedhi Lwala and Nguku of Nyarongi Division in Homa Bay District. The number of the interviewee totalled 150, of which 111 are female and 39 are male. The survey was conducted from November 2006 to February 2007.

5.2 Overview of Interviewees

Composition of Interviewees in Miwani Division

		Sub Clan		Clan		Ethnicity		Sub-Location	
Average Age	36.9	Kapiyo	3	Wagunga	4	Luo	26	Wangaya II	21
Max Age	54	Kadel	2	Kamarawa	4	Luhiya	2	Central Kabar	2
Min Age	22	Kamasembe	2	Kawuor	2	Kipsigis	1	Wagunga II	1
		Kamiaro	2	Kamrika	2			Kabar Central	1
Male Number	4	Kanyadho	2	Wagunga	1	**Village**		North East	1
Female Number	26	Kanyamawa	2	Kapiyo	1	Wagunga	7	North Kamswa	1
		Wagunga	2	Kakidhaye	1	Kanyamawa	4	Wangaya	1
Recent Settlement Year	2006	Kadel	1	Kamarawa	1	Kamarawa	3		
Old Settlement Year	1965	Gem	1	Kasboga	1	Kamrika	2	**Location**	
		Kamajage	1	Kadel	1	Wangaya II	2	North East Kano	22
Settlement Year		Kamrika	1	Kamiaro	1	Wagunga	1	N.E Kano	4
1960's	4	Kamsun	1	Kamagoma	1	Gem	1	North East Kano	1
1970's	6	Kanyatugi	1	Wagunga	1	Kanyadho	1	Kanyamawa	1
1980's	5	Kawuor 'B'	1	Waware	1	Kasboga	1	North East Kabar	1
1990's	10	Kombago	1	Kadongo	1	Kawuor	1		
2000's	2	Kotieno	1	Gem	1	Kodede	1		
N/A	2	Kowiso	1	Kamaeo	1	Komolo	1		
		Magungu	1	Komolo	1	Magungu	1		
		Miaru	1	Kanyamawa	1	Ogwuodo	1		
		Ogandi	1	Kapiyo	1	Sanda	1		
		Orongo	1	Kamaswa	1	Wawere	1		

Composition of Interviewees in Muhoroni Division

		Sub Clan		Clan		Ethnicity	
Average Age	44.7	Tonde	4	Kano	2	Luo	30
Max Age	78	Kabodho	2	Kipturi	2		
Min Age	23	Kimira	2	Kobura	2	**Village**	
		Mariwa	2	Mariwa	2	Tonde	10
Male Number	9	Ahero	1	Tonde	2	Mariwa	8
Female Number	21	God Nyithindo	1	God Del	1	Jaber	7
		Jaber	1	Jebren	1	Kipturi	3
Recent Settlement Year	2002	Jimo	1	Kabodho	1	Kabodho	1
Old Settlement Year	1960	Kakal	1	Kadibo	1	Modi	1
		Kakoth	1	Kagwel	1		
Settlement Year		Kaluore	1	Karabach	1	**Sub-Location**	
1950's	1	Kandiga	1	Kisumu Karateng	1	Tonde	29
1960's	6	Kanindo	1	Kochieng	1	Kabodho East	1
1970's	6	Kanyiban	1	Koluko	1		
1980's	9	Karabwor	1	Koyola	1	**Location**	
1990's	4	Kasaye	1	Nyakach	1	God Nyithindo	29
2000's	2	Katho	1	Rateng	1	Kabodho	1
N/A	2	Nyamwara	1	Thure	1		
		Sigoti	1	Tura	1		
		Yambo	1				

Composition of Interviewees in Riana Division

		Sub Clan				Ethnicity		Sub-Location	
Average Age	38.6	Kanyawuoyi	4	Rayier	1	Luo	28	Konyango	29
Max Age	73	Kanyambori	2	Wagasi	1	Luhya	1	Kabuoch	1
Min Age	21	Kobunga	2			Kisii	1		
		Orembe	2	**Clan**				**Location**	
Male Number	12	Kachieng	1	Konyango	6	**Village**		C Kabuoch	25
Female Number	18	Kagak	1	Kadida	3	Murram	5	Central Kabuoch	3
		Kajwang	1	Kajwang	3	Lwanda B	3	Kabuoch	1
Recent Settlement Year	2004	Kamakori	1	Kanyagilo	2	Nyamkeria	3	Konyango	1
Old Settlement Year	1960	Kamuga	1	Kanyawuoyi	2	Orembe	3		
		Kanyoshute	1	Nyamkeria	2	Wagasi	3		
Settlement Year		Kanyupungu	1	K.K. Kawere	1	Kanyambori	2		
1950's	1	Karita	1	Kadede	1	Lwanda A	2		
1960's	2	Kawalwiri	1	Kakuni	1	Aluor	1		
1970's	6	Kobeti	1	Kakuni A	1	Kakuni	1		
1980's	10	Kodele	1	Kanyango	1	Kakuni A	1		
1990's	6	Kokoth	1	Karita	1	Kanyawuoyi	1		
2000's	1	Konyango	1	Kasiago	1	Kawidhi	1		
N/A	4	Lwanda B	1	Kateg	1	Longo	1		
		Murram	1	Kobunga	1	Nyamauro A	1		
		Nyamauro A	1	Murram	1	Nyanungo	1		
		Nyamkeria Kanyawuoyi	1	Ramogi	1	Rayier	1		
		Nyanonro	1	Wagasi	1				

Composition of Interviewees in Rapedhi Lwala, Nyarongi Division

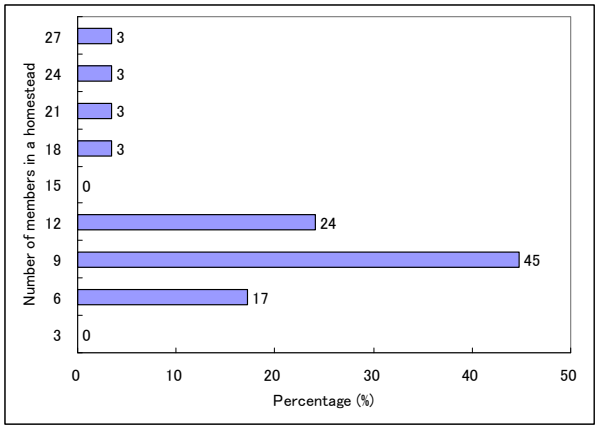
		Sub Clan		Clan		Ethnicity		Sub-Location	
Average Age	33.1	Kaganda	10	Kadanga	9	Luo	29	N.Kaganda	17
Max Age	54	Karako	2	Kajwang	4	Suba	1	Kaganda	4
Min Age	18	Kogoya	2	C.Kanyidoto	2			C.Kanyadoto	1
		Kanyandega	1	Kogoya	2	**Village**		Kabura	1
Male Number	9	Kanyidoto	1	Ajwang	1	Wanjawa	7	Kaganda N.	1
Female Number	21	Kasulwe	1	Kachiayo	1	Rapedhi Lwala	6	Kanyidoto	1
		Kayaga	1	Kajulu	1	Rapedhi constant	5	Kayambo	1
Recent Settlement Year	2005	Kayambo	1	Kanyamwa	1	Rapedhi	4	W.Kajulu	1
Old Settlement Year	1945	Kobura	1	Kanyandega	1	Bongu	3		
		Koguta	1	Koganda	1	Kogoya	1	**Location**	
Settlement Year		Koko	1	Kogola	1	Lo Yom	1	C.Kanyadoto	17
1940's	1	Kokoth	1	Kogoyo	1	Ngege	1	C.Kanyidoto	4
1950's	0	Komolo	1	Kogutu	1	Osogo	1	Kanyadoto	3
1960's	2	Kooko	1	N.Kaganda	1	Sasi	1	Kaganda	1
1970's	6	Kotwayo	1	N.Kanyidoto	1			Kambogo	1
1980's	9	Koyoo	1	Wanjawa	1			Kanyadiero	1
1990's	6	Rakor	1					N.Kaganda	1
2000's	3	Sasi	1					W.Kanyamwa	1
N/A	3							W.Kanyidoto	1

Composition of Interviewees in Nguku, Nyarongi Division

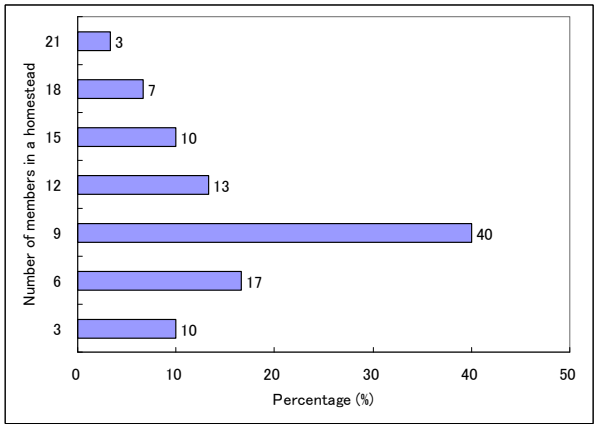
		Sub clan		Clan		Ethnicity		Sub-Location	
Average Age	39.5	Konyango	4	Kadambe	4	Luo	30	South Kaganda	14
Max Age	65	Kadambe	3	Kagok	4			South Kanyikela	9
Min Age	22	Ayaga	2	Kajwang	4	**Village**		North Kaganda	2
		Kabambla	2	Kalwambe	3	Nguku 'A'	5	South Kagan	1
Male Number	5	Kachiago	2	Konyango	3	Nguku 'B'	5	Sasi	1
Female Number	25	Kagok	2	Kokoth	2	Kuja II	4	Kanyikela	1
		Kachola	1	South Kaganda	2	Nguku ICIPE	4	Kagok	1
Recent Settlement Year	2005	Kadhanga	1	Kanjaponda	1	Nguku	3	Kaganda	1
Old Settlement Year	1948	Kaganda	1	Kanyadier	1	Sasi	2		
		Kagoko	1	Kanyikela	1	Kanyikela	1	**Location**	
Settlement Year		Kagori	1	Katwola	1	Kuja I	1	Central Kanyidoto	10
1940's	1	Kajwang'	1	Kogutu	1	Nguku 'C'	1	South Kanyikela	8
1950's	3	Kanyamudho	1	Komino	1	Otange	1	Kaganda	4
1960's	4	Kanyandega	1	Kowuor	1	Rapedhi Constant	1	Central Kanyadotc	3
1970's	3	Kanyawuor	1	Madindo	1	Wasasi	1	Kanyikela	2
1980's	11	Kanyikela	1			ICIPE	1	South Kaganda	1
1990's	4	Kogoya	1					Ndhiwa	1
2000's	3	Kokoth	1					Kanyadoto	1
N/A	1	K'olala	1						
		Nyayueth	1						
		Sasi	1						

5.3 Basic Profile

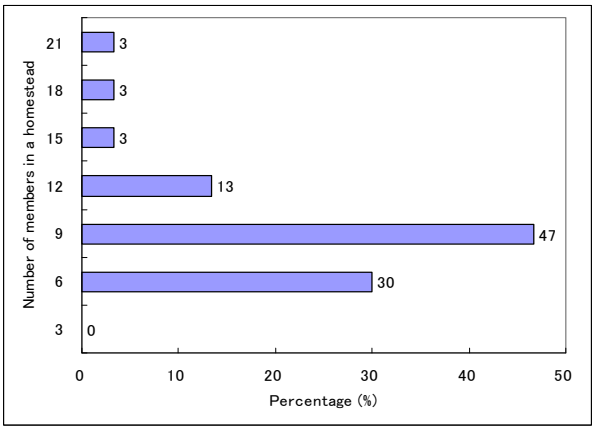
5-3-1 Family Compositions



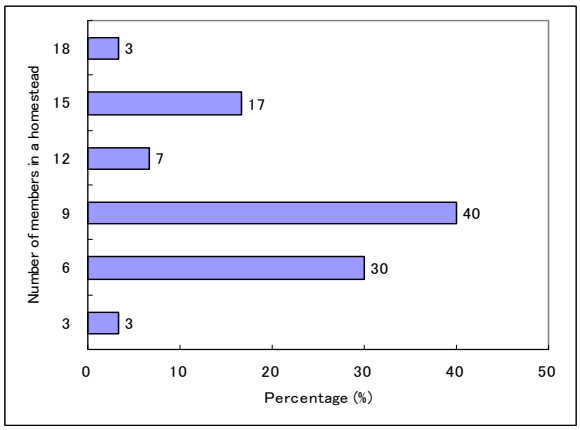
Number of member in a homestead, Miwani



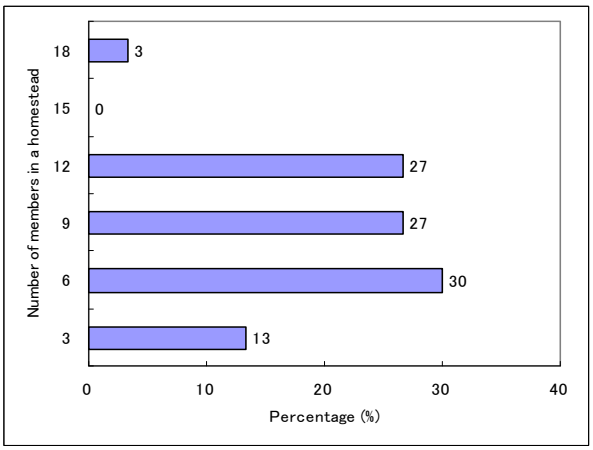
Number of member in a homestead, Muhoroni



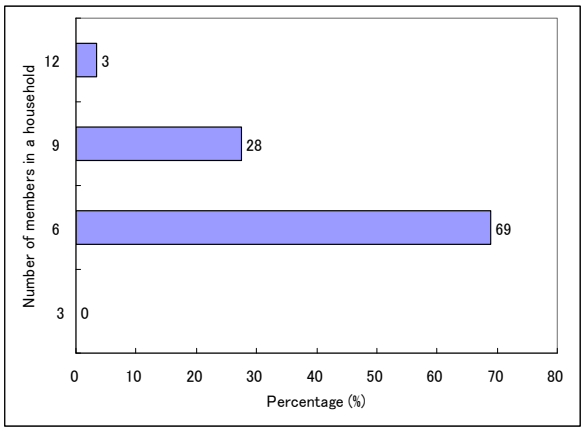
Number of member in a homestead, Riana



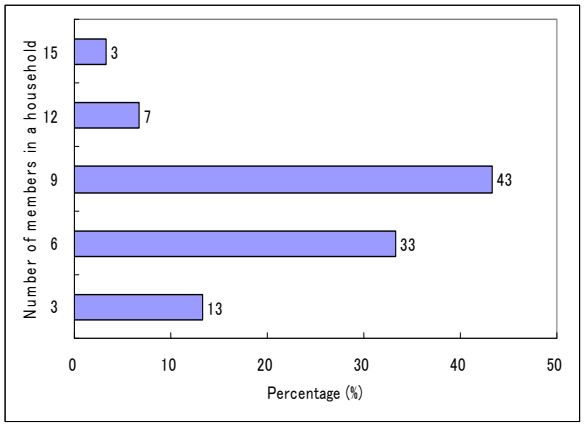
Number of member in a homestead, Rapedhi Lwala, Nyarongi



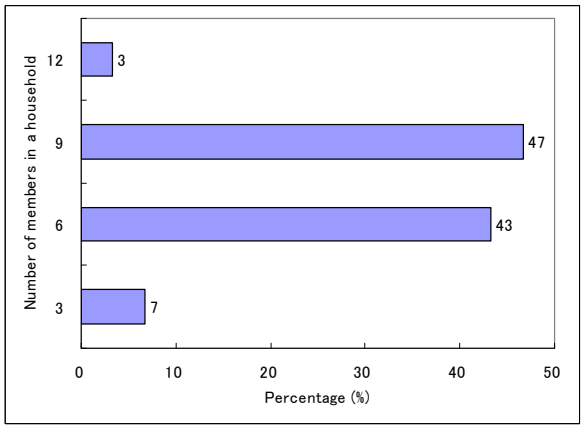
Number of member in a homestead, Nguku, Nyarongi



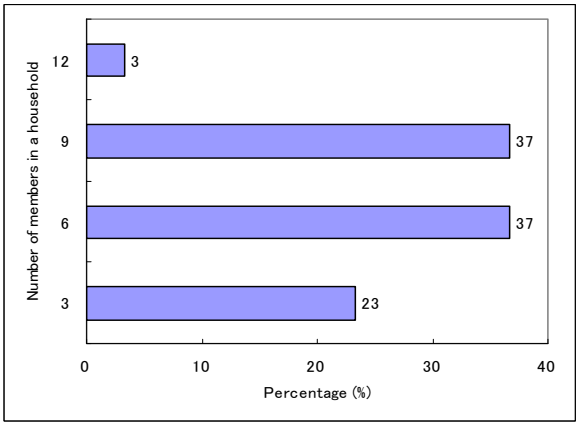
Number of member in a household, Miwani



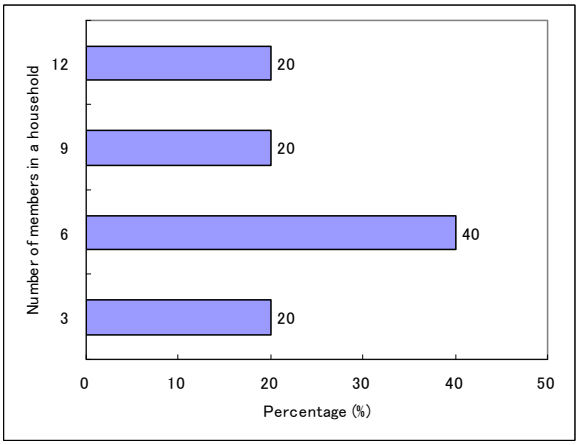
Number of member in a household, Muhoroni



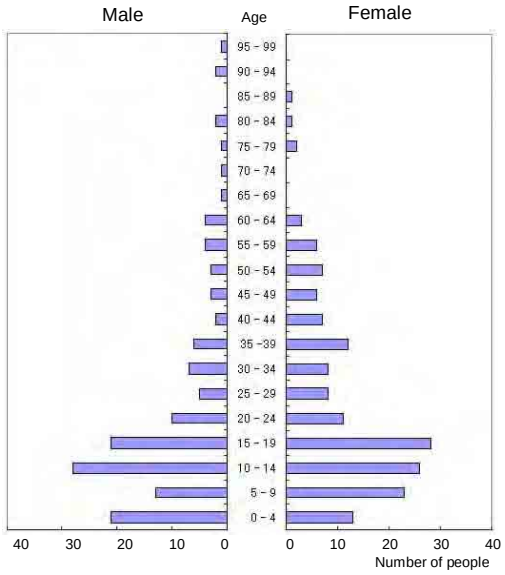
Number of member in a household, Riana



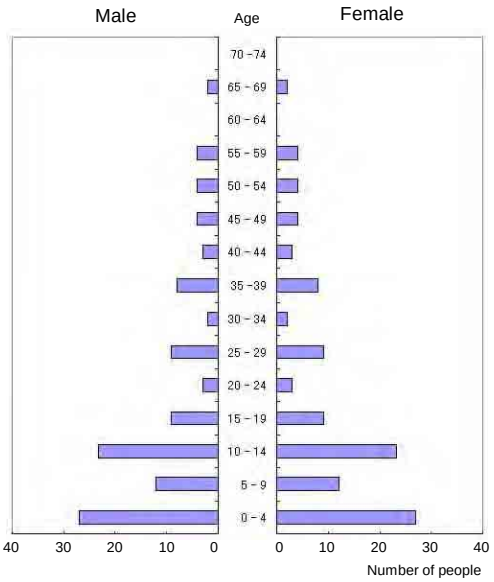
Number of member in a household, Rapedhi Lwala, Nyarongi



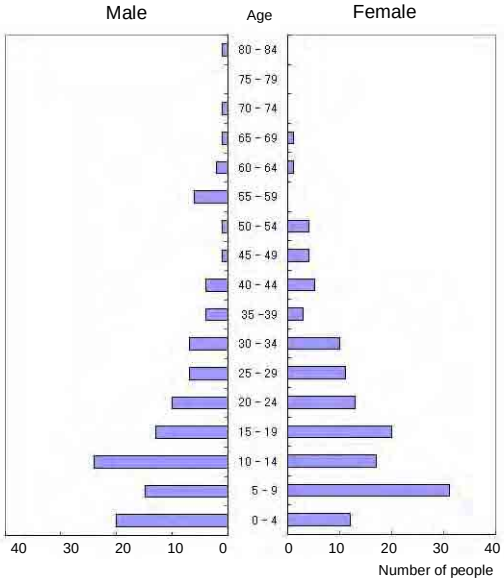
Number of member in a household, Nguku, Nyarongi



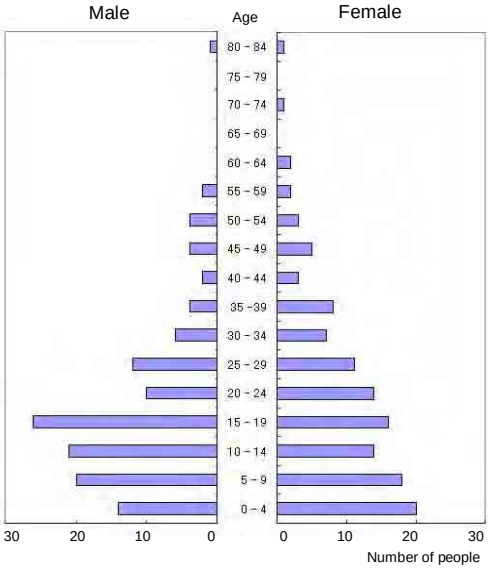
Age distribution in Miwani Division



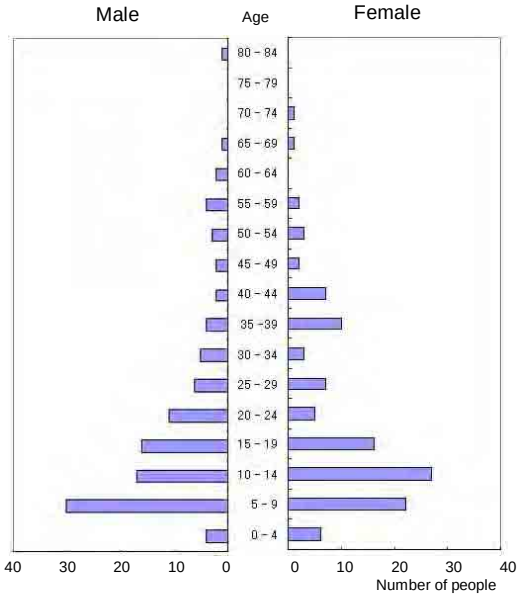
Age distribution in Muhoroni Division



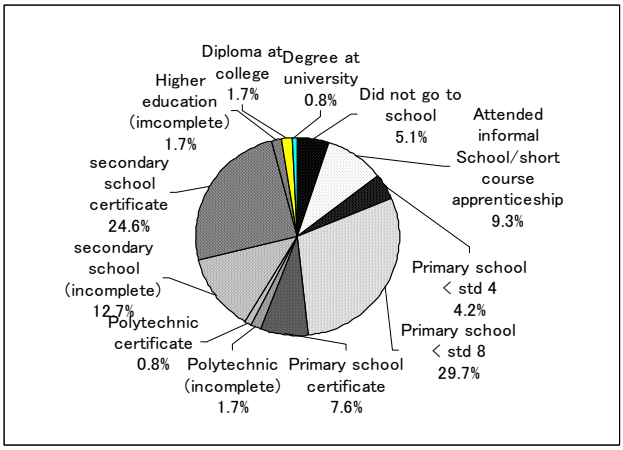
Age distribution in Riana Division



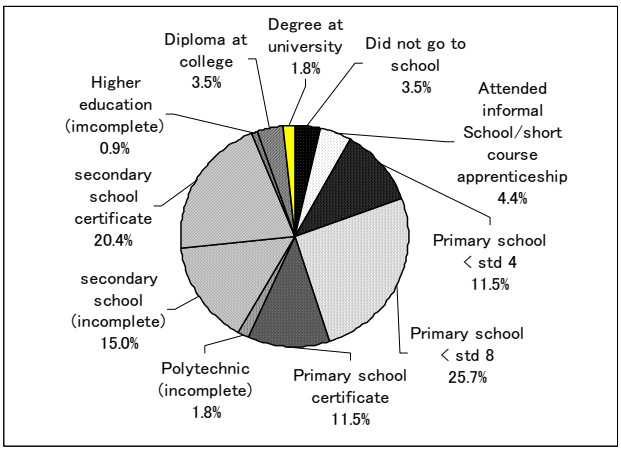
Age distribution in Rapedhi Lwala, Nyarongi Division



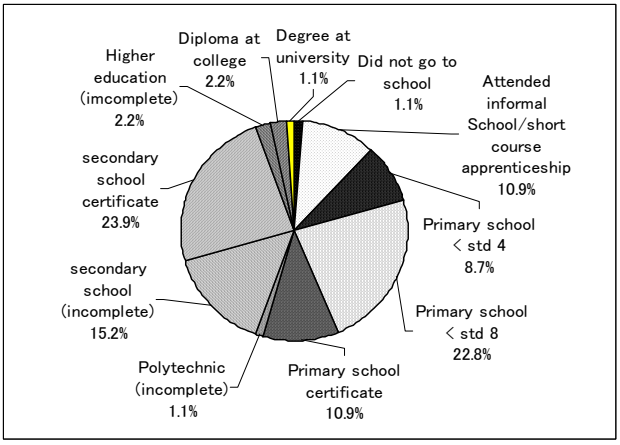
Age distribution in Nguku, Nyarongi Division



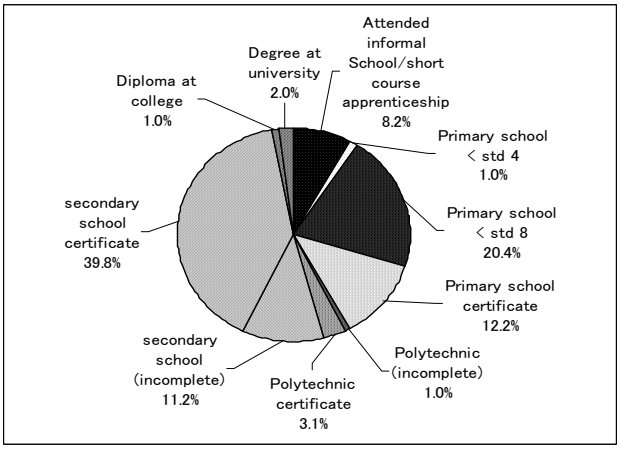
Educational background of over 20 years old people in Miwani Division



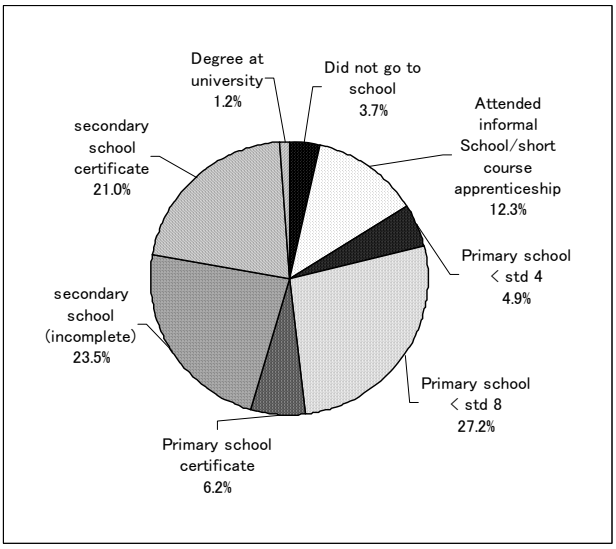
Educational background of over 20 years old people in Muhoroni Division



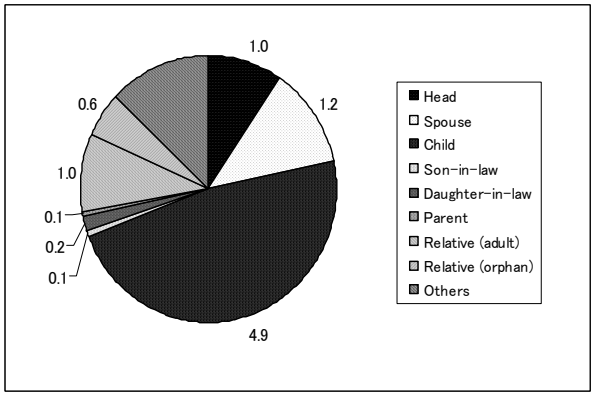
Educational background of over 20 years old people in Riana Division



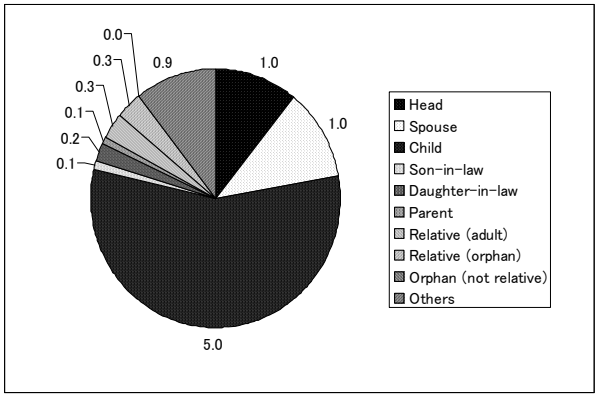
Educational background of over 20 years old people in Rapedhi Lwala, Nyarongi Division



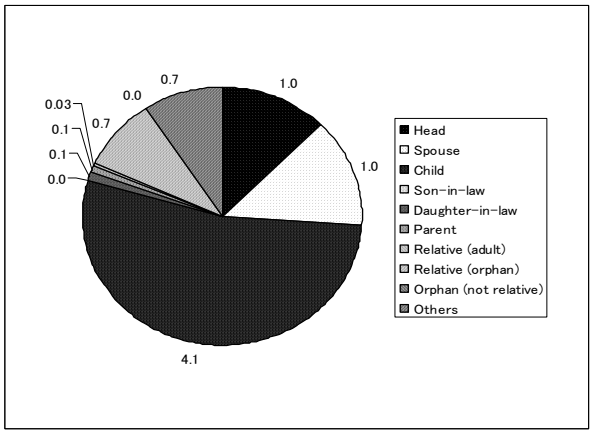
Educational background of over 20 years old people in Nguku, Nyarongi Division



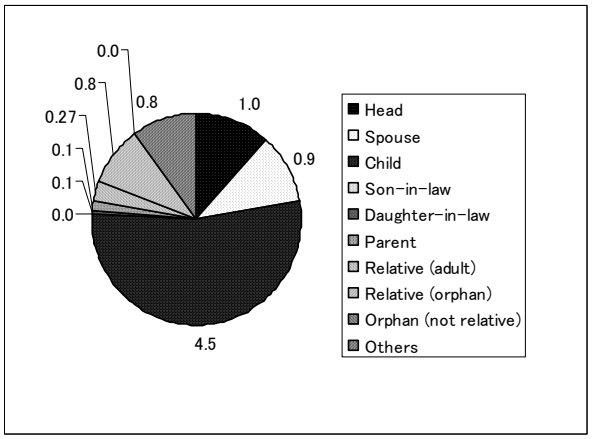
Average number of member by relationship in a homestead, Miwani



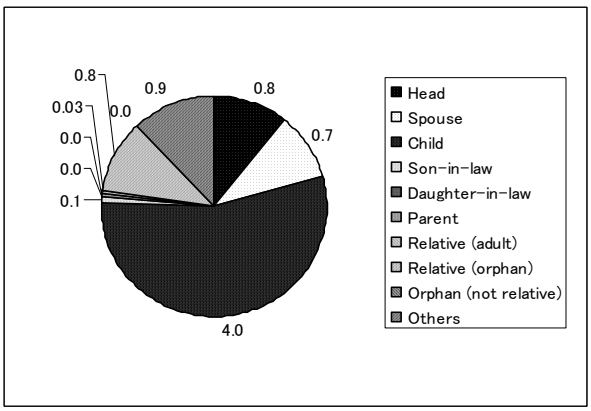
Average number of member by relationship in a homestead, Muhoroni



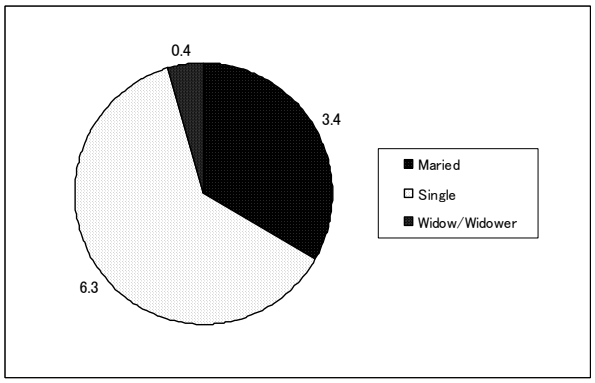
Average number of member by relationship in a homestead, Riana



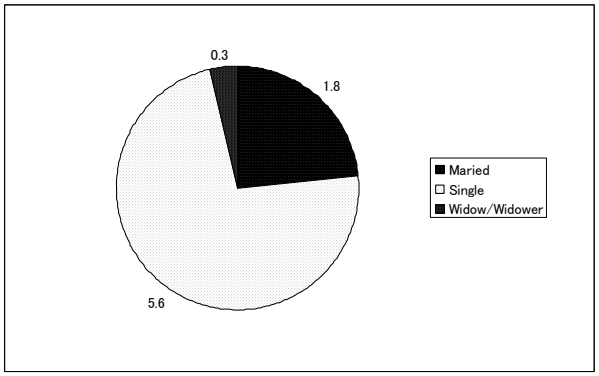
Average number of member by relationship in a homestead, Rapedhi Lwala, Nyarongi



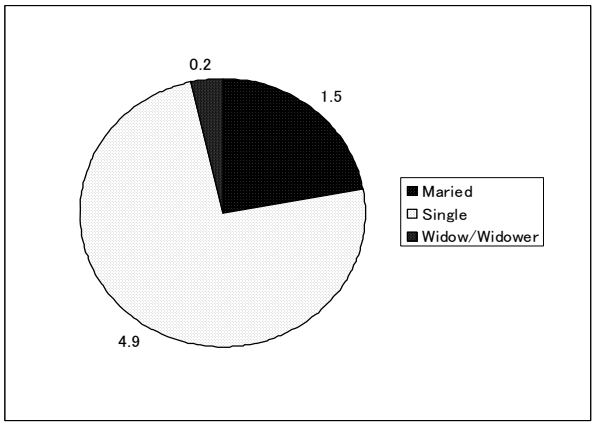
Average number of member by relationship in a homestead, Nguku, Nyarongi



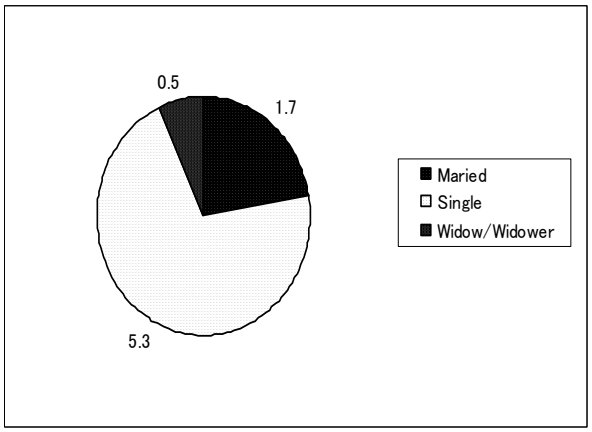
Average number of member by marital status in a homestead, Miwani



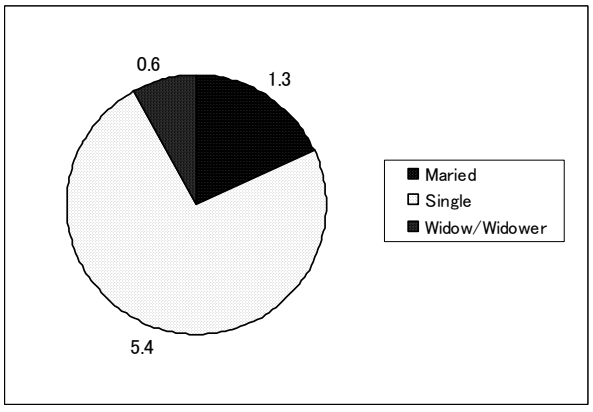
Average number of member by marital status in a homestead, Muhoroni



Average number of member by marital status in a homestead, Riana



Average number of member by marital status in a homestead, Rapedhi Lwala, Nyarongi



Average number of member by marital status in a homestead, Nguku, Nyarongi

5-3-2 Land Use of the Households

Number of Households Having Irrigated Land and the Area of the Land

	Miwani	Muhoroni	Riana	Rapedhi Lwala, Nyarongi	Nguku, Nyarongi
No.	13	4	1	0	0
Mean (acre)	1.37	1.90	1.00	-	-
Min. (acre)	0.25	0.30	1.00	-	-
Max. (acre)	5.00	2.80	1.00	-	-

Distribution of Rain-fed Land Area per Household

Acre	Miwani	Muhoroni	Riana	Rapedhi Lwala, Nyarongi	Nguku, Nyarongi
0-1.0	16	13	5	10	10
1.1-2.0	6	5	6	8	11
2.1-3.0	2	2	11	7	1
3.1-4.0	2	1	0	2	2
4.1-5.0	2	3	2	0	2
Over 5.0	1	4	6	2	4
Total	29	28	30	29	30
Mean (acre)	1.72	2.81	3.35	2.13	2.93
Min. (acre)	0.25	0.25	0.50	0.25	0.50
Max. (acre)	7.00	14.00	10.00	6.00	15.00

5-3-3 Income and Expenditure of the Households

1) Crop Productions and Income

Types of Crops and Number of Households Producing Them

Crops	Miwani	Muhoroni	Riana	Rapedhi Lwala, Nyarongi	Nguku, Nyarongi	Total
Maize	29	29	30	28	28	144
Beans	17	16	14	17	19	83
Sorghum	17	10	7	8	7	49
Sweet potatoes	11	6	9	8	9	43
Groundnuts	2	0	5	14	12	33
Sugarcane	10	12	10	0	1	33
Skuma wiki	5	9	8	4	6	32
Cowpeas	11	5	1	3	2	22
Green Gram	4	0	2	3	4	13
Pineapple	2	1	1	2	0	6
Rice	6	0	0	0	0	6
Tomatoes	1	1	2	0	2	6
Soya Beans	2	0	0	0	3	5
Cabbages	0	0	0	0	3	3
Mangoes	0	0	0	0	3	3
Pumpkin	1	0	0	1	1	3
Banana	0	1	0	1	0	2
Sunflower	0	0	0	0	2	2
Tobacco	0	0	0	0	2	2
Black Night Shade	0	0	0	0	1	1
Cassava	1	0	0	0	0	1
Cupas	0	1	0	0	0	1
Onion	0	0	0	0	1	1
PawPaw	0	1	0	0	0	1
Potato	1	0	0	0	0	1

Total Income from Crop Production and Number of Households Selling Them

Crop	Miwani		Muhoroni		Riana		Rapedhi Lwala, Nyarongi		Nguku, Nyarongi		Total	
	No.	Income	No.	Income	No.	Income	No.	Income	No.	Income	No.	Income
Sugarcane	9	167,350	9	206,342	11	176,000	0	0	0	0	29	549,692
Maize	3	69,964	5	108,780	15	118,390	8	35,000	16	52,670	47	384,804
Skuma wiki	3	24,900	8	65,960	11	63,100	3	19,100	7	23,720	32	196,780
Groundnuts	1	700	0	0	6	121,440	10	43,770	11	28,185	28	194,095
Tomatoes	0	0	1	10,400	3	51,900	2	2,475	3	90,000	9	154,775
Sweet potatoes	2	4,200	1	1,000	10	136,400	4	7,040	6	5,800	23	154,440
Beans	1	140	2	1,900	0	0	10	19,660	18	55,280	31	76,980
Banana	0	0	4	54,100	4	11,200	0	0	0	0	8	65,300
Vegetable	2	33,540	1	16,380	1	1,700	2	4,770	2	1,000	8	57,390
Cow peas	10	22,190	3	17,400	3	14,800	0	0	2	1,100	18	55,490
Mango	1	20,800	1	7,280	3	20,800	0	0	0	0	5	48,880
Avocado	1	20,800	1	7,280	3	18,800	0	0	0	0	5	46,880
Rice	4	33,900	0	0	0	0	0	0	0	0	4	33,900
Pineapple	1	450	0	0	0	0	1	1,500	1	19,000	3	20,950
Sorghum	2	3,940	0	0	3	7,700	2	3,600	1	500	8	15,740
Pawpaw	0	0	1	1,500	4	10,760	0	0	0	0	5	12,260
Soya	0	0	0	0	3	9,760	0	0	2	2,300	5	12,060
Potatoes	0	0	2	1,600	3	9,760	0	0	0	0	5	11,360
Sun flower	1	300	0	0	0	0	0	0	2	6,250	3	6,550
Blacknight	0	0	0	0	2	6,500	0	0	0	0	2	6,500
Green gram	2	1,760	0	0	0	0	0	0	3	2,920	5	4,680
Cabbages	0	0	0	0	0	0	0	0	1	2,300	1	2,300
Pumpkins	0	0	0	0	0	0	0	0	1	900	1	900
Onions	0	0	0	0	0	0	1	270	1	450	2	720
Total		404,934		499,922		779,010		137,185		292,375		2,113,426

Distribution of Annual Agriculture Income per Household

Ksh	Nyando		Homa Bay			Total
	Miwani	Muhoroni	Riana	Nyarongi		
				Rapedhi Lwala	Nguku	
0	11	12	6	14	3	46
1 - 10,000	7	7	8	12	19	53
10,001 - 20,000	5	3	5	3	5	21
20,001 - 30,000	2	2	2	0	0	6
30,001 - 40,000	2	1	1	1	0	5
40,001 - 50,000	2	2	4	0	2	10
over 50,000	1	3	4	0	1	9
Mean (Ksh)	13,498	16,664	25,967	4,573	9,746	14,090
Min. (Ksh)	0	0	0	0	0	0
Max. (Ksh)	70,480	121,630	180,200	39,900	53,100	180,200

2) Livestock Production and Income

Types and Number of Livestock, and Number of Households Producing Them

	Miwani		Muhoroni		Riana		Rapedhi Lwala, Nyarongi		Nguku, Nyarongi		Total	
	Household	Livestock	Household	Livestock	Household	Livestock	Household	Livestock	Household	Livestock	Household	Livestock
Chicken	29	484	29	485	28	512	27	477	28	410	141	2,368
Milking cattle	13	43	15	61	22	66	21	59	18	43	89	272
Local goat	15	62	17	87	11	35	14	49	10	36	67	269
Sheep	10	56	8	42	9	27	5	28	3	14	35	167
Ploughing cattle	2	23	6	15	11	34	13	50	15	41	47	163
Dove	1	20	1	16	0	0	0	0	0	0	2	36
Beef cattle	5	10	5	18	0	0	0	0	1	1	11	29
Milking goat	3	11	1	3	0	0	3	9	1	3	8	26
Duck	0	0	1	4	1	3	0	0	2	5	4	12
Rabbit	0	0	2	7	0	0	0	0	1	1	3	8

Total Income (Ksh) from Livestock Production and Number of Households Selling Them

Ksh	Miwani		Muhoroni		Riana		Rapedhi Lwala, Nyarongi		Nguku, Nyarongi		Total	
	No.	Income	No.	Income	No.	Income	No.	Income	No.	Income	No.	Income
Cattle	8	100,500	2	14,500	11	103,900	4	28,000	7	51,900	32	298,800
Goat/Sheep	7	22,450	7	32,602	8	12,800	5	16,800	6	10,700	33	95,352
Milk	9	66,075	11	347,968	9	43,880	7	33,939	10	59,373	46	551,235
Poultry	15	21,260	8	18,714	11	15,531	12	12,960	19	17,335	65	85,800
Total	21	210,285	22	413,784	23	176,111	17	91,699	25	139,308	108	1,031,187

Distribution of Annual Livestock Income per Household

Ksh	Nyando		Homa Bay			Total
				Nyarongi		
	Miwani	Muhoroni	Riana	Rapedhi Lwala	Nguku	
0	9	8	7	13	5	42
1 - 10,000	14	12	16	14	19	75
10,001 - 20,000	3	5	6	3	6	23
20,001 - 30,000	2	3	0	0	0	5
30,001 - 40,000	1	0	1	0	0	2
40,001 - 50,000	0	0	0	0	0	0
over 50,000	1	2	0	0	0	3
Mean (Ksh)	7,010	13,793	5,870	3,057	4,644	6,875
Min. (Ksh)	0	0	0	0	0	0
Max. (Ksh)	52,850	111,100	33,200	12,100	18,380	111,100

3) Income from Other Sources

Types of Other Income Sources and Number of People Doing Them

Miwani		Muhoroni		Riana		Rapedhi Lwala		Nguku	
Casual labour	5	Casual labour	7	Merry go round	8	Merry go round	10	Merry go round	7
Drug sale	5	Business	6	Casual labour	7	Casual labour	4	Business	4
Merry go round	5	Pension	4	Retail shop	3	Tailoring	4	Teacher	4
Tailoring	5	Salary	4	Business	2	Teacher	3	Casual labour	3
Salary	4	Teacher	3	Pension	2	Bodaboda	2	Cloth selling	3
Business	3	Merry go round	2	Bookshop	1	Cloth retail	2	Fuel	2
Farm labour	3	Ox-plough	2	Cook	1	Retail shop	2	Butchery	1
Mat making	3	Rental houses	2	Engineer	1	Balast	1	Daughter sends	1
Fish sale	2	Weedind	2	Group	1	Barber	1	Donkey transport	1
Husband	2	Charcoal	1	Hotel	1	Bricks	1	Hair salon	1
Retail shop	2	Contractor	1	Medical service	1	Business	1	Hotel	1
Saloonist	2	Cook	1	Nursery teacher	1	Cereal retail	1	Kerosine Buyer	1
Allowance	1	Farm labour	1	Omena	1	Charcoal burning	1	Labour	1
Bodaboda	1	Fresian	1	Ploughing	1	Cook	1	Maize selling	1
Jau kali	1	Mansonry	1	Rental houses	1	Doughnut baking	1	Matron Orphanag	1
Maize retail	1	Rented land	1	Saloon	1	Driving	1	Pension	1
Manson	1	Selling sweet	1	Sell of baskets	1	Farm manager	1	Posho Mill	1
Mechanic	1	Shoe & cloth	1	Selling fish	1	Husband	1	Rope making	1
Nursery	1	Shopkeeping	1	Selling of keroser	1	Kiosk	1	Selling of brooms	1
Outgrowers Co.	1	Skin & hide	1	Selling tree seedl	1	Making rope	1	Shopkeeper	1
Ox plough	1	Soda sales	1	Shoe making	1	Mechanical	1	Tailoring	1
Posho mill	1	Tailoring	1	Tailoring	1	Nursing	1	Vegetable retail	1
Radio repairer	1	Tree nursery	1	Teacher	1	Salary	1	Veterinary	1
Son	1	Watchman	1	Tree sales	1	Seminar	1		
Teaching	1					Shoe making	1		
Tractor spares	1					Welding	1		

Distribution of Annual Other Income per Household

Ksh	Nyando		Homa Bay			Total
	Miwani	Muhoroni	Riana	Nyarongi		
				Rapedhi Lwala	Nguku	
0	3	3	3	4	5	18
1 - 10,000	6	9	9	7	11	42
10,001 - 20,000	5	7	7	7	6	32
20,001 - 30,000	3	3	3	4	6	19
30,001 - 40,000	3	3	3	2	0	11
40,001 - 50,000	2	1	1	2	1	7
50,001 - 100,000	5	3	3	3	1	15
over 100,000	3	1	1	1	0	6
Mean (Ksh)	35,561	34,203	25,080	24,152	13,145	26,428
Min. (Ksh)	0	0	0	0	0	0
Max. (Ksh)	117,000	174,400	172,000	132,000	81,200	174,400

4) Total Income

Breakdown of Mean Annual Income per Household and per Person

Ksh	Nyando						Homa Bay									Total		
	Miwani			Muhoroni			Riana			Nyarongi								
										Rapedhi Lwala			Nguku					
	house	person	%	house	person	%	house	person	%	house	person	%	house	person	%	house	person	%
1. Crops	13,963	2,571	24	30,876	4,629	48	25,967	3,893	46	4,573	793	14	9,746	1,598	35	17,025	2,697	36
2. Livestock	7,251	1,335	13	13,793	2,068	21	5,870	880	10	3,057	530	10	4,644	761	17	6,923	1,115	14
3. Others	36,787	6,775	63	34,203	5,128	53	25,080	3,760	44	24,152	4,186	76	13,145	2,155	48	26,673	4,401	56
Total	58,002	10,682		78,871	11,825		56,917	8,533		31,782	5,508		27,534	4,514		50,621	8,212	

Distribution of Annual Income per Household

Ksh	Miwani	Muhoroni	Riana	Rapedhi Lwala, Nyarongi	Nguku, Nyarongi	Total
1 - 20,000	5	2	6	12	13	38
20,001 - 40,000	4	9	7	10	10	40
40,001 - 60,000	6	6	8	5	4	29
60,001 - 80,000	7	4	1	2	2	16
80,001 - 100,000	3	3	3	0	0	9
over 100,000	4	6	5	1	1	17
Mean (Ksh)	58,002	78,871	56,917	31,782	27,534	50,621
Min. (Ksh)	6,000	20,900	3,780	1,040	1,480	1,040
Max. (Ksh)	121,910	176,300	231,850	141,060	102,080	231,850

4) Expenditure

Breakdown of Average Annual Expenditure per Household

Ksh	Nyando				Homa Bay						Total	
	Miwani		Muhoroni		Riana		Nyarongi					
							Rapedhi Lwala		Nguku			
	Mean	%	Mean	%	Mean	%	Mean	%	Mean	%	Mean	%
Food	26,744	45	22,149	30	26,607	39	25,272	52	19,860	45	24,126	41
Tea, beverages	10,007	17	14,966	20	5,016	7	1,302	3	3,787	9	7,016	12
Agricultural input	729	1	5,518	7	1,975	3	503	1	410	1	1,827	3
Employment	1,297	2	5,634	8	1,766	3	1,263	3	633	1	2,119	4
Livestock purchase	963	2	2,027	3	631	1	502	1	392	1	903	2
Tobacco/ cigarettes	154	0	2,821	4	1,126	2	137	0	267	1	901	2
Clothes	2,126	4	3,034	4	2,140	3	2,653	5	3,077	7	2,606	4
Medical care	2,715	5	2,658	4	4,676	7	1,055	2	869	2	2,395	4
Education	5,452	9	3,013	4	10,946	16	4,441	9	6,896	16	6,150	10
Contribution to churches/groups etc.	1,576	3	3,197	4	2,687	4	1,887	4	1,123	3	2,094	4
Housing/repair	1,024	2	635	1	903	1	1,327	3	701	2	918	2
Communication	2,015	3	2,070	3	2,927	4	1,971	4	1,005	2	1,998	3
Transport	1,761	3	1,894	3	3,887	6	1,307	3	1,899	4	2,150	4
Fuel for light	2,167	4	2,079	3	2,612	4	2,325	5	2,169	5	2,270	4
Recreation	602	1	1,792	2	31	0	485	1	15	0	585	1
Loan repayments	197	0	691	1	86	0	1,588	3	1,020	2	716	1
Tax excluding VAT	0	0	634	1	0	0	403	1	0	0	207	0
Others	458	1	251	0	0	0	343	1	17	0	214	0
Total Expenditure	59,987		75,061		68,015		48,763		44,139		59,193	

Distribution of Annual Expenditure per Household

Ksh	Miwani	Muhoroni	Riana	Rapedhi Lwala, Nyarongi	Nguku, Nyarongi	Total
0 - 25,000	1	4	1	10	13	29
25,001 - 50,000	12	6	9	9	10	46
50,001 - 75,000	9	11	13	4	4	41
75,001 - 100,000	5	2	2	4	2	15
over 100,000	2	7	4	3	1	17
Mean (Ksh)	59,987	74,960	68,015	48,763	44,139	
Min. (Ksh)	9,468	6,726	10,020	4,250	9,880	
Max. (Ksh)	129,070	285,040	216,178	153,600	350,400	

5) Balance of Income and Expenditure

Distribution of Annual Balance per Household

Ksh	Nyando		Homa Bay			Total
				Nyarongi		
	Miwani	Muhoroni	Riana	Rapedhi Lwala	Nguku	
under ▲100,000	1	2	1	2	1	7
▲100,000 - ▲75,001	0	2	2	2	0	6
▲75,000 - ▲50,001	0	1	1	1	1	4
▲50,000 - ▲25,001	6	4	3	3	1	17
▲25,000 - ▲ 1	8	7	13	10	16	54
Total, Deficit	15	16	20	18	19	88
1 - 25,000	10	9	7	11	11	48
25,001 - 50,000	4	1	2	0	0	7
50,001 - 75,000	1	1	1	1	0	4
75,001 - 100,000	0	1	0	0	0	1
over 100,000	0	2	0	0	0	2
Total, Surplus	15	14	10	12	11	62

Major Means to Supplement Deficit

Means	No.
Assistance from relatives	63
Credit	11
Merry go round	3
Allowance of trainings	2
Support from churches	2
Assistance from friend	1
Assistance from group members	1
Fundraising	1
School bursaries	1
Support from community members	1
Support from donors	1
Support from friends	1
Support from Kenya Women Finance Trust	1
Support from MP	1
Using personal saving	1

5-3-4 Consumption of Staple Foods

Annual Staple Food Consumption

Ksh	Nyando		Homa Bay			Total
				Nyarongi		
	Miwani	Muhoroni	Riana	Rapedhi Lwala	Nguku	
Consumption per household (kg)						
Mean	1,329	1,151	1,245	918	932	1,115
Min.	364	208	429	156	260	156
Max.	3,744	2,236	2,652	2,236	1,820	3,744
Consumption per person (kg)						
Mean	200	170	186	159	147	173
Min.	46	69	69	52	43	43
Max.	416	291	322	312	243	416
Breakdown of consumption (%)						
Maize	57%	64%	75%	74%	71%	68%
Sweet potato	17%	23%	17%	14%	20%	18%
Rice	12%	8%	7%	8%	5%	8%
Sorghum	10%	2%	1%	0%	0%	3%
Others	4%	3%	0%	4%	4%	3%
Production and consumption of maize (kg)						
a) Production	226	413	474	379	397	378
b) Consumption	758	737	933	679	662	754
a/b (%)	30%	56%	51%	56%	60%	50%

5-3-5 Statuses of Women

Type of Work and Percentage of Households Done by Men and Women

		Nyando				Homa Bay						Total	
		Miwani		Muhoroni		Riana		Nyarongi					
								Rapedhi		Nguku			
		M	F	M	F	M	F	M	F	M	F	M	F
Agriculture	Ploughing	77%	50%	83%	50%	73%	57%	83%	43%	70%	47%	**77%**	49%
	Apply fertilizer	17%	17%	33%	33%	50%	57%	33%	33%	20%	30%	31%	**34%**
	Apply manure	37%	50%	50%	57%	60%	63%	47%	43%	20%	43%	43%	**51%**
	Sowing/planting	50%	90%	77%	80%	63%	97%	57%	93%	27%	87%	55%	**89%**
	Weeding	53%	90%	77%	83%	77%	100%	70%	100%	40%	90%	63%	**93%**
	Harvesting	37%	97%	70%	83%	63%	97%	67%	100%	37%	93%	55%	**94%**
	Threshing	20%	97%	30%	63%	20%	60%	30%	63%	13%	60%	23%	**69%**
	Decision of selling the surplus	40%	40%	50%	50%	67%	60%	67%	60%	40%	60%	53%	**54%**
Livestock Rearing	Harding	43%	30%	43%	17%	73%	33%	70%	33%	53%	37%	**57%**	30%
	Milking	13%	40%	27%	33%	53%	70%	40%	63%	23%	60%	31%	**53%**
	Treatment	63%	20%	50%	17%	97%	7%	87%	13%	83%	23%	**76%**	16%
	Construction of shed	63%	13%	60%	7%	90%	13%	80%	10%	70%	13%	**73%**	11%

Percentage of Households that answered "Yes" for each Question

Question	Nyando		Homa Bay			Total
	Miwani	Muhoroni	Riana	Nyarongi		
				Rapedhi Lwala	Nguku	
Women work for cottage industry?	50%	20%	37%	17%	40%	33%
Women sell some crops?	60%	37%	43%	37%	50%	45%
Wife know the husband income?	22%	44%	53%	86%	41%	48%
Husband know the wife's income?	37%	59%	73%	82%	33%	56%

5-3-6 Health and Sanitation

The Most Major Drinking Water Source in Rainy Season

Water Source	Nyando		Homa Bay			Total
	Miwani	Muhoroni	Riana	Nyarongi		
				Rapedhi Lwala	Nguku	
Roof Catchment	83%	93%	73%	90%	83%	85%
Borehole	13%	0%	27%	10%	10%	12%
River	0%	7%	0%	0%	0%	1%
Protected well	0%	0%	0%	0%	3%	1%
Shallow well	0%	0%	0%	0%	3%	1%
Pump Water	3%	0%	0%	0%	0%	1%

The Most Major Drinking Water Source in Dry Season

Water Source	Nyando		Homa Bay			Total
	Miwani	Muhoroni	Riana	Nyarongi		
				Rapedhi Lwala	Nguku	
Borehole	83%	3%	60%	70%	77%	59%
River	7%	93%	27%	13%	0%	28%
Well	0%	0%	0%	7%	17%	5%
Pump water	3%	0%	0%	7%	7%	3%
Shallow well	0%	0%	3%	0%	7%	2%
Stream	0%	0%	7%	0%	0%	1%
Tap Water	0%	3%	0%	3%	0%	1%
Roof catchment	3%	0%	0%	0%	0%	1%
Spring water	0%	0%	3%	0%	0%	1%
Protected well	0%	0%	0%	0%	3%	1%

If Source of Drinking Water is Shared with Animals or Not

	Nyando		Homa Bay			Total
	Miwani	Muhoroni	Riana	Nyarongi		
				Rapedhi Lwala	Nguku	
Not shared	50%	17%	60%	63%	73%	53%
Shared	37%	83%	30%	27%	13%	38%
Sometimes shared	10%	0%	10%	7%	10%	7%

How Drinking Water is Treated

	Nyando		Homa Bay			Total
	Miwani	Muhoroni	Riana	Nyarongi		
				Rapedhi Lwala	Nguku	
Water Guards	83%	63%	77%	53%	50%	65%
Boil Water	3%	33%	13%	43%	23%	23%
Drink Directly	7%	0%	10%	3%	7%	5%
Others	10%	3%	20%	13%	7%	11%

Where Family Member Use Toilet

	Nyando		Homa Bay			Total
	Miwani	Muhoroni	Riana	Nyarongi		
				Rapedhi Lwala	Nguku	
Compound	77%	93%	90%	90%	83%	87%
Neighbourhood	10%	3%	0%	0%	7%	4%
No	13%	3%	10%	10%	7%	9%

Situations when Your Family Use Nearby Pharmacy

Miwani

Mild sickness	14
Sickness	6
Fever	3
When the dispensary of the hospital is out of stock of drugs	2
Serious sickness	2
When the hospital is not opened	1
When I am from hospital and need to buy medicine	1
Buying of drugs and selling	1
When sick after Doctors prescription	1
Not so often	1
Never	1

Muhoroni

Sickness	7
Fever	5
Buying medicine	4
Mild sickness	4
Headache	3
Malaria	1
Sore muscle caused by labour	1
Buying and selling of drugs	1
Asthma	1
Vomiting of children	1
The early stage of sickness	1
Cough	1
I never go (God is my protector)	1

Riana

Buying drugs	8
Mild sickness	7
Sickness	6
Fever	5
Malaria	2
Stomach ache	1
When there are no drugs in the hospital	1

Rapedhi Lwala, Nyarongi

Buying of drugs	13
Sickness	3
Mild sickness	4
Prescription from the hospital	2
When needs arise	1
Serious sickness	1
Fever	1
When the dispensary of the hospital is out of stock of drugs1	1

Nguku, Nyarongi

Buying of Medicine	16
Sickness	3
Mild sickness	2
Headache	2
Malaria	2
Stomach ache	1
Buying a certain medicine with prescription by doctor	1
Cough	1

Situation when Your Family Use Dispensary/Hospital/Health Centre

Miwani

Serious situation	17
Sickness	4
Malaria	5
When the medicine at pharmacy is not effective	5
Rarely used	2
When taking patients from my CHW area	2
Child is sick and cannot tell the disease an need to test the blood	2
Visiting child clinic or children are sick	1

Muhoroni

When seriously sick	14
Malaria	5
Fever	2
When I have difficulty in breathing	2
Abdominal pains	1
Before I go to the pharmacy	1
Vomitting persists	1
When I have tried self treatment and there is no improvement	1
When there is no improvement after taking medicine	1
Diarrhea	1

Rapedhi Lwala, Nyarongi

When seriously sick	13
When sick	4
Children are sick	4
Attending clinic	1
Constant sickness	1
For medical attention	1
When I cant handle the disease on my own	1
When my child is bitten by snake	1
When fever increases	1
When I have tried drugs but there is no change	1

Nguku, Nyarongi

When seriously sick	13
Sickness	3
Malaria	3
When children are sick	3
When I have tried self medication and there is no change	2
Headache	1
Constant sickness	1
Typhoid	1
For regular treatment of my father who is TB patient	1
Going once after every three months for my medication	1
When I have a backache	1
Going for a test	1

Kind of Advices Given by CHWs

Miwani

Advise	No.
About cleanliness and Nutrition	1
Water treatment, Environmental health, Use of mosquito net and Sanitation	1

Muhoroni

Advise	No.
About toilets and dish racks to orevent diseases e.g. Cholera,Use of mosquito Nets to prevent malaria	1
Building of toilets,dish racks and bathrooms.Going to Hospital in cases of serious illness.	1
hygiene and use of ITN`s and giving of birth in Hospitals	1
Abstinance from sex,Personal hygiene and sanitation.	1

Rapedhi Lwala, Nyarongi

Advise	No.
HIV/AIDS awareness,Hygiene,Toilets and bathrooms,treated water and ITNs	1
Boiling water & use of water guard,need for toilets and racks within the compound	1

Nguku, Nyarongi

Advise	No.
HIV/AIDS prevention and transmission control.	1
They advised on hygiene and about HIV/AIDS.	1
They advised on how th diseases are multiplying day and night, The importance of being a CHW	1
How I can live a better and a healthy life, Hygiene, How I can use treated water	1

Kind of Advices Given by HBC TOTs

Miwani

Advice	No.
How to feed	3
Be responsible for the sick and care	3
Noticing any other change from the sick	1
HBC	1
Boil water for the sick to bath (warm water)	1
Maintaining of environment (making it tidy)	1

Muhoroni

Advice	No.
General Hygiene of the home	1
How to looking after a sick person.	1
home.	1
Handling the sick in the community/home.	1
Administering drugs to the sick at home	1

Rapedhi Lwala, Nyarongi

Advice	No.
Taking care of patients	1

Nguku, Nyarongi

Advice	No.
How to keep the compound clean/tidy,	1
The importance of having toilets/racks	1
The language has to be polite for patients	1
Humble request and talking to the sick	1
Have stories with the sick in order not to be bored.	1

How Do You Think About the Activities of CHWs and HBC TOTs?

Miwani

Answer	No.
They give you ideas on what to do with patients	1
To create awareness of HIV campaign	1
Giving advice in general cleanliness	1
Helping the community	1
CHWs are few and don't reach all corners of the community	1
But they are good for the community	1

Muhoroni

Answer	No.
The HBC activities prevent diseases and sickness	1
Their HBC activities are better than those of hospitals	1
hospitals are crowded & expensive	1
Their activities bring positive changes to the community	1
But they should be younger than 50 years.	1

Rapedhi

Answer	No.
Good since they are readily available in the community	1
Their work is good but they are few	1
It is beneficial to me since I can earn a living	1

Nguku

Answer	No.
Its good work to have them around us.	1
It is good because it teaches us on	1
how to take care of ourselves and our neighbours.	1
It is a good activity, there is also a lot of benefit.	1
It is good because they keep people	1
In the community by giving advice on medicines.	1

Reasons why He/She Want to be CHW or HBC TOT

Miwani

Reason	No.
There are so many needy people around me	2
I want to help the patients in the communitiy	2
I am flexible in that I can address people in gathering	1
and pass an information	1
So that I learn to assist the sick	1
I can see if I can help the sick	1
When I see the sufferer I felt for him/her sad	1
I want to improve my living standard and give advice for the care givers	1

Muhoroni

Reason	No.
I am suitable for the position there	2
So that I can assist my community and keep my family healthy	1

Rapedhi Lwala, Nyarongi

Reason	No.
Help people suffering from diseases	3

Nguku, Nyarongi

Reason	No.
Getting skills and experience	2

Reasons why He/She Do not Want to be CHW or HBC TOT

Muhoroni

Reason	No.
I don't take medication	1
I don't have enough time	1

Rapedhi

Reason	No.
Busy because of the other work	1

Nguku

Reason	No.
No specific reason	1

5.4 Related Items to the Pilot Programmes/Projects; Livelihood Improvement Programme

Type of Trainings Attended and Percentage of Trial

Miwani

Training	Attended	Tried	Tried/Attended
Kitchen garden	13	8	62%
Value addition	16	13	81%
Poultry	20	14	70%
Bee keeping	4	2	50%
Dairy goat	15	2	13%

Rapedhi Lwala, Nyarongi

Training	Attended	Tried	Tried/Attended
Kitchen garden	19	16	84%
Value addition	16	11	69%
Poultry	13	5	38%
Bee keeping	4	0	0%
Dairy goat	13	3	23%

Muhoroni

Training	Attended	Tried	Tried/Attended
Kitchen garden	26	18	69%
Value addition	23	13	57%
Poultry	16	4	25%
Bee keeping	4	0	0%
Dairy goat	17	2	12%

Nguku, Nyarongi

Training	Attended	Tried	Tried/Attended
Kitchen garden	27	17	63%
Value addition	24	14	58%
Poultry	17	5	29%
Bee keeping	15	0	0%
Dairy goat	18	4	22%

Riana

Training	Attended	Tried	Tried/Attended
Kitchen garden	22	17	77%
Value addition	19	13	68%
Poultry	19	9	47%
Bee keeping	8	3	38%
Dairy goat	14	3	21%

How the Participants Think about JICA's Free Participation Approach Compared with Conventional Group Approach

	Nyando		Homa Bay			Total
				Nyarongi		
	Miwani	Muhoroni	Riana	Rapedhi Lwala	Nguku	
This approach is better	16	16	17	19	25	93
Conventional group approach is better	1	3	9	6	4	23
I have no idea	3	4	0	0	0	7
No preference	1	6	0	0	0	7

Where and How the Participants Got the Information about the Livelihood Training

Miwani

Where or how?		Who?	
Clear Poject	9	CHW	7
Baraza	7	Project coordinator	6
Ahero Multipurpose	1	Chief	3
		Assistant chief	2
		Clear Project	2
		HBC coordinator	2
		JICA Study Team	1
		Village Elder	1

Rapedhi Lwala, Nyarongi

Where or how?		Who?	
Rapedhi Lwala orphanage	4	CHW	5
CHW delivered message	2	Assistant chief	4
Baraza	1	PHO	4
CBR Office	1	HBC Chairman	2
Church	1	JICA Study Team	2
Health training	1	Pastor	2
JICA Training	1	Orphanage Manager	1
		Village chairman	1
		Village elder	1

Muhoroni

Where or how?		Who?	
Jamato-sha	8	CHW	10
Jaber Orphanage	5	JICA Study Team	2
Baraza	2	Chief	1
Ahero Multipurpose	1	Jaber Chairman	1
Demonstration plot	1	PHO	1
Tonde Development Group	1	Community leaders	1
Tumaini Self Help Group	1		
Vi-Agroforestry	1		

Nguku, Nyarongi

Where or how?		Who?	
Nguku Voluntary	11	CHW	12
CHW delivered the Information	6	Chief	4
Baraza	3	PHO	3
Chief's camp at Nguku	1	Village Elder	2
From the training	1	Chairman	1
In the group	1	Chairlady	1
In the village	1		
North Kaganda	1		
Rapedhi	1		
Through a letter	1		

Riana

Where or how?		Who?	
Baraza	11	CHW	9
Kinda women group	4	Assistant Chief	6
Konyango Bi Pharmacy	3	Chief	5
CBO	1	Clan Elder	1
Hotel	1	Coordinator	1
MOA	1	Customer	1
		VCT cordinator	1
		Village Elder	1

Changes in the Family and/or Neighbours after the Trainings

Miwani

Changes	No
Reduced poultry disease	5
The family/neighbour appreciated what I made for them	3
Do not spend money to buy vegetables	3
A happy family taking a balanced diet	3
Improved income from poultry	2
Improvement in vaccination on poultry	2
My neighbours now want to vaccinate their local poultry	2
Most CBOs are trying value addition	1
I make juice on my own and save the money	1
I can cook mandazi for my children and also selling to the market	1
I can cook jam out of paw paw or tomato	1
Community have started trying kitchen gardening	1
Neighbours are eager to try vegetable disease control	1
My family now knows how to plant vegetables	1
My neighbour practice what I taught	1
One person came to me to learn	1

Muhoroni

Changes	No.
I don't use a lot of money in buying juice, jam and/or cakes	5
I don't buy vegetables	5
My neighbours also do not buy vegetables	3
My family is happy and they enjoy the juice	2
Knowledge helped me improve my farming methods	2
My Chicken are no longer dying and they are not sick	1
My family now grows fruits to make juice	1
I use less money as I get some income from my kitchen garden	1
I don't spend as much as I used to	1
Community members adopted my methods of growing vegetable	1
I do not buy chickens	1
I am now eating eggs	1
My family can now live healthy due to a well balanced diet	1
It is easier for me to take care of visitors	1

Riana

Changes	No.
I do not spend on vegetables	8
I now know how to make juice without buying from the shop	3
My family these days love mango and/or paw paw jam	3
I sell for money instead of buying the vegetables	2
My family is more involved in Agricultural activities	2
The community get vegetables very easily	2
My poultry are doing better	2
My income has improved	2
I know how to make nutritious drinks for patients	1
I eat jam regularly in my house I could not afford it earlier	1
Our expenses is reduced	1
Some of my neighbours have bought vegetable seeds	1
My children are all having kitchen garden next to their houses	1
We eat our own vegetables	1
I can now teach someone on kitchen garden	1
I have many healthy chicken and their produce has increased	1
My poultry are increasing they don't die carelessly any more	1
We are at peace in the family	1

Rapedhi Lwala, Nyarongi

Changes	No.
I do not buy vegetables but sell to get money	4
I don't buy juice, jam and/or cakes	3
I do not spend money to buy vegetables	2
They were very happy with my juice	2
My neighbours want to try baking cake	2
My neighbours have kitchen garden after seeing mine	1
I earn more from vegetables	1
I get better harvest from maize	1
I know how to make cake	1
I taught my neighbours to make jam	1
My children enjoyed pineapple juice	1
They are planting more pineapple & avocado	1
Some of my neighbours have started kitchen gardening	1
The children get sukuma wiki easily	1
They have interest of doing what I have done	1
I have more chickens now	1
My neighbours have built poultry houses	1
I teach neighbours & they implement to improve their livelihood	1
They enjoy a well balanced diet	1

Nguku, Nyarongi

Changes	No.
I do not buy vegetables and save money	5
We are happy	4
I can now make juice, jam and/or cakes and save money	3
I do not buy vegetables while I sell them to get money	3
My neighbours came to me for advice on how to make a kitchen garden	2
My neighbours want to know how to make cake and/or mandazi	2
My family is now using soya beans for baking	1
My orphans are asking me for cake daily	1
I do not buy juice or vegetables but sell to make money	1
My neighbours have started kitchen gardens	1
I eat more vegetables	1
They have improved on sweet potato cultivation	1
My neighbour has different types of vegetables	1
The hens that were brooded outside are doing better	1
Better income to my family	1
Neighbours now are taking their local goats for crossbreeding	1
Joy and good health in the family	1
Only buy what cannot get like Fish and toiletrines from the shop	1

What Changes the Partipicants Expect in the Future after the Trainings

Miwani

Changes	No
Better income	5
Better health	2
Good results for agricultural production	3
Financial support	1
Become self-reliant	1
Community establishes a kitchen garden	1

Muhoroni

Changes	No
Better income	5
Better nutrition	1

Riana

Changes	No
Better income	5
Better nutrition	1
Poultry keeping can be of help to me in the future	1

Rapedhi Lwala

Changes	No
More productive agriculture	3

Nguku

Changes	No
Better income	1

Difference of the Trainings Between JICA and Other Organizations

Miwani

Difference	No.
More details than the others	3
The targets are local communities, not individuals	3
More practical than the others	2
No different	2
Explain a certain technique for agricultural production with more details and properly	1
Long lasting	1

Muhoroni

Difference	No.
No difference	2
The training session was more practical	4
The training session was useful for agricultural production	1
The length of the training session is long	1
JICA established the foundation to help the community	1
The training session was open for everyone	1

Riana

Difference	No.
No difference	3
More practical than the others	2
More details	4
There were demonstrations	1
Less practical than the others	1
The length of the training session was sufficient and proper	1
The follow up session was useful	1

Rapedhi Lwala, Nyarongi

Difference	No.
More details	4
More practical	2
JICA gave materials for training sessions	3
I have no other training to compare	1
Training sessions were well organized	1
Facilities were good	1

Nguku, Nyarongi

Difference	No.
More details	2
The area of the session was broad	2
JICA training sessions are for personal development rather than families and relatives	1
Free materials for the training session	1
Less details than the other organizations	1
More practical	1
The length of the training session was sufficient and appropriate	1
Certification for completing the study session	1
Lunch allowance	1
JICA fulfilled engagements and it is trustworthy	1

5.5 Related Items to the Pilot Programmes/Projects; Community Health Programme

Type of Trainings and the Number of Interviewees who Attended

	Nyando		Homa Bay			Total
	Miwani	Muhoroni	Riana	Nyarongi		
				Rapedhi Lwala	Nguku	
Primary Health Care	16	21	24	20	21	102
Essential Drug Management	3	20	2	14	19	58
Home Based Care TOTs	18	23	24	19	16	100
Community Health Information Sharing Syst	18	21	24	16	16	95

Number of Times Community Members Has Come to the Interviewee for Advice Since the Training

Number of times	Nyando		Homa Bay			Total
	Miwani	Muhoroni	Riana	Nyarongi		
				Rapedhi Lwala	Nguku	
0	1	4	2	5	1	13
1-5	10	7	10	10	13	50
6-10	3	3	4	3	8	21
11-100	9	8	6	5	3	31
over100	1	3	3	1	0	8

Number of People who Came to the Interviewees for Advice Since the Training

Number of people	Nyando		Homa Bay			Total
	Miwani	Muhoroni	Riana	Nyarongi		
				Rapedhi Lwala	Nguku	
0	1	4	2	5	1	13
1-5	11	12	14	12	18	67
6-10	6	6	2	4	1	19
11-100	5	3	5	3	3	19
over 100	0	0	2	0	0	2

How Much You Are Recognized as CHW or HBC TOT by Community Member

How much recognized	Nyando		Homa Bay			Total
	Miwani	Muhoroni	Riana	Nyarongi		
				Rapedhi Lwala	Nguku	
1. Very much recognized	21	22	22	14	23	102
2. Fairly recognized	1	1	3	2	2	9
3. A little recognized	1	0	0	0	0	1
4. Not recognized at all	0	0	0	0	0	0
5. Do not know well	0	0	0	0	0	0

Occasions when the Interviewees Talked about HIV/AIDS

Miwani

Occasion		How many?		Supported by JICA?	
Church	23	over 100	14	No	47
Baraza	17	11-100	45	Yes	14
School	7	1-10	2		
Burial	5				
Group	3				
CBO	2				
Clan meeting	1				
Fund raising	1				
Karagonsi	1				
Okana	1				

Muhoroni

Occasion		How many?		Supported by JICA?	
Church	18	over 1000	1	No	42
Baraza	14	101-1000	10	Yes	10
School	11	11-100	39		
Burial	4	1-10	0		
CBO	3				
Group	2				
Church	1				
Family gathering	1				
Mobile Clinic	1				

Riana

Occasion		How many?		Supported by JICA?	
Baraza	20	Over100	16	No	51
Church	12	11-100	37	Yes	6
School	8	1-10	4		
Burial	7				
Water Pump Gathering	2				
Community Gathering	2				
CBO	1				
Market	1				
VCT centre	1				
Outreach	1				
Own meeting	1				
Village	1				
Harambee	1				

Rapedhi Lwala

Occasion		How many?		Supported by JICA?	
Barazas	15	over 100	14	No	38
Church	11	11-100	24	Yes	2
School	4				
Burial	3				
Funeral	2				
Public gathering	1				
Open air markets	1				
Football Tournerment	1				

Nguku

Occasion		How many?		Supported by JICA?	
BARAZA	22	Over 100	11	Yes	4
Church	13	11-100	35	No	3
School	4				
Burial	5				
CBO	3				
Community gathering	2				
Public gatherings	1				
Hospital	1				
Group	1				

Changes in Community Since the Interviewees Started CHW or/and HBC TOT Activities

Miwani

Sanitation improved (construction of toilet and/or dish rack)	11
Community members are using treated water	7
Increase in condom usage	4
Mothers give birth in hospitals	2
Community started talking about HIV/AIDS	2
More people turn for VCT test	2
The common diseases are controlled	1
Caregivers are taking care of the patients	1
Change of behaviour among the youths	1
Infant mortality reduced	1
More awareness on health issues	1
Reduced number of diseases	1
Aware that HIV/AIDS is not a believe but a disease	1
Change of sexual behaviour by the youths	1
Reduction in wife inheritance traditions	1
Some people who are not going to hospitals are now going to hospital	1

Riana

Community have toilets and dish racks	11
Community members visit VCT	6
Community members visit hospitals	5
Diarrhoea diseases have reduced	3
Community members use treated water	3
The people living with HIV/AIDS are now open to disclose their status	3
The youths are now changing their moral standings	2
Many children are getting vaccinated correctly	2
Community members are keeping their environment clean	2
PLWHA accept their status	2
Diseases have reduced	1
People talk freely about AIDS	1
Community members are using insecticide treated nets	1
Community members are using condom	1
Community members started malnutrition awareness campaign	1

Muhoroni

There are improved sanitary facilities (toilets and/or dish racks)	9
More community members visit VCT	6
Increased use of Insecticide Treated Nets	5
They boil water	4
Community members are more aware of their health	2
Community members are now accepting their status	2
Medicines are readily available	1
Community members use condoms	1
They can now go for blood tests	1
They keep their environment clean	1
High levels of hygiene is maintained	1
Common illnesses are reduced	1
Community members visit hospitals for treatment	1
Diseases have decreased especially malaria	1

Rapedji Lwala, Nyarongi

Many visit VCT	11
They have sanitary facilities	9
The community use boiled water	4
They are using condoms	3
Community members talk about HIV/AIDS freely	2
Open about their HIV/AIDS status	2
Use of mosquito nets	2
The Community now take medicine	2
Clean compounds	2
The youths now know what HIV/AIDS	1
Wife inheritance is on the decline	1

Nguku, Nyarongi

They are now having racks, toilets, etc.	11
Some community members have gone for VCT test	10
The community environment is clean	3
Pregnant mothers are now visiting clinics and deliver in hospitals	2
Typhoid has reduced	1
The rate of prostitution has decreased	1
Community members are now keeping the environment clean	1
Community members have kitchen gardens	1
More people are controlling waste disposal	1
Many are using condoms	1
Diseases have been reduced	1
Community members use mosquito net	1

Problems in Discharging Health Activities as CHW or/and HBC TOT

Miwani

Lack of transport allowance	8
Lack of lunch allowance	7
Lack of Kits	7
Low income affects the activities	5
Lack of gum boots	3
Lack of medicine	3
Lack of medicine	2
Lack of time to do the activity	2
Taking time to get medicine	2
Difficulty for counselling	2
Difficulty of teaching	2
Taking VCT test	1
Lack of rain coat when rainy	1
The hospital demand money for medicine	1
Need a lot of time and affect other activities (work etc) negatively	1
The attitude of other patients are arrogant	1

Muhoroni

Lack of transportation (or transportation allowance)	11
Lack of Kits	7
Expectation of free medicine	5
Bad attitudes of patients	4
Low income affects the activities	2
Lack of gum boots (and excess of rainfall)	2
Difficulty for counselling	2
Lack of understanding of villagers	1
Difficulty of teaching	1
Activities are against their religious belief	1
Burden of care givers for patients	1
Misunderstanding of activities (e.g. the activities are for profit)	1

Riana

Expectation for free medicines	6
Difficulty of communication with patients	4
Negative attitudes by others	4
Lack of transport	3
Lack of Kits	3
Expectation for free materials	3
Expectation of financial support	2
Need a lot of time and affect other activities (work etc) negatively	3
The difficulty of work	2
Expectation for transportation	2
Lack of rain coats	1
Lack of medicine	1
Lack of knowledge of care takers about diseases	1
Lack of nutrition of patients	1
Traditional cultural belief	1
Lack of founding for activities	1
Discarded patients by their family	1
Not taking medicines	1
Difficulty for counselling	1
Lack of materials	1

Rapedhi Lwala, Nyarongi

Lack of transport allowance	7
Lack of knowledge for health care	5
Expectation for free materials	4
Lack of gum boots	4
Expectation for free medicine	3
Lack of Kits	1
Low income affects the activities	2
Negative attitudes of care givers	2
Negative attitudes of patients	2
Lack of medicine	1
Fear for diseases of patients	1

Nguku, Nyarongi

Lack of transportation	7
Lack of medicine	4
Low income	3
Lack of gum boots, rain coats, and umbrellas	3
Not to go to hospital	2
High expectation of the patients	2
Lack of materials	2
Lack of HBC Kits	1
Lack of human resource	1
Lack of knowledge about medicine doses	1
Lack of understanding of patients	1
Lack of mosquito nets	1

How the Interviewees Have Coped with the Problems or/and How They Think They Can Cope with

Miwani

Use own money	10
Try (or find) another way	7
Try to find someone to solve the problem	6
Persuade them	5
Advice them	3
Wait for the medicine	2
No solution	2
Encourage to go to hospital	2
Use available transportation (Bicycles)	1
Encourage them to buy the kit	1
Talk with them	1
Ask the doctor and postpone paying	1
Force them if possible	1
Feel difficulties	1
Try again	1

Muhoroni

Ask someone to solve the problem	7
Explain the poison as a volunteer	5
Try (or find) another way	4
Advice them	4
Use available transportation (Bicycles)	3
Walk a long distance	3
Encourage them	2
Spend own money	1
Wait for the doctor	1
Encourage to go to hospital	1
Improvise my own	1
Persuade them to work without expectation	1
Show them the way to the hospital	1

Riana

Advice them	11
Explain them to solve the problem	8
Use own money	4
Try to find someone to solve the problem	2
Persuade them	2
No solution	2
Encourage to go to hospital	2
Leave the problem	2
Improvise by using a plastic bag	2
Talk with them	2
Sacrifice time to devote the activity	1
Train them	1

Rapedhi Lwala, Nyarongi

Use available transportation (Bicycles)	6
Encourage to go to hospital	5
Try to find someone to solve the problem	4
Advice them	3
Use own money	2
Talk with them	2
Borrow gum boots	2
Explain the position of HW s	2
Walk	1
Persuade them	1
Try to find out the solution	1
Use plastic bags instead	1

Nguku, Nyarongi

Advice them to solve the problem	4
Use available transportation (Bicycles)	4
Try (or find) another way	3
Encourage to go to hospital	3
Leave the problem	2
Talk with them	1
Ask someone to solve the problem	1
Use plastic bags instead	1
Cope with the problem later	1

Occasions when the Interviewees Felt Happy or/and Were Proud of Being a CHW or HBC TOT

Miwani

What Occasions?	Why?	No.
Good results for patients from the activity	I feel happy and proud	9
With achievements of the activity	It encourages me in the future	6
When the activity is useful for the patient	Because they will be taken care	4
When patients rely on the HBC	Because I have knowledge	3
The gratitude of the patient	My patient recovered	1

Muhoroni

What Occasions?	Why?	No.
Achievement from the activities	She got well and strong	4
Given materials	Availability of transportation	3
Patient`s status is good	Patients are getting treatment	3
The certification	I get happy	2
Communication with patients	because they come back the tell me the results.	2
When activities are useful for the patient	Patients follow my teachings	2
The number of diseases decreased	Changes after I visit	1
Nothing	Some of my Patient have died	1
The gratitude of the patients	she was treated and she came back to thank me	1
When community members rely on	I am now recognized	1
Recovery from the disease	His/Her health improves	1

Riana

What Occasions?	Why?	No.
Follow advise	Because they do the way I have instructed	6
Achievement from the activities	Improvement on disease control	6
Communication with patients	Patients now have improved health and now stand on their own.	3
Recovery from the disease of patients	because they come back to thank me	3
The health situation of patients are good	I can handle most common diseases	3
Given materials		1
Reliance on the health worker	I am recognised as a health worker	1

Rapedhi Lwala, Nyarongi

What Occasions?	Why?	No.
Recovery from diseases	The husband is now healthy	7
Following Health Workers' advise	She/he gets a positive change in her health	4
Communication with patients	Then he/she follows what I have adviced	3
Improvement at health	My work is a successful one	2
Getting knowledge of disease	I was happy because I had knowledge on health	2
Given materials		1
Helping people	They thank me for helping them	1
Reliance on the HW	I helped her deliver a baby boy	1

Nguku, Nyarongi

What Occasions?	Why?	No.
Following HW`s advice	My advice will help her to improve her health	13
Achievement of the activities		2
Improvement of health	Walk and can now cook by herself	2
Reliance on the HW		1
Given certification	Am a qualified woman	1
Given materials	Walk and can now cook by herself	1
Good health status of patients		1
Training	Now they have some knowledge	1

Changes Happened on Life of the Interviewed CHWs or/and HBC TOTs after the Trainings

Miwani

Getting knowledge of hygiene and environment	9
Getting knowledge of disease	7
Getting knowledge about curing diseases	6
Getting knowledge of nutrition	3
Knowledge about preventing diseases	2
Certification	1
Live positively	1

Muhoroni

Knowledge to control diseases	6
Knowledge about preventing diseases	2
Knowledge about hygiene and environment	2
Knowledge about balanced diets	2
Getting courage for activities	2
Changes in life (better)	2
Being more experienced	1
Getting knowledge for a better life	1
Knowledge about livestock	1
Changes in child's behaviour	1
Knowledge about health	1

Riana

Knowledge about disease control	6
Better life with good health	4
Knowledge about health	3
Knowledge about hygiene and environment	3
Knowledge about preventing diseases	3
Financially worse	1
Importance of keeping records	1
Knowledge about micro finance	1
Respected by the villagers	1
Knowledge about nutrition	1
Knowledge about immunization	1

Rapedhi Lwala, Nyarongi

Knowledge about hygiene and environment	6
Knowledge about being health	4
Knowledge about preventing diseases	4
Knowledge about controlling diseases	3
Better life	2
Better income	2
Knowledge about balanced diets	2
Respected by villagers	1
Knowledge about curing diseases	1
Knowledge how to counsel a patient	1

Nguku, Nyarongi

Knowledge about hygiene and environment	7
Knowledge about helping patients	6
Knowledge about balanced diets	4
Knowledge about medicine	3
Better (or healthy) life	3
Knowledge about controlling diseases	2
Knowledge about preventing diseases	1
Knowledge about health issues	1
Knowledge about curing diseases	1
No change	1

CHAPTER 6 LOCAL RESOURCES

6.1 Summary of Questionnaire Survey for Progressive Farmers in Nyando District

Number of Interviewees in each Division

Muhorni	21	Nyando	20	Upper Nyakach	23
Miwani	19	Lower Nyakach	21	**Total**	**104**

Age of Interviewees

Average	52	The oldest	80	The youngest	19

When did you start the activities?

Average	1995	The earliest	1954	The latest	2005

Are there any ones who are copying your activities?

Yes	102	No	2	N/A	0

If yes, how many?

Average	16.8	Maximum	500	Minimum	1

Basic Information of Interviewees

	Average	Maximum	Minimum
Number of Family Member	8.2	27	1
Size of Farmland (acre)	9.7	175	0.25
Livestock Production			
Working Cattle	1.0	8	0
Milking Cattle	1.9	9	0
Beef Cattle	1.0	15	0
Goat	3.4	40	0
Sheep	3.8	67	0
Donkey	0.1	1	0
Chicken	22.3	200	0

What products do you produce?

Muhoroni		Miwani		Nyando		Lower Nyakach		Upper Nyakach		**Nyando District**	
Sugarcane	15	Tomato	9	Rice	6	Milk	13	Milk	4	Milk	28
Maize	14	Kale	7	Sugarcane	5	Chicken	6	Kales	3	Sugarcane	25
Beans	7	Sugarcane	5	Vegeatables	5	Tree seedlings	4	Banana	2	Maize	20
Milk	5	Cowpea	3	Fruit	4	Egg	2	Cassava	2	Tomato	15
Sweet potato	5	Pawpaw	3	Maize	4	Fruit	2	Chicken	2	Kale	14
Banana	3	Tree seedling	3	Milk	4	Fat	1	Eggs	2	Chicken	11
Sorghum	3	Banana	2	Sorghum	4	Groundnuts	1	Honey	2	Beans	9
Cassava	2	Chicken	2	Kale	3	Honey	1	Maize	2	Vegeatables	9
Mango	2	Honey	2	Tomato	3	Livestock	1	Mango	2	Banana	8
Tomato	2	Milk	2	Beans	2	Oil	1	Citrus	1	Tree seedling	8
Vegetables	2	Onion	2	Banana	1	Onion	1	Fruits seedlings	1	Honey	7
Carrot	1	Carrot	1	Cassava	1	Ornamental	1	Lemon	1	Rice	7
Livestock	1	Egg	1	Cereals	1	Rice	1	Onion	1	Sorghum	7
Cof ee	1	Chicken	1	Chillies	1	Timber	1	Pawpaw	1	Eggs	6
Eggs	1	Horticultural crops	1	Citrus	1	Vegetables	1	Tomato	1	Fruits	6
Honey	1	Mango	1	Cowpea	1	Wax	1	Tree seedlings	1	Pawpaw	6
Horticulture	1	Potato	1	Fish	1					Sweet potato	6
Kale	1	Propolis	1	Green gram	1					Cassava	5
Citrus	1	Vegetables	1	Honey	1					Mango	5
Pawpaw	1	Wax	1	Onion	1					Onions	5
				Pawpaw	1					Cowpea	4
				Sweet potato	1					Citrus	3
				Water mellon	1					Others	23

Where have you got such skills/ knowledge from?

Muhoroni		Miwani		Nyando		Lower Nyakach		Upper Nayakach		**Nyando District**	
Ministry of Agriculture and Livestock	11	Ministry of Agriculture and Livestock	16	Ministry of Agriculture and Livestock	12	Ministry of Agriculture and Livestock	16	Ministry of Agriculture and Livestock	6	Ministry of Agriculture and Livestock	61
Settlement office	3	Vi agroforestry	4	Vi agroforestry	4	RELMA	3	RELMA	4	Vi agroforestry	12
Neighbours	2	CCSP	2	Through practicing	4	ICRAF	2	Vi agroforestry.	3	RELMA	7
Work Place.	2	Ministry of Environment and Natural Resources	2	Parents	3	Kusa Community	1	Schools	3	Schools	6
CENT SACCO ltd.	1	Schools	1	Schools	2	SIGo agriculture complex	1	Maseno FTC	2	Parents	5
Cooperative.	1	Baraka College.	1	Forestry Department	1	Traditional skills	1	Life project	2	Through practicing	4
College	1	Husband	1	Inter diocesan christian community	1	VI agroforestry.	1	Naivasha	1	College	3
Factory	1	Life project.	1	Former employer	1			Parents	1	ICRAF	3
Farmers	1	Neighbours	1	Kolping organization of Kenya.	1			Tour to foreign countries	1	Neighbours	3
		Parents	1					KARI	1	Settlement office	3
								College	1	Others	25
								CCF	1		
								ICRAF	1		

6.2 Summary of Questionnaire Survey for Progressive Farmers in Homa Bay District

Number of Interviewees in each Division

Asego	20	Ndhiwa	20	**Total**	**127**
Rangwe	25	Nyarongi	22		
Riana	20	Kobama	20		

Age of Interviewees

Average	47	The oldest	77	The youngest	26

When did you start the activities?

Average	1998	The earliest	1964	The latest	2005

Are there any ones who are copying your activities

Yes	123	No	4	N/A	0

If yes, how many?

Average	7.9	Maximum	60	Minimum	1

Basic Information of Interviewees

	Average	Maximum	Minimum
Number of Family Member	11.7	3	3
Size of Farmland (acre)	6.2	0.5	0.5
Livestock Production			
Working Cattle	3.0	8	0
Milking Cattle	2.1	7	0
Beef Cattle	2.4	20	0
Goat	1.7	6	0
Sheep	2.3	18	0
Donkey	0.4	5	0
Chicken	13.3	60	0

What products do you produce?

Rangwe		Asego		Riana		Ndhiwa		Nyarongi		Kobama		**Homa Bay District**	
Milk	12	Milk	6	Sugar	5	Maize	10	Maize	13	Groundnut	16	Maize	44
Maize	6	Tomato	6	Jaggery	3	Groundnuts	9	Beans	10	Banana	14	Groundnut	40
Beans	5	Groundnut	5	Milk	3	Beans	4	Groundnut	7	Beans	13	Beans	34
Tomato	4	Butter Fat	3	Tomato	3	Onion	2	Banana	6	Maize	13	Milk	26
Kale	3	Beans	2	Banana	2	Pineapple	2	Kale	6	Green gram	9	Tomato	26
Chicken	3	Fruits	2	Cabbege	2	Sorghum	2	Tomato	5	Pineapple	8	Banana	23
Honey	2	Kale	2	Groundnut	2	Tomato	2	Milk	4	Cabbage	6	Kale	17
Tea	2	Butternut	1	Maize	2	Banana	1	Sweet potato	4	Mango	6	Pineapple	15
Cassava	1	Chicken	1	Avocado	1	Green gram	1	Trees	4	Onion	6	Onion	13
Coffee	1	Chillies	1	Citrus	1	Honey	1	Mango	3	Tomato	6	Sugarcane	12
Egg	1	Eggs	1	Goat	1	Horticulture	1	Sorghum	3	Kale	5	Green gram	10
Fruits	1	Flowers	1	Mango	1	Kale	1	Onion	2	Orange	4	Mango	10
Groundnuts	1	Ghee	1	Onion	1	Milk	1	Pineapple	2	Passionfruit	4	Sweet potato	10
Onion	1	Honey	1	Pepper	1	Soya beans	1	Sugarcane	2	Pawpaw	4	Cabbage	9
Orange	1	Jaggary	1	Pineapple	1	Sugarcane	1	Avacado	1	Sweet potato	4	Chicken	6
Pilipili	1	Oiilcrops	1	Chicken	1	Wood	1	Cabbage	1	Trees	4	Sorghum	6
Pineapple	1	Onion	1	Sheep	1			Fish	1	Millet	3	Honey	5
Rice	1	Pineapple	1	Sunflower oil	1			Passionfruits	1	Sugarcane	2	Orange	5
Silk worm	1	Sugarcane	1	Sweet potato	1			Potato	1	Vegetables	2	Passionfruits	5
Sorghum	1	Vegetables	1	Tree seedling	1			Chicken	1	Avacado	1	Vegetables	5
Sugarcane	1			Wood	1			Tobacco	1	Hives	1	Fruits	4
Sweet potato	1							Vegetables	1	Fruits	1	Jaggary	4
Tobacco	1									Honey	1	Pawpaw	4
Tree	1									Legumes	1	Others	42
Vegetables	1									Soya beans	1		
Water melon	1									Yams	1		

Where have you got such skills/ knowledge from?

Rangwe		Asego		Riana		Ndhiwa		Nyarongi		Kobama		**Homa Bay District**	
Ministry of Agriculture and Livestock	17	Ministry of Agriculture and Livestock	8	Parents	6	Ministry of Agriculture and Livestock	6	Ministry of Agriculture and Livestock	12	Ministry of Agriculture and Livestock	15	Ministry of Agriculture and Livestock	63
Other Farmers	7	Other Farmers	6	Ministry of Agriculture and Livestock	5	AEP	3	CARE Kenya	7	Other Farmers	13	Other Farmers	34
NALEP	2	Parents Livestock	3	Other Farmers	4	CARE Kenya	3	Other Farmers	4	CMAD	9	CARE Kenya	14
Cost	1	Development Programme	1	AEP	2	FTC	3	AEP	2	CARE Kenya	2	CMAD	14
FTC	1	KARI	1	School	1	NALEP	3	CMAD	2	CMAD	1	Parents	10
KARI	1	Husband	1	RAAREFA	1	CMAD	2	FTC	2	School	1	AEP	9
Kenya Tea development Authority	1	HDC	1	Own knowledge	1	KARI	2	Sony Sugar	2	AEP	1	FTC	7
Mwea Irrigation Scheme	1	FTC	1	Mace Food Ltd	1	College	1	Church	2			NALEP	6
Tea Estates	1	Embu Insitutte	1	Horticulture Development Centre	1	Home	1	Parents	1			KARI	4
Women Centre	1	Church	1	Women Group	1	ICIPE	1	Finland Livestock Programme	1			Church	3
		CARE Kenya	1	DANIDA	1	Kobodo Centre	1	KIRDI	1			College	2
		College	1	CARE Kenya	1	Limuru Girls Centre	1	Nakuru prisions	1			School	2
		AEP	1	Tea Estate	1	Maseno	1	NALEP	1			Sony Sugar	2
				Austrailia	1	Sigot training centre	1	Church	1			Tea Estates	2
						Stockist	1					Others	27
						Thika del-monte	1						
						Uncle	1						

6.3 Summary of Questionnaire Survey for Small Scale Entrepreneur in Nyando District

Number of Interviewees in each Division

Muhorni	21	Nyando	19	Upper Nyakach	18
Miwani	20	Lower Nyakach	20	**Total**	**98**

Age of Interviewees

Average	43	The oldest	76	The youngest	21

When did you start the activities?

Average	1995	The earliest	1964	The latest	2005

Are there any ones who are copying your activities

Yes	76	No	20	N/A	2

If yes, how many?

Average	8.9	Maximum	200	Minimum	1

Basic Information of Interviewees

	Average	Maximum	Minimum
Number of Family Member	6.7	43	1
Size of Farmland (acre)	3.6	42	0.00

What are the contents of your enterprise?

Muhoroni		Miwani		Nyando		Lower Nyakach		Upper Nyakach		**Nyando District**	
Grocery	3	Grocery	9	Grocery	2	Blacksmith	3	Food processing	2	Grocery	17
Carpentry	2	Pharmacy	2	Bicycle repair	1	Clothes selling	2	Brick Making	2	Phosho Mill	5
Filling station	2	Tea Room	2	Bicycle taxi	1	Grocery	2	Bakery	2	Tea Room	5
Photo studio	2	Agro-Vet	1	Brick making	1	Hardware	2	Welding	1	Brick Making	4
Bakery	1	Battery Charging	1	Carpentry	1	Tea Room	2	Stockists	1	Carpentry	4
Battery Charging	1	Clothes selling	1	Food processing	1	Agro-Vet	1	Rope making	1	Filling station	4
Brick Making	1	Dry Maize Selling	1	Hairdresser	1	Butchery	1	Pottery	1	Bakery	3
Butchery	1	Filling station	1	Herbal medicine	1	Computer Services	1	Posho Mill	1	Blacksmith	3
Charcoal production	1	Hairdresser	1	Maize Grain Seller	1	Filling station	1	Milk Selling	1	Clothes selling	3
Claywork	1	Posho Mill	1	Middleman	1	Pharmacy	1	Mat making	1	Food processing	3
Computer Services	1	Retail Shop	1	Milk Selling	1	Posho Mill	1	Green grocery	1	Hardware	3
Cultivation	1	Shoes shop	1	Phosho Mill	1	Service Delivery	1	Carpentry	1	Pharmacy	3
Hardware	1			Rope making	1	Supermarket	1	Bicycle repair	1	Tailoring	3
Hides & Skin	1			Shoes repair	1	Tailoring	1	Beehive making	1	Transport Service	3
Motorcycle Repair	1			Tailoring	1	Transport service	1	Basketry	1	Others	42
Phosho Mill	1			Tea Room	1						
Photocopy	1			Telephone service	1						
Tailoring	1			Transport Service	1						
Transport service	1										
Welding	1										

Where have you got such skills/ knowledge from?

Muhoroni		Miwani		Nyando		Lower Nyakach		Upper Nyakach		**Nyando District**	
Friend	4	Parents	4	Friend	6	Other Entrepreneur	4	Parents	3	Friend	16
Former employer	2	Other entreprenuer	3	Developed interest	3	Friends	4	College	2	Other Entrepreneur	14
Parents	2	Brother	2	Neighbour	3	Parents	4	Other entrepreneur	2	Parents	13
Other entreprenuer	2	Friend	2	Other entreprenuer	3	Own initiative	3	Polytechnic	2	Own initiative	6
Jua kali community	2	Husband	2	Market	2	College	2	Ministry of Agriculture and Livestock	1	College	5
Father	1	School	2	Grandparents	2	Husband	1	Women group	1	Neighbour	5
Instituition	1	CCSP	1	Own initiative	2	Industrial practicals	1	LBDA	1	Developed interest	3
Maseno FTC	1	Christian Mission Aid	1			College	1	On job training	1	Former employer	3
Neighbours	1	Grandparents	1			Former employer	1	Relative	1	Grandparents	3
Own initiative	1	Ministry of Agriculture and Livestock	1					VI agro-forestry	1	Husband	3
Relative	1	Neighbour	1							Polytechnic	3
		Winam Petroleum Products	1							Others	23
		Polytechnic	1								

6.4 Summary of Questionnaire Survey for Small Scale Entrepreneur in Homa Bay District

Number of Interviewees in each Division

Rangwe	20	Ndhiwa	20	**Total**	**120**
Asego	20	Nyarongi	20		
Riana	20	Kobama	20		

Age of Interviewees

Average	40	The oldest	70	The youngest	19

Basic information of interviewees

	Average	Maximum	Minimum
Number of Family Member	8.0	26	1
Size of Farmland (acre)	4.5	36	0

When did you start the activities?

Average	1997	The earliest	1947	The latest	2005

Are there any ones who are copying your activities

Yes	105	No	13	N/A	2

If yes, how many?

Average	6.6	Maximum	40	Minimum	1

What are the contents of your enterprise?

Rangwe		Asego		Riana		Ndhiwa		Nyarongi		Kobama		**Homa Bay District**	
Food processing	3	Grocery	11	Food processing	8	Carpentry	4	Grocery	6	Grocery	11	Grocery	35
Blacksmith	2	Tearoom	3	Grocery	3	Food processing	3	Horticulture	3	Beauty salon	2	Food processing	14
Brick making	2	Cereal selling	1	Cereal selling	2	Cattle trader	2	Tearoom	3	Sale of paraffin	2	Tea room	10
Fishing	2	Clothes selling	1	Tailoring	2	Grocery	2	Clothes seller	2	Barber	1	Carpentry	5
Grocery	2	Electronic mechanic	1	Groundnuts selling	1	Tailoring	2	Shoemaker	2	Battery charging	1	Tailoring	5
Tearoom	2	Fish seller	1	Hardware shop	1	Welding	2	Cereal selling	1	Cloth seller	1	Welding	5
Carpentry	1	Pharmacy	1	Kale selling	1	Agro vets	1	Masonry	1	Computer services	1	Cereal selling	4
Farm input stockist	1	Tailoring	1	Tearoom	1	Milk selling	1	Posho mill	1	Farming	1	Blacksmith	3
Fish seller	1			Welding	1	Steel ware selling	1	Selling farm products	1	Tea room	1	Clothes seller	3
Jua Kali Artisan	1					Timber sales	1			Welding	1	Horticulture	3
Milk selling	1					Tree seedling production	1					Others	35
Pharmacy	1					Blacksmith	1						
Welding	1												

Where have you got such skills/ knowledge from?

Rangwe		Asego		Riana		Ndhiwa		Nyarongi		Kobama		**Homa Bay District**	
Other entreprenuers	5	Friends	5	Neighbours	7	Home	6	Other entrepreneur	5	Neighbour	8	Other entrepreneur	21
Friends	4	Other entrepreneur	3	Parents	4	Other entreprenuers	3	Ministry of Agriculture and Livestock	3	Friends	6	Neighbour	20
AEP	2	Parents	2	Own initiative	3	Polytechnic	2	CARE Kenya	2	Other entrepreneur	3	Friends	19
Institutes	2	Husband	2	AEP	1	Training course	2	Friends	2	Agricultural shows	1	Parents	9
Parents	2	Brother	1	Other entreprenuer	2	College	1	Neighbours	2	Chambers	1	Polytechnic	5
Brothers	1	Business Administration	1	CBO	1	Friend	1	Social Service Department	2	Colleges	1	Own initiative	5
College	1	Jua Kali	1	Family	1	Market	1	Training course	1	Minitstry of Agriculture and Livestock	1	Ministry of Agriculture and Livestock	4
Cooperative	1	Neighbours	1	Friends	1	Neighbour	1	Brother	1	Own initiative	1	AEP	3
Grandfather	1	Market	1	Polytechnic	1	Personal initiative	1	Parents	1			Brother	3
Jua Kali	1	Plan Kenya	1	Population Service International	1			Grandmother	1			College	3
Ministry of health	1	Polytechnic	1	sony sugar company	1			Lagro Tech	1			Training course	3
Neighbour	1	Uncle	1					Polytechnic	1			Others	28
								Women group	1				

ANNEX 1 Overviews of the Pilot Programmes

Pilot Programmes	Year	2006									2007		
	Month	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Rainfall 1,156mm (Homa Bay Town)	200mm / 0mm	Long rain						Short rain					
1.1 Orphanage-annexed Livelihood Improvement Programme	Arrangement with Selected Sites												
	Construction of Demonstration Farm												
1.2. VCT-annexed Livelihood (& Nutrition) Improvement Programme	Trainings												
	Monitoring												
	Final Evaluation											1day WS per site	
2.1 PHC Promotion Programme	Arrangement for Trainings												
	Procurement of Materials for Volunteers												
2.2 Essential Drug Management Programme	PHC Trainings												
	Essential Drug Management Trainings												
2.3 Community Based (Health) Information Sharing Programme	Community Information Sharing System Trainings												
	PLWHA Targeting HBC Trainings												
2.4 PLWHA Targeting Home Based Care Programme	Monitoring												
	Final Evaluation											1day WS per site	
3. Livelihood Improvement Oriented Forestry Programme	Delivery of Seeds / Seedlings												
	Growing Seedlings												
	Mid-term Evaluation												
	Trainings						1st Badge	2nd Badge	3rd Badge	4th Badge			
	Preparation of Root Stock (Mangoes)												
	Transplanting												
	Grafting												
	Final Evaluation												
4. Human Resource-led Cottage Industry Programme	Arrangement for Trainings												
	Conducting Trainings & Preparing AP			9 Training Courses for Total 43 people									
	Visiting the Villages												
	Mid-term Evaluation												
	Final Evaluation												
5. Local Key Farmer-led Paddy Cultivation Extension Programme	Classroom Type Training												
	Scheme Management Training												
	Construction of Demonstration Farm												
	Field Demonstration			Nursery / Transplanti	Fertilizing / Weeding			Harvesting / Compost making					
	Monitoring of Demonstration Farm												
	Mid-term Evaluation						1 day Ws						
	Final Evaluation							Yield Survey				Interviews	
6. Local Cotton Industry Promotion Programme	Arrangement with CBO												
	Procurement / Production of Equipment												
	Training for Cotton Processing												
	Cotton Production Activities												
	Mid-term Evaluation												
	Final Evaluation											Interviews	
7. Ecological Farming Improvement Programme	Arrangement for Trainings												
	Training at ICIPE			Push-pull Method									
8. Pro-poor Non-tillage Improvement Programme	Training at FTC			Non-tillage farming									
	Promotion of Farming Method by FEW												
	Follow Up for Farmers by FEW												
	Mid-term Evaluation						1 day WS with FEWs						
	Final Evaluation											Interviews to farmers	
9. Youth Polytechnics Strengthening Programme	Establishment of Production Units												
	Taking Orders from Communities												
	Procurement of Equipment												
	Activities of Production Units												
	Mid-term Evaluation					1 day WS per school							
	Final Evaluation											2 day WS with 3 schools	
Pilot Programmes		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
		2006									2007		

ANNEX 2 Outline of the Programmes

(1) (Nyando)

Development Approach	We get good income. / We are healthy.
Development Strategy	We can grow more horticulture. / We can get proper medical care.
Development Programme	Income Generation Activities (IGA) Promotion Programme / Nutrition And Health Improvement Programme
Pilot Programme	**Orphanage-annexed Livelihood Improvement Programme / VCT-annexed Livelihood (& Nutrition) Improvement Programme**
Targets	Jaber Orphanage and its concerned and neighbor communities in Muhoroni / Masago Health Center and communities around it in Miwani
Objective	Financial viability of the target orphanage is improved. / The Orphanage becomes a center of learning for community people. / Living Standard of PLWHA who come to VCT are improved.
Outputs	Community people learn new technique for income generating activities (IGA) from the orphanages. / PLWHA learn new technique for IGA from the VCT.

Activities	Inputs	In Charge	Year 2006								Year 2007		
			5	6	7	8	9	10	11	12	1	2	3
1. Arrangement with Selected Sites		Study Team / Target Institutions /Divisions											
2. Procurement of Materials	Materials for trainings	Study Team											
3. Construction of Demonstration Farm	Materials for the farm	Target Institutions /Divisions											
4. Construction of Chicken House	Materials for the house	Target Institutions /Divisions											
5. Construction of Goat Shed	Materials for the shed	Target Institutions /Divisions											
6. Trainings at Jaber Orphanage (Muhoroni)													
6.1 Kitchen Gardening	Logistics / Materials	Target Institutions /Divisions											
6.2 Poultry Keeping	Logistics / Materials	Target Institutions /Divisions											
6.3 Bee Keeping	Logistics / Materials	Target Institutions /Divisions											
6.4 Dairy Goat Rearing	Logistics / Materials	Target Institutions /Divisions											
6.5 Improved Stove	Logistics / Materials	Target Institutions /Divisions											
6.6 Value Adding (Juice, Jam, Baking etc.)	Logistics / Materials	Target Institutions /Divisions											
7. Trainings at Masago Health Center (Miwani)													
7.1 Kitchen Gardening	Logistics / Materials	Target Institutions /Divisions											
7.2 Poultry Keeping	Logistics / Materials	Target Institutions /Divisions											
7.3 Bee Keeping	Logistics / Materials	Target Institutions /Divisions											
7.4 Dairy Goat Rearing	Logistics / Materials	Target Institutions /Divisions											
7.5 Improved Stove	Logistics / Materials	Target Institutions /Divisions											
7.6 Value Adding (Juice, Jam, Baking etc.)	Logistics / Materials	Target Institutions /Divisions											
8. Monitoring	Logistics	Study Team											
9. Final Evaluation: WS with those in the target divisions		Study Team / Target Institutions /Divisions											

(2) (Homa Bay)

Development Approach	We get good income. / We are healthy.
Development Strategy	We can grow high value crops (Horticulture). / We take nutritious and balanced food.
Development Programme	Income Generation Activities (IGA) Promotion Programme / Nutrition and Health Improvement Programme
Pilot Programme	**Orphanage-annexed Livelihood Improvement Programme / VCT-annexed Livelihood (&Nutrition) Improvement Programme**
Targets	Rapedhi Lwala and Nguku Orphanages and their concerned and neighbor communities in Nyarongi / VCT managed by KINDA Women Group and communities around it in Riana
Objective	Financial viability of the target orphanage is improved. / The Orphanage becomes a center of learning for community people. / Living Standard of PLWHA who come to VCT are improved.
Outputs	Community people learn new technique for income generating activities (IGA) from the orphanages. / PLWHA learn new technique for IGA from the VCT.

Activities	Inputs	In Charge	Year 2006												Year 2007		
			5	6	7	8	9	10	11	12	1	2	3				
1. Arrangement with Selected Sites		Study Team / Target Institutions /Divisions															
2. Procurement of Materials	Materials for trainings	Study Team															
3. Construction of Demonstration Farm	Materials for the farm	Target Institutions /Divisions															
4. Construction of Chicken House	Materials for the house	Target Institutions /Divisions															
5. Construction of Goat Shed	Materials for the shed	Target Institutions /Divisions															
6. Trainings at Rapedhi Lwala Orphanage (Nyarongi)																	
6.1 Kitchen Gardening	Logistics / Materials	Target Institutions /Divisions															
6.2 Poultry Keeping	Logistics / Materials	Target Institutions /Divisions															
6.3 Bee Keeping	Logistics / Materials	Target Institutions /Divisions															
6.4 Dairy Goat Rearing	Logistics / Materials	Target Institutions /Divisions															
6.5 Improved Stove	Logistics / Materials	Target Institutions /Divisions															
6.6 Value Adding (Juice, Jam, Baking etc.)	Logistics / Materials	Target Institutions /Divisions															
7. Trainings at Nguku Orphanage (Nyarongi)																	
7.1 Kitchen Gardening	Logistics / Materials	Target Institutions /Divisions															
7.2 Poultry Keeping	Logistics / Materials	Target Institutions /Divisions															
7.3 Bee Keeping	Logistics / Materials	Target Institutions /Divisions															
7.4 Dairy Goat Rearing	Logistics / Materials	Target Institutions /Divisions															
7.5 Improved Stove	Logistics / Materials	Target Institutions /Divisions															
7.6 Value Adding (Juice, Jam, Baking etc.)	Logistics / Materials	Target Institutions /Divisions															
8. Trainings at KINDA VCT (Riana)																	
8.1 Kitchen Gardening	Logistics / Materials	Target Institutions /Divisions															
8.2 Poultry Keeping	Logistics / Materials	Target Institutions /Divisions															
8.3 Bee Keeping	Logistics / Materials	Target Institutions /Divisions															
8.4 Dairy Goat Rearing	Logistics / Materials	Target Institutions /Divisions															
8.5 Improved Stove	Logistics / Materials	Target Institutions /Divisions															
8.6 Value Adding (Juice, Jam, Baking etc.)	Logistics / Materials	Target Institutions /Divisions															
9. Monitoring	Logistics	Study Team															
10. Final Evaluation: WS with those in the target divisions		Study Team / Target Institutions /Divisions															

(3) (Nyando)

Development Approach	We control and manage cases of HIV/AIDS. / We are healthy.
Development Strategy	We have quality home based care facilities. / Promotion of Disease Prevention
Development Programme	Integrated Home Based Care Programme / Primary Health Care Promotion Programme
Pilot Programme	**PHC Promotion, Essential Drug Management, Health Information Sharing, PLWHA Targeting Home Based Care**
Targets	Community Volunteers in Muhoroni and Miwani Divisions
Objective	Local Diseases are managed by CHWs activities, Local people can access to a Community Chemist, HBC activities for PLWHA are extended, Health information in the community is shared and utilized by the community members
Outputs	CHWs are trained, Community Chemist is opened, HBC TOT are trained, Community information is collected by the CHWs.

Activities	Inputs	In Charge	Year 2006												Year 2007		
			5		6		7		8		9		10		11		12		1		2		3	
1. Arrangement for Trainings		Study Team / Divisions																						
2. Procurement of Materials	Stationary, Bicycle etc.	Study Team																						
3. Training for PHC																								
3.1 Muhoroni Division	Logistics	Study Team / Divisions																						
3.2 Miwani Division 1st Batch	Logistics	Study Team / Divisions																						
3.3 Miwani Division 2nd Batch	Logistics	Study Team / Divisions																						
4. Activities for Community Health Workers		Community Volunteers / Divisions																						
5. Training for Essential Drug Management																								
5.1 Muhoroni Division	Logistics	Study Team / Divisions																						
5.2 Procurement of Essential Drugs	Essential drugs	Study Team / Divisions																						
6. Training for Community Information Sharing System																								
6.1 Muhoroni Division	Logistics	Study Team / Divisions																						
6.2 Miwani Division	Logistics	Study Team / Divisions																						
7. Trainings for HBC																								
7.1 Muhoroni Division	Logistics	Study Team / Divisions																						
7.2 Miwani Division 1st Batch	Logistics	Study Team / Divisions																						
3.3 Miwani Division 2nd Batch	Logistics	Study Team / Divisions																						
8. Activities for HBC		Community Volunteers / Divisions																						
9. Monitoring	Logistics	Study Team																						
10. Final Evaluation: WS with those in target divisions	Logistics	Study Team / Community Volunteers / Divisions																						

(4) (Homa Bay)

Development Approach	We are healthy.
Development Strategy	HIV/AIDS is controlled. / We are conversant on diseases prevention and control.
Development Programme	HIV/AIDS Control Programme / Mother and Child Health Programme
Pilot Programme	**PHC Promotion, Essential Drug Management, Health Information Sharing, PLWHA Targeting Home Based Care**
Targets	Community Volunteers in Nyarongi and Riana Divisions
Objective	Local Diseases are managed by CHWs activities, Local people can access to a Community Chemist, HBC activities for PLWHA are extended, Health information in the community is shared and utilized by the community members
Outputs	CHWs are trained, Community Chemist is opened, HBC TOT are trained, Community information is collected by the CHWs.

Activities	Inputs	In Charge	Year 2006												Year 2007		
			5		6		7		8		9		10		11		12		1		2		3	
1. Arrangement for Trainings		Study Team / Divisions																						
2. Procurement of Materials	Stationary, Bicycle etc.	Study Team																						
3. Training for PHC																								
3.1 Muhoroni Division	Logistics	Study Team / Divisions																						
3.2 Miwani Division 1st Batch	Logistics	Study Team / Divisions																						
3.3 Miwani Division 2nd Batch	Logistics	Study Team / Divisions																						
4. Activities for Community Health Workers		Community Volunteers / Divisions																						
5. Training for Essential Drug Management																								
5.1 Muhoroni Division	Logistics	Study Team / Divisions																						
5.2 Procurement of Essential Drugs	Essential drugs	Study Team / Divisions																						
6. Training for Community Information Sharing System																								
6.1 Muhoroni Division	Logistics	Study Team / Divisions																						
6.2 Miwani Division	Logistics	Study Team / Divisions																						
7. Trainings for HBC																								
7.1 Muhoroni Division	Logistics	Study Team / Divisions																						
7.2 Miwani Division 1st Batch	Logistics	Study Team / Divisions																						
3.3 Miwani Division 2nd Batch	Logistics	Study Team / Divisions																						
8. Activities for HBC		Community Volunteers / Divisions																						
9. Monitoring	Logistics	Study Team																						
10. Final Evaluation: WS with those in target divisions	Logistics	Study Team / Community Volunteers / Divisions																						

(5) (Nyando)

Development Approach	Our environment is protected. We are healthy.
Development Strategy	We do afforestation and reafforestation. Promotion of Disease Prevention. We can get proper medical care.
Development Programme	Community Based Afforestation Programme, Primary Health Care Promotion Programme, and Nutrition And Health Improvement Programme
Pilot Programme	**Livelihood Improvement Oriented Forestry Programme**
Targets	5 Community Tree Nurseries, 3 Governmental Tree Nurseries and 2 CBOs and Villagers in Nyando District
Objective	Introduces new tree species, Neem as mosquito repellent and Moringa as nutritious food, to the villagers' forestation activities.
Outputs	Community Tree Nurseries grow seedlings of new tree species such as Neem, Moringa, etc. and people plant and utilize them.

Activities	Inputs	In Charge	Year 2006												Year 2007		
			5	6	7	8	9	10	11	12	1	2	3				
1. Arrangement for Trainings	Logistics	Study Team/ Officers															
2. Delivery of Seeds and Seedlings																	
2.1 Purchase of Seeds and Seedlings	Seeds, Seedlings	Study Team															
2.2 Delivery of Seeds and Seedlings to Tree Nurseries	Transportation	Study Team/ Officers															
3. Growing Tree Seedlings by Tree Nurseries		Tree Nurseries															
4. Mid-term Evaluation	Logistics	Study Team															
5. Training on general information of trees	Logistics/ Training fees	Study Team/ Officers															
6. Preparation for Grafted Mango																	
6.1 Training on how to graft Mango	Logistics/ Training fees	Study Team/ Officers															
6.2 Preparation for Mango Rootstocks	Tools	Villagers															
7. Transplanting of Seedlings																	
7.1 Training on how to transplant Seedlings	Logistics/ Training fees	Study Team/ Officers															
7.2 Transplanting of Seedlings		Villagers															
8. Grafting of Mango																	
8.1 Training on how to graft Mango	Logistics/ Training fees	Study Team/ Officers															
8.2 Grafting of Mango	Scions and Tools	Villagers															
9. Final Evaluation	Logistics	Study Team															

(6) (Homa Bay)

Development Approach	Our environment is protected. We are healthy.
Development Strategy	Afforestation. We take nutritious and balanced food. Endemic diseases are controlled.
Development Programme	Community Based Afforestation Programme, Nutrition and Health Improvement Programme, and Endemic Diseases Control Programme
Pilot Programme	**Livelihood Improvement Oriented Forestry Programme**
Targets	6 Community Tree Nurseries, 3 Governmental Tree Nurseries and 3 CBOs and Villagers in Homa Bay District.
Objective	Introduces new tree species, Neem as mosquito repellent and Moringa as nutritious food, to the villagers' forestation activities.
Outputs	Community Tree Nurseries grow seedlings of new tree species such as Neem, Moringa, etc. and people plant and utilize them.

Activities	Inputs	In Charge	Year 2006												Year 2007		
			5	6	7	8	9	10	11	12	1	2	3				
1. Arrangement for Trainings	Logistics	Study Team/ Officers															
2. Delivery of Seeds and Seedlings																	
2.1 Purchase of Seeds and Seedlings	Seeds, Seedlings	Study Team															
2.2 Delivery of Seeds and Seedlings to Tree Nurseries	Transportation	Study Team/ Officers															
3. Growing Tree Seedlings by Tree Nurseries		Tree Nurseries															
4. Mid-term Evaluation	Logistics	Study Team															
5. Training on general information of trees	Logistics/ Training fees	Study Team/ Officers															
6. Preparation for Grafted Mango																	
6.1 Training on how to graft Mango	Logistics/ Training fees	Study Team/ Officers															
6.2 Preparation for Mango Rootstocks	Tools	Villagers															
7. Transplanting of Seedlings																	
7.1 Training on how to transplant Seedlings	Logistics/ Training fees	Study Team/ Officers															
7.2 Transplanting of Seedlings		Villagers															
8. Grafting of Mango																	
8.1 Training on how to graft Mango	Logistics/ Training fees	Study Team/ Officers															
8.2 Grafting of Mango	Scions and Tools	Villagers															
9. Final Evaluation	Logistics	Study Team															

(7) (Nyando)

Development Approach	We get good income.
Development Strategy	We can find job opportunities.
Development Programme	Small Scale Entrepreneur Promotion Programme
Pilot Programme	**Human Resource-led Cottage Industry Programme**
Targets	4 women and men representatives from 5 communities in Nyando District
Objective	Potential leaders of communities start income generating activities with their community members after they attend training courses.
Outputs	Potential leaders of communities acquire new techniques for income generating activities through trainings.

Activities	Inputs	In Charge	Year 2006												Year 2007		
			5		6		7		8		9		10		11		12		1		2		3	
1. Confirmation of Training Courses to Attend		Study Team																						
2. Arrangement to Carry Out Trainings		Study Team																						
3. Trainings & Action Plan Making																								
3.1 Baking Technology by KIRDI	Course Fees & Logistics	Study Team																						
3.2 Fruit & Vegetable Processing by KIRDI																								
3.3 Milk Production & Processing by KIRDI																								
3.4 Grain Processing by KIRDI																								
3.5 Cassava Processing by KIRDI																								
3.6 Poultry by FTC																								
3.7 Animal Husbandry / Feed Processing by Farmer Group																								
3.8 Honey Processing / Beekeeping by Farmer Group																								
3.9 Fish Processing by LBDA																								
4. Initiating Income Generating Activities		Potential Community Leaders																						
5. Monitoring		Study Team																						
6. Final Evaluation (WS with Community Leaders)		Study Team / Potential Community Leaders																						

(8) (Homa Bay)

Development Approach	We get good income.
Development Strategy	We have business activities.
Development Programme	Local Entrepreneurs Development Programme
Pilot Programme	**Human Resource-led Cottage Industry Programme**
Targets	4 women and men representatives from 6 communities in Homa Bay District
Objective	Potential leaders of communities start income generating activities with their community members after they attend training courses.
Outputs	Potential leaders of communities acquire new techniques for income generating activities through trainings.

Activities	Inputs	In Charge	Year 2006												Year 2007		
			5		6		7		8		9		10		11		12		1		2		3	
1. Confirmation of Training Courses to Attend		Study Team																						
2. Arrangement to Carry Out Trainings		Study Team																						
3. Trainings & Action Plan Making																								
3.1 Baking Technology by KIRDI	Course Fees & Logistics	Study Team																						
3.2 Fruit & Vegetable Processing by KIRDI																								
3.3 Milk Production & Processing by KIRDI																								
3.4 Grain Processing by KIRDI																								
3.5 Cassava Processing by KIRDI																								
3.6 Poultry by FTC																								
3.7 Animal Husbandry / Feed Processing by Farmer Group																								
3.8 Honey Processing / Beekeeping by Farmer Group																								
3.9 Fish Processing by LBDA																								
4. Initiating Income Generating Activities		Potential Community Leaders																						
5. Monitoring		Study Team																						
6. Final Evaluation (WS with Community Leaders)		Study Team / Potential Community Leaders																						

(9) (Nyando)

Development Approach	We get good income.
Development Strategy	We can harvest more rice.
Development Programme	Smallholder Rice Irrigation Improvement Programme
Pilot Programme	**Local Key Farmer-led Paddy Cultivation Extension Programme**
Targets	2 Irrigation Schemes in Nyando District: Gem Rae (400 farmers, 250ha) and Awach Kano (280 farmers, 200ha)
Objective	Yield of rice increases by the improved technique / Farmer to farmer extension is activated to extend rice growing technique toward Kano Plain
Outputs	Farmers in the target schemes utilize the improved rice growing technique

Activities	Inputs	In Charge	Year 2006												Year 2007		
			5	6	7	8	9	10	11	12	1	2	3				
1. Arrangement for Trainings		Study Team / Programme Team (*)															
2. Two-week Classroom Type Training	Trainers, Logistics & Materials	Programme Team / Key-farmers															
3. One-week Scheme Management Training	Trainers, Logistics & Materials	Programme Team															
4. Construction of Demonstration Farm: 3 plots	Leveler, Ox-cart, billboards	Study Team / Programme Team															
5. Field Demonstration																	
5.1 Seed Selection	Trainers, Logistics & Materials	Programme Team / Key-farmers															
5.2 Nursery Construction																	
5.3 Sewing																	
5.4 Land Leveling																	
5.5 Transplanting																	
5.6 Weeding & Fertilizing																	
5.7 Uprooting Off-type																	
5.8 Harvesting																	
5.9 Compost-making																	
6. Monitoring of Demonstration Farm	Trainers & Logistics	Key-farmers															
7. Mid-term Evaluation	Logistics & Materials	Study Team / Programme Team / Key-farmers / Farmers who attend the two-week training															
8. Final Evaluation																	
8.1 Yield Survey	Logistics & Materials	Study Team / Programme Team															
8.2 WS with Trainers	Logistics & Materials	Study Team / Programme Team / Key-farmers															
8.3 Field Interviews (Baseline Survey)	Enumerators, Logistics & Materials	Study Team															

(*) Programme Team: District Irrigation Extension Officer, Soil Conservation Officer, Nyando Division and Soil Conservation Officer, Lower Nyakach Division

(10) (Nyando)

Development Approach	We get good income.
Development Strategy	We can do IGAs.
Development Programme	Cotton Revitalization Programme
Pilot Programme	**Local Cotton Industry Promotion Programme**
Targets	CBO: Cotton Rehabilitation and Management (CREAM) and a Women Group under Evene-Zar
Objective	Value addition for cotton products is realized within the locality.
Outputs	Target Groups equip with cotton processing tools and acquire skills for cotton processing.

Activities	Inputs	In Charge	Year 2006												Year 2007		
			5		6		7		8		9		10		11		12		1		2		3	
Arrangement with Target Groups		Study Team / Cotton Forum																						
Procurement of Tools for Ginning & Spinning	Spinning machine etc.	Study Team																						
Production of Handlooms at Youth Polytechnics	Materials for handlooms	Study Team / Cotton Forum																						
Training for Cotton Processing (Spinning & Weaving)	Training fees / Logistics	Study Team / Cotton Forum																						
Cotton Processing Activities		Target Groups / Cotton Forum																						
Monitoring	Logistics	Study Team / Cotton Forum																						
Final Evaluation (Field Interviews)	Enumerators / Logistics	Study Team / Cotton Forum																						

(11) Homa Bay

Development Approach	We have enough food.
Development Strategy	We are using proper crop and animal husbandry practices. / Our soil is fertile.
Development Programme	Crop Management and Development Programme / Land Management Programme
Pilot Programme	**Ecological Farming Promotion Programme / Pro-poor Non-tillage Improvement Programme**
Targets	Farmers in Homa Bay District (Asego and Kobama Divisions as focal areas)
Objective	Farmers in the Target area apply ecological farming methods and non-tillage farming method.
Outputs	Agriculture Officers and Field Extension Workers in the Divisions acquire ecological and non-tillage farming methods and disseminate them to farmers in their jurisdiction.

Activities	Inputs	In Charge	Year 2006												Year 2007		
			5	6	7	8	9	10	11	12	1	2	3				
1. Selection of Officer Trainees		District Agriculture Officer															
2. Arrangement for Training at ICIPE		Study Team															
3. Arrangement for Training at FTC		Study Team															
4. Training at ICIPE	Training fees / Logistics	Study Team															
5. Training at FTC	Training fees / Logistics	Study Team															
6. Selection of Target Farmers		Officers who attended the trainings															
7. Procurement and Provision of Desmodium Seeds	Desmodium Seeds	Study Team															
8. Dissemination of Farming Methods to Target Farmers	(by NALEP)	Officers who attended the trainings															
9. Monitoring		Officers / Study Team															
10. Mid-term Evaluation (1 day WS with the Officer Trainees)	Logistics	Officers / Study Team															
11. Final Evaluation (Field Interviews)	Logistics / Enumerators	Officers / Study Team															

(12) (Homa Bay)

Development Approach	We get good education.
Development Strategy	We can acquire appropriate skills.
Development Programme	Polytechnics and Vocational Support Programme
Pilot Programme	**Youth Polytechnics Strengthening Programme**
Targets	Homa Bay, Sero and Langi Youth Polytechnics
Objective	Financial viability of the Youth Polytechnics is improved.
Outputs	Production unit is established in Sero and Langi Youth Polytechnics and production unit of Homa Bay Youth Polytechnic is strengthened.

Activities	Inputs	In Charge	Year 2006												Year 2007		
			5	6	7	8	9	10	11	12	1	2	3				
1. Establishment of Production Units		Youth Polytechnics Management															
2. Taking orders of products from communities		Youth Polytechnics Management															
3. Procurement and Provision of Equipments	Equipments for MVM, Tailoring, Welding and Carpentry	Study Team															
4. Operation of Production Units		Youth Polytechnics Management															
5. Monitoring	Logistics	Study Team															
6. Mid-term Evaluation	Logistics	YP Management / Study Team															
7. Final Evaluation	Logistics	YP Management / Study Team															