Figure 2.1 % in Sample on Those Who Know Marigat Youth Polytechnic

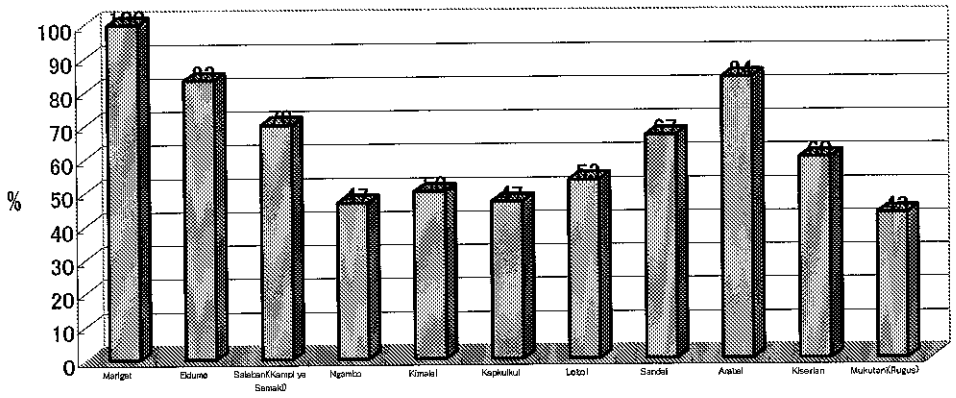


Figure % in Sample on Those Who Know Marigat Youth Polytechnic by Sex

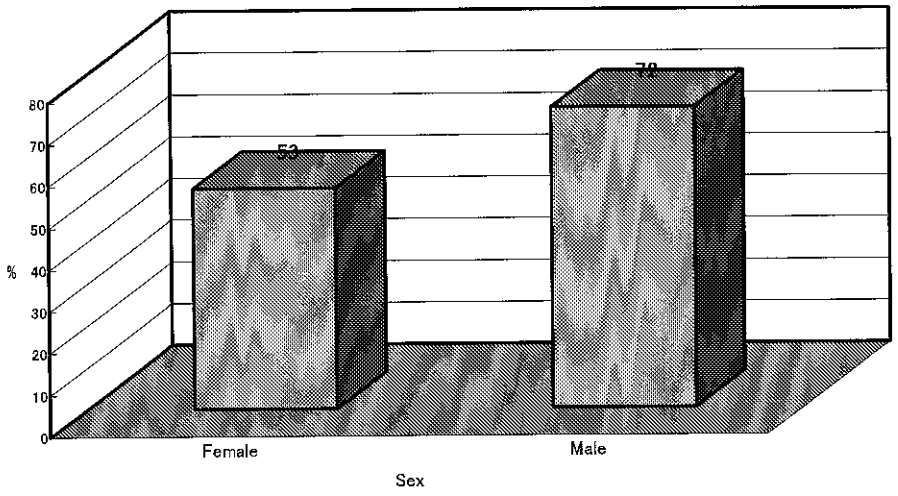
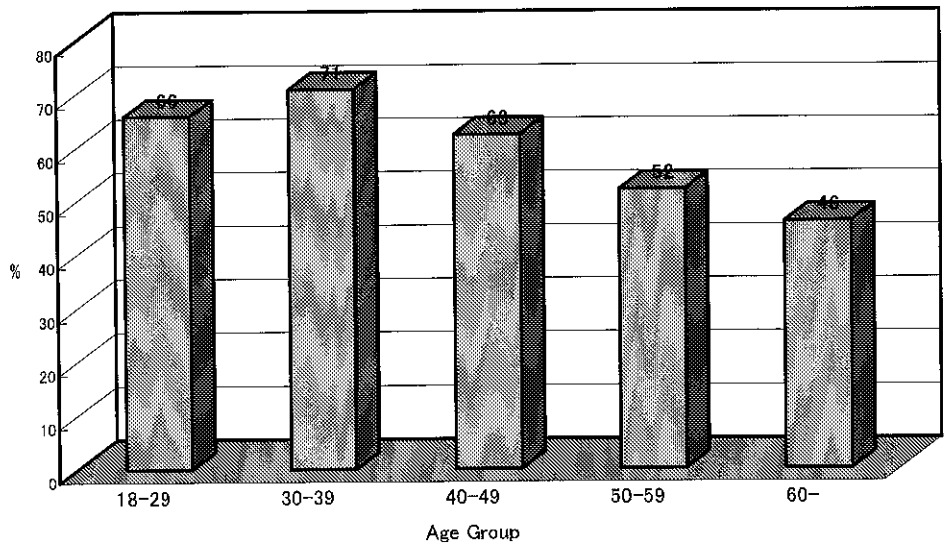


Figure 2.3 % in Sample on Those Who Know Marigat Youth Polytechnic by Age Group



The level of sales or incomes of each selected artisan varies as they have different careers. However, there is a tendency that their sales amount was decreasing in recent three years. Following table shows the number of sales of carpentry products by the three selected.

Year	No. of sales of Carpentry product (item/month) by three		
	Bed	Table	Stool
1997	34(11)	26(9)	66(22)
1998	28(9)	20(7)	48(16)
1999	23(8)	16(5)	40(13)

( )=average per capita

Year	No. of Sales of Tailor products by five tailors	
	School Uniform	Dress
1997	139(28)	105(21)
1998	110(22)	85(17)
1999	78(16)	55(11)

( )=average per capita

The market of the products is mainly within Marigat, but also they are selling middlemen who come from outside Marigat. They sell about 30 percent of their products to the middlemen.

Average Prices of their products are shown as follows. As for the steel products the prices vary in wide range.

Carpentry		Tailoring		Shoe making	
Bed	900 Ksh	School uniform	450 Ksh	Shoes	400Ksh
Table	700 Ksh	Dress	700 Ksh	Repair	25 Ksh
Stool	160 Ksh	Repair	20 Ksh		

Takings are varied by each artisan according to their career etc. For example the monthly gross income for three surveyed carpenters vary from 11,700 Ksh/month to 26,500 Ksh.month. The evaluation of whether their sales increase or not will be conducted by contacting same artisans.

3 Baseline Survey in the new area

Aiming at the expansion of the verification projects, the workshops were held in Kapkun (Kimalel location), Upper Mukutani (Mukutani location), Chemelongiyon (Arabal location). Accordingly the baseline surveys in these areas were also additionally carried out to grasp the general background of the people in the areas. Though there was no workshop held, improved jiko has been extended through the inter-location monitoring tour,

especially in Eldume location two women who participated in the inter-location monitoring tour imported at once the improved by themselves from Kampi ya Samaki. The baseline survey also focused this area.

The baseline survey has two categories as the survey carried out in existing verification project sites, namely survey for general background of the people (General Survey) and the survey for the specified project implementation (Specific Survey). The table below shows the survey categories.

Area	Location	General Survey	Specific Survey
Kapkun	Kimalel	30 households	Rain-fed Agriculture
Chemelongiyon	Arabal	Done in April	Rain-fed Agriculture
Upper Mukutani	Mukutani	33 households	Water Resource Development
Eldume	Eldume	30 households	Improved Jiko

The general survey in Arabal location has been carried out in April 2000, so the survey was conducted only for specified survey in this time in Arabal.

3.1 Kapkun (Kimalel Location) – General Survey

3.1.1 Sample of the Survey

General survey was carried out with 30 sample households, half of whom attended the PCM workshop. Self-introduction of 55 participants of the PCM workshop was referred to grasp the general background of the people in the area.

3.1.2 Background of the People in the Area

1) Family structure and education

Average household size of the 30 samples is 6.1 persons per family. The distribution of household size is as follows;

No. of family member	No. of sample	%
0-5	12	40
6-10	17	57
11-15	1	3
16-	0	0
Sample total	30	100

87 % (26 households) of the sample is single marriage. None of the wives in the sample did not go to secondary school and 13 wives (38%) of the sample did not go to school.

2) Assets

Followings are the assets of the 30 samples:

Assets	No. out of 30 samples	Average
Irrigated Land	Nil	-
Rain-fed Farm	29 (97%)	2.7 acres
Cattle	23 (77%)	4.3 heads
Goat/Sheep	29 (97%)	19.0 heads
Bee-hive	22 (73%)	19 hives
Kiosk	1 (3%)	

There is no irrigated farm but people are practicing rain-fed agriculture. The average numbers of cattle and goat/sheep are lower than the other areas. Bee-keeping is relatively active in this area.

3) Major income source

Major cash income source of the sample is cattle and goat/sheep sales and honey sales are also remarkable. Few households (6 samples) have considerable income from crop sales. The structure of the income sources on average is as follows. Average sold price of cattle and goat/sheep were 7,300 Ksh/head and 780 Ksh/head respectively.

Distribution of sample households by Income Level

Class (monthly income)	No. Households	%
~ 1,000 Ksh	12	40
1,000 ~ 3,000 Ksh	15	50
3,000 ~ 5,000 Ksh	1	3
5,000 ~	2	7

Income Structure on Average Basis

Source of Income	Estimate (Ksh/year)	%
Farming	2,258	11
Cattle sale	9,443	48
Goat/Sheep sale	4,472	23
Chicken	106	1
Honey	2,760	14
Fish sale	0	0
Others	613	3
Total	19,652	100
(monthly income)	1,638	

People have diversity of income sources. In the survey, 73 % of the sample have

more than 2 income sources and 27 % of the sample have three income sources. In this area, animal sales + honey is the major combination of income sources. In adding to that, those who have advantage with their farms can get some income by crop sales..

Distribution of sample households by No of Income sources

Income Source	No. of HH	%
One (1) income source Animal sales Another source	8 (7) (1)	27
Two (2) income sources Animal sales + Honey	13 (13)	43
Three (3) income sources	8	27
Four (4) income sources	1	3
N. A.		

4) Suffering from the drought in this year

During this drought in this year, people are losing a lot of animals. In the sample of 30 households, totally 292 cattle and 413 goats and sheep died during the drought in this year.

	Cattle	Goats/Sheep
Currently owned	98 (3.3)	552 (18.4)
Sold during last year	40 (1.3)	172 (5.7)
Died during drought	292 (9.7)	413 (13.8)
(%) of died	68 %	36 %

( ) = Average per Household

Also in the workshop the participants were asked to introduce the number of animals they have and the number of animals died of drought. The results are below and there is a slight difference from the results of he sample survey.

% of animals died of drought in the participants of workshop

	Cattle	Goats/Sheep
Currently owned	743	2,312
Died during drought	466	1,152
(%) of died	63%	50%

( ) = Average per Household

To survive this severe drought, people are taking actions that are mainly to rely on relief food from the NGO or government, go to casual labor, and sell animals.

3.2 Eldume – General Survey

3.2.1 Sample of Survey

General survey and specific survey was carried out with 30 sample households. Enumerators visited eight villages in the location and specific survey for improved jiko was at the same time done.

3.2.2 Background of the People in the Area

1) Family structure and education

Average household size is 6.8 persons per family. The distribution of household size is as follows;

No. of family member	No. of sample	%
0-5	11	37
6-10	18	60
11-15	1	3
16-	0	0
Sample total	30	100

Here in Eldume the case of polygamy is so often that six samples have two wives and three samples have three wives. Educational level of women here is considered relatively low, as 28 wives (67%) out of 42 did not go to school and only three (7%) of wives graduated primary school.

2) Assets

Followings are the assets of the 30 samples:

Assets	No. out of 30 samples	Average
Irrigated Land	24 (80%)	1.6 acre
Rain-fed Farm	6 (20%)	2.0 acre
Cattle	18 (60%)	6.8 heads
Goat/Sheep	25 (83%)	16.7 heads
Bee-hive	2 (7%)	3.5 hives
Kiosk	-	

Some people here have farm in Perkerra irrigation Scheme, which also provides people in this area for a casual labor. People practicing rain-fed agriculture is few in the area. The average numbers of goat/sheep are relatively low. Bee-keeping is inactive in the area.

3) Major income source

Major cash income source of the sample is goat and sheep sales. Those who have irrigated farm (6 samples) have remarkable income from crop production. Also probably due to the drought, those who sold cattle were few (7 samples). In this area honey production is not extended. Casual works in the Perkerra Irrigation Scheme also give the people here some income. The structure of the income sources on average is as follows. Samples who belong to lower income class (monthly income is less than 1,000Ksh) are relatively high. The average sold price of cattle and goat/sheep are 4,836 Ksh/head and 720 Ksh/head respectively.

Distribution of Sample Households by Income level

Class (monthly income)	No. Households	%
~ 1,000 Ksh	22	74
1,000 ~ 3,000 Ksh	7	23
3,000 ~ 5,000 Ksh	0	0
5,000 ~	1	3

Income Structure on Average Basis

Source of Income	Estimate (Ksh/year)	%
Farming	5,093	43
Cattle sale	2,418	20
Goat/Sheep sale	3,037	26
Chicken	15	0
Honey	53	1
Fish	8	0
Others(casual labor in Perkerra, trading etc.)	1,190	10
Total	11,814	100
(monthly income)	985	

In the sample, number of households who depend on only one income source is relatively high. However due to closeness to Perkerra Irrigation or Marigat town, people here seem to get more job opportunity (here categorized as others) than other verification project areas.

Distribution of Sample Households by No of Income sources

Income Source	No. of HH	%
One (1) income source	15	50
Animal sales	(13)	
Other source	(2)	
Two (2) income sources	8	27
Crop + Animal sales	(2)	
Crop + Others	(1)	
Animal sales + Others	(5)	
Three (3) income sources	3	10
Four (4) income sources	0	0
N. A.	4	13

3) Suffering from the drought in this year

The drought in this year is also affecting people but the number of the animals people lost is the fewest among the project areas. In the sample of 30 households, totally 41 cattle and 72 goats and sheep died during the drought in this year. The suffering from the drought in Sandai seems slighter than other areas. The by-product of crops and swamp preserved as grazing land here may have kept the animals alive.

% of animals died of drought in the 30 sample households

	Cattle	Goats/Sheep
Currently owned	122	417
Sold during last year	14	127
Died during drought	506	156
(%) of died	79%	22%

( ) = Average per Household

To survive this severe drought, people are taking actions such as relying on relief food from the NGO or government, and going for casual labor.

3.3 Mukutani – General Survey

3.3.1 Sample of Survey

General survey was carried out with 30 sample households, half of whom attended the PCM workshop and self-introduction of 104 participants of the PCM workshop was also referred.

3.3.2 Background of the People in the Area

1) Family structure and education

Average household size is 7.2 persons per family. Here the polygamy is also so often that those who have two wives and three wives are five households each. The distribution of household size is as follows;

No. of family member	No. of sample	%
0-5	7	21
6-10	23	70
11-15	2	6
16-	1	3
Sample total	33	100

36 wives (42%) out of 48 did not go to school and only four wives graduated primary school. Eldume and Mukutani are the residense of Ilchumus and Pokkot people also live in Mukutani. The tendency of low education for women is specially seen in Ilchums and pokott community.

2) Assets

Followings are the assets of the 30 samples:

Assets	No. out of 33 samples	Average
Irrigated Land	23 (70%)	1.9 acre
Rain-fed Farm	9 (27%)	2.2 acre
Cattle	29 (88%)	10.7 heads
Goat/Sheep	32 (97%)	36.0 heads
Bee-hive	17 (52%)	9.7 hives
Kiosk	-	

The average numbers of goat/sheep are higher in this area. Also some people have irrigated farms that take water from Mukutani river.

3) Major income source

The sample survey showed higher income status than the perception of the Study Team, which this area would be one of the economically poorest areas. It would be likely that the interviewee of the survey belong to better-off households. Major cash income source of the sample is cattle and goat/sheep sales which occupies 84 % of the total income on average. Those who have farms irrigated from Mkutani River get considerable income. The structure of the income sources on average is as follows. Average sold price of cattle and goat/sheep were 3,600 Ksh/head and 610 Ksh/head respectively. As these prices are low, the number of sold animals is significant for structuring income status of the sample households (4 heads of cattle and 12 heads of goat/sheep per household; more than other areas).

Distribution of Sample Households by Income Level

Class (monthly income)	No. Households	%
~ 1,000 Ksh	15	46
1,000 ~ 3,000 Ksh	10	30
3,000 ~ 5,000 Ksh	4	12
5,000 ~	4	12

Income Structure on Average Basis

Source of Income	Estimate (Ksh/year)	%
Farming	2,500	10
Cattle sale	12,948	53
Goat/Sheep sale	7,336	30
Chicken	88	1
Honey	920	4
Others	488	2
Total	24,280	100
(monthly income)	2,203	

Though this area is located much far from urban area, the survey shows much diversity of income sources.

Distribution of Sample Households by No of Income Sources

Income Source	No. of HH	%
One (1) income source Animal sales	12	36
Two (2) income sources Animal sales + Crop Animal sales + Honey Animal sales + Others	13 (2) (10) (1)	40
Three (3) income sources	4	12
Four (4) income sources	2	6
N.A.	2	6

4) Suffering from the drought in this year

During this drought in this year, people are losing a lot of animals. In the sample of 30 households, totally 934 cattle and 440 goats and sheep died during the drought in this year.

% of animals died of drought in the 31 sample households

	Cattle	Goats/Sheep
Currently owned	312	1,151
Sold during last year	119	395
Died during drought	934	440
(%) of died	68%	22%

( ) = Average per Household

Also in the workshop the participants were asked to introduce the number of animals they have and the number of animals died of drought. The number of the participants was 104.

% of animals died of drought in the participants of workshop

	Cattle	Goats/Sheep
Currently owned	2,493	5,001
Died during drought	1,780	2,498
(%) of died	71%	50%

( ) = Average per Household

To survive this severe drought, people are taking actions such as relying on relief food from the NGO or government and selling animals at throw away price.

3.4 Specific Survey – Kapkun (Barsibet) Rain-fed Agriculture

The main sources of income and food in the village are farming, bee keeping, livestock, casual labor, animal hide and skins, and rope and basket making. In farms, the five major crops - maize, millet, sorghum, beans and ground nuts - are commonly cultivated, but the harvest is very variable due to unpredictable rainfall and the crop failures that result in serious food shortage often occur. For the last thirty years, there have been severe droughts in 1973, 1984 and 1993 while floods occurred in 1994. Enough rainfall are expected only once in five years on the average. As a result, food security is one of the major concerns among the people since agricultural produce is unstable, which leads to increased dependency on relief food.

Based on the baseline survey done in October 26, average farmland size is smaller than Chemorongion, 1.25 acres per household, and 4 among the 12 interviewed owned no farmland. In the same way as the Chemorongion case, cropping patterns depend upon rainfall distribution – land is prepared before rainy season and crops are harvested after rainy season if it rains enough. Among the 16 interviewees, 5 farmers had no maize harvest during the period between 1995 and 1999. In the year 1999, all the 12 farmers out of the valid 12 respondents planted maize on the 13-acre rainfed field but only one farmer could have harvest, and 7 farmers had fields of finger millet but no one could get harvest. Although their agriculture is subsistence farming, people have to rely on other income generating activities such as livestock and bee keeping. Two thirds of the farms

interviewed sold goats/sheep and more than half of them had income through honey sales in the previous year.

Ordinary rainfall and cropping patterns in Barsibet

Month	1	2	3	4	5	6	7	8	9	10	11	12
Rainfall				++ ++	++ ++ ++ ++		++ ++ ++	++ ++		++		
Maize / Millet / Sorghum												
Plowing	<==>	<==>										<==>
Planting			<==>	<==>								
Weeding						<==>						
Harvesting								<==>	<==>			
Groundnuts												
Plowing	<==>	<==>										<==>
Planting			<==>	<==>								
Weeding						<==>						
Harvesting									<==>	<==>		
Beans												
Plowing	<==>	<==>	<==>									<==>
Planting				<==>								
Harvesting							<==>					
Honey												
Hanging Beehives	<==>	<==>	<==>	<==>	<==>	<==>	<==>	<==>	<==>	<==>	<==>	<==>
Harvesting								<==>				<==>

Source: JICA Study Team

The source of income and food

Month	1	2	3	4	5	6	7	8	9	10	11	12
Groundnuts		<==>										
Honey	<==>								<==>			<==>
Livestock	<==>											<==>
Food shortage					<==>	<==>	<==>					

Source: JICA Study Team

In the village, there is a newly formulated farmers group named AMKA TWENDE FARMERS GROUP ('wake up and go' in English). This group comprises 18 farmers including 6 officials and 11 committee members. The aims of the group are: (1) to improve farming practices, (2) to exchange ideas concerning various types of crops, (3) to help every member for farming, and (4) to stabilize members' livelihoods economically and socially. To attain these aims, the group has various activities such as water harvesting for crop production, soil conservation and terracing, mobilization of farmers and bee keeping. Every group member has to prepare, fence, terrace, clear up and harvest hi/hers own land, but some practices such as purchasing seeds and weeding are communal basis in the group. However they have three major problems: (1) selection of suitable crops in the field, (2) lack of hand tools, skills and funds, and (3) crop pests.

3.5 Specific Suvey – Chemolongiyon Rain-fed agriculture

The major activities for income and food sources in the village include farming, bee keeping, livestock, donkeys, casual labor and animal hide and skins. Maize, millet, sorghum and beans are the main crops there but the unreliable rainfall is the major problem for agriculture, which often causes the crop failures so that the farm production frequently fluctuates. For the last thirty years, there have been severe droughts in 1973, 1987 and 1993 while floods occurred in 1994. On the average, enough rainfall occurs only once in about five years. Therefore food security is a major issue since the community harvests very little food, and they are very dependent on relief food which is not always available.

As for agriculture, the farm size tends to vary with the wealth status of a household. Rich households tend to cultivate about 1.5 – 3 acres of farm land while middle and poor classes tend to cultivate 0.5 – 3 acres and 0 – 1.5 acres, respectively. The baseline survey conducted on November 1 indicated that 18 surveyed farmers own 45-acre rainfed fields in total – on average, 2.5 acres per household – and the largest farm was 7 acres while one farmer was landless.

Maize, finger millet, sorghum, beans, cowpeas, green grams are mainly cultivated but local seeds are normally used. Moreover, zero tillage or minimum tillage farming have been practiced so far – it may indicate that farmers have little experience of farming. Farming patterns reflect rain distribution during year. Land preparation normally starts January before long rainy season begins. If it rains adequately during March to May, beans are harvested from June and maize and finger millet are from August. According to the baseline survey, all the 18 interviewed farmers cultivated maize on some 30-acre rainfed farm during 1999 but only five farmers managed to get some harvest. The 6 farmers had either no or only once harvest of maize in the last five years. Finger millet is the second major crop, which was planted by 8 farmers among the interviewed in 1999, but, again, only half of them could harvest. As a farmer saying, experiences showed that planted crops dried up and failed to harvest if rain stops. Accordingly, farm produce was never sold from July 1998 to June 1999. To make ends meet, all farmers have other income sources such as livestock and bee keeping. The 17 farmers sold goats/sheep and the 10 did cattle, while 13 farmers had income from honey.

Ordinary rainfall and cropping patterns in Chemorongion

Month	1	2	3	4	5	6	7	8	9	10	11	12
Rainfall			+ ++ ++	+ ++ ++ ++ ++ ++	++ ++ ++ ++		++ ++	++ ++ ++ ++ ++ ++ ++ ++	+ ++ ++ ++	++ ++	++	+ ++
Maize												
Plowing	<==>	<==>										
Planting			<==>									
Weeding				<==>	<==>							
Harvesting								<==>				
Beans												
Plowing	<==>	<==>										
Planting			<==>									
Weeding				<==>	<==>							
Harvesting						<==>						
Millet												
Plowing	<==>	<==>										
Planting			<==>									
Weeding				<==>	<==>							
Harvesting								<==>				
Honey												
Hanging												
Beehives	<==>	<==>	<==>	<==>	<==>	<==>	<==>	<==>	<==>	<==>	<==>	<==>
Harvesting								<==>				

Source: JICA Study Team

The source of income and food

Month	1	2	3	4	5	6	7	8	9	10	11	12
Maize								<==>	<==>	<==>	<==>	<==>
Beans						<==>	<==>					
Millet	<==>	<==>	<==>									
Honey								<==>	<==>	<==>	<==>	<==>
Livestock	<==>	<==>			<==>		<==>					
Donkey	<==>	<==>										
Food shortage				<==>	<==>	<==>	<==>					

Source: JICA Study Team

Chemorongion Water Harvesting Group was established on October 15th with 20 members.

3.6 Specific Survey – Eldume Improved Jiko

Introduction of Enzaro jiko in the Study Area has started from Kampi ya Samaki. Through the inter-location monitoring tour reputation of Enzaro jiko has been spread throughout the Study Area and some of the villagers in Kimalel, Sandai and Eldume have already imported it in their areas. The way of importing Enzaro jiko in Eldume was unique. While divisional home economics officer from the beginning assisted people in the other areas, Eldume women replicated the jiko themselves. On 1st of July the Study Team took people from Eldume for the inter-location monitoring tour. When the women participants saw Enzaro jiko in Kampi ya Samaki, they immediately started replicating it for

they were not able to read and write, they had to take action before forgetting the structure of the jiko. In fact when the Study Team knew about this movement after two months past from 1st of July, there had already been 7 jikos installed in Eldume. This process of importing Enzaro jiko created flexibility for the design of jiko. Women in Eldume added their conveniences and taste in the jiko, namely compact pentagonal shape with attached cupboard. As it seems very positive for this area further extension of the improved jiko, a baseline survey specified for improved jiko was carried out with 30 households (valid answers were obtained from 29 households).

The basic data to evaluate the effectiveness of improved jiko are as follows;

1) Firewood consumption:	(average)	0.6 bundle/day
	(Mode)	0.25 bundle/day
	(average per capita)	0.1 bundle/day
2) Frequency of fetching firewood:	(average)	15 days/month (Wet season) 17 days/month (Dry season)
3) Time to fetch firewood:	(average)	2.2 hours/day (Wet season) 1.1 hours/day (Dry season)
4) Distance to fetch firewood:	(average)	2.6 km (Wet season) 1.4 km (Dry season)
5) Those who normally boil water:		21 households (72%)
6) Time for cooking with 3 stone stove:(mode)		3 hours/day
7) Those who knows about Enzaro jiko		20 households (67%, as of October)

Those who have already known about Enzaro jiko expect the effects like saving firewood, less time in cooking, cooking many food at one time, hygienic and safe for children.

3.7 Specific Survey – Mukutani Water Resource Development

In Upper Mukutani, a baseline survey was conducted in accordance with holding PCM workshop for additional verification project. Through the workshop, alternatively project for water resource development was considered to implement. Accordingly specific survey on water resource was conducted to 33 households. Most of the interviewee reported the problems with water as shortage, long distance to the source, amoeba found in the water, and water is not clean. Their main water source is Mukutani River, which they also use for their irrigation. As many interviewee claim, the river water comes to short in a time of year, though it is a perennial river. Their second or third water

sources are a spring and borehole located in the area. But these water sources are seems to be available for only two months a year, according to the specific survey. Below is the summary of the specific survey.

1) Major water source:	1. Mukutani River, 2. borehole, 3. spring
2) Distance to the mostly used water source:	1.6 km (average) 8 km (furthest household)
3) Frequency of fetching water:	1 time/day : 6 households (19%) 2 times/day : 21households (66%) 3 times/day : 5 households (15%)
4) Way of fetching water:	Fetch water directly
5) Treatment of water:	Only three households boil water.
6) Quality of the water:	most of samples answered their water source is not clean or not very clean.

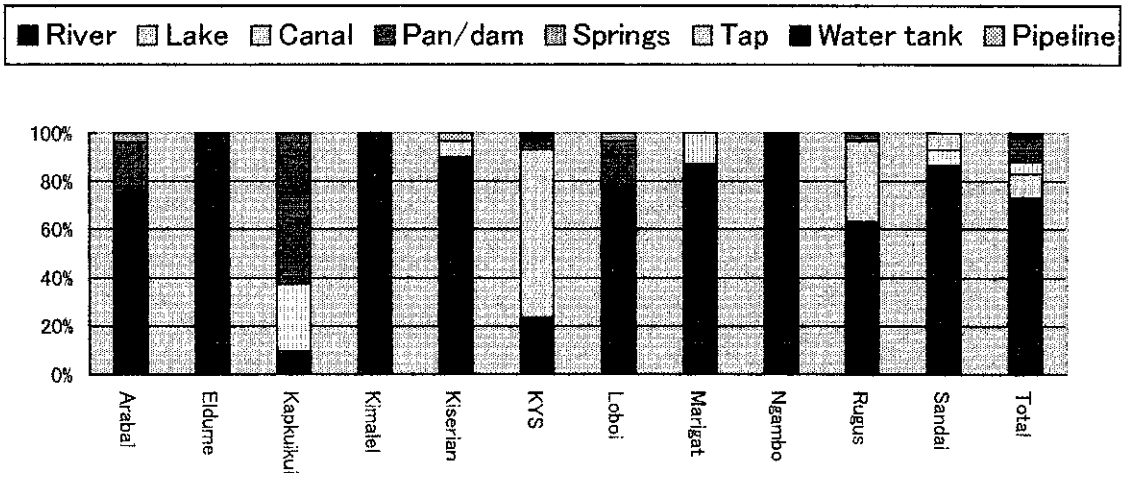
4 Baseline Survey for Health and Sanitation

Question 1-5-1: Where is the water source for domestic use?

There are some 180 Community Water Collection Points[1] within the BIRDS field. People obtain water from those water collection points everyday according to their priority and availability.

Table 1: Water source for domestic use; 1st priority, in wet season

Location	Canal	Lake	Pan/dam	Pipeline	River	Spring	Tap	Water tank	Total
Arabal			6		22	1			29
Eldume					30				30
Kapkuikui	9		20		3				32
Kimalel					30				30
Kiserian		2		1	27				30
KYS		21	1		7			1	30
Loboi			6		23	1			30
Marigat	4				27				31
Ngambo					30				30
Rugus		10	1		19				30
Sandai	2				26		2		30
Total	**15**	**33**	**34**	**1**	**244**	**2**	**2**	**1**	**332**



[1] The numbers are "community water collection points" and not necessarily mean water type sources. See "Water Source Survey for Domestic Water Supply" for more detail.

Figure 1: Water source for domestic use; 1st priority, in wet season

As for the first priority during wet season, which normally be understood between Aprils to November, the most common source of water is '**River**' followed by '**Lake**', '**Pan/Dam**' and '**Canal**' as a whole. By locations, high utilization of 'Pan/Dam' or 'Lake' distinguished **Kapkuikui**, **KYS**[2] and **Rugus** respectively from the rest.

Table 2: Water source for domestic use; 1st priority, in dry season

Location	Borehole	Canal	Lake	Pan/dam	River	Spring holes	Springs	Tap	Wells	Total
Arabal				1	29					**30**
Eldume					3				27	**30**
Kapkuikui		27		1	4					**32**
Kimalel					12				18	**30**
Kiserian			30							**30**
KYS	1		29							**30**
Loboi				1	15		14			**30**
Marigat					31					**31**
Ngambo	25								5	**30**
Rugus			19		11					**30**
Sandai					21	4		5		**30**
Total	**26**	**27**	**78**	**3**	**126**	**4**	**14**	**5**	**50**	**333**

[2] Kampi ya Samaki

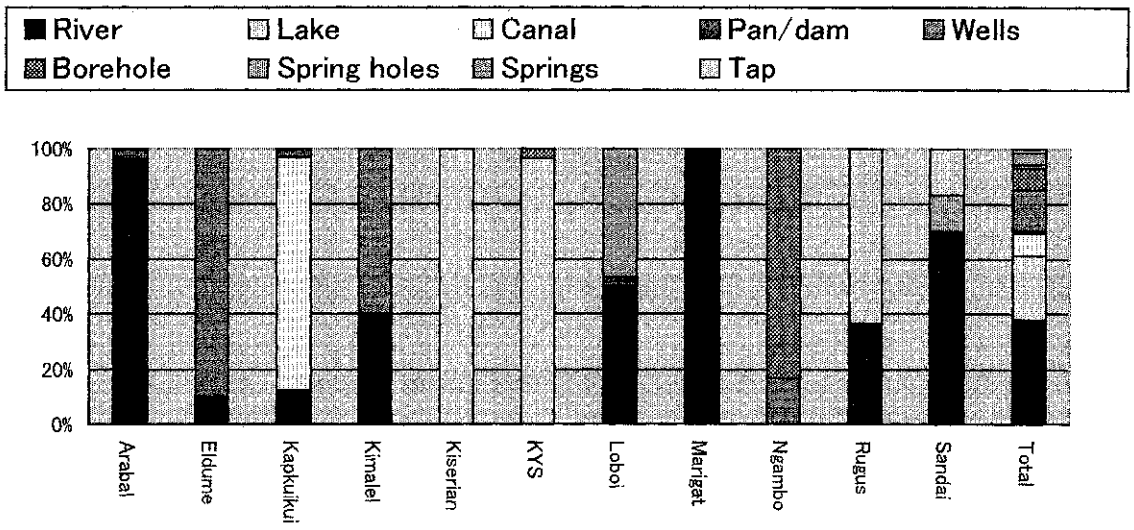


Figure 2: Water source for domestic use; 1st priority, in dry season

During the dry season[3] when rivers or other water sources have got dried up except a few cases in the area, people have been forced to choose other available sources. Naturally, its effect on the people's choice for the water sources differs significantly by location.

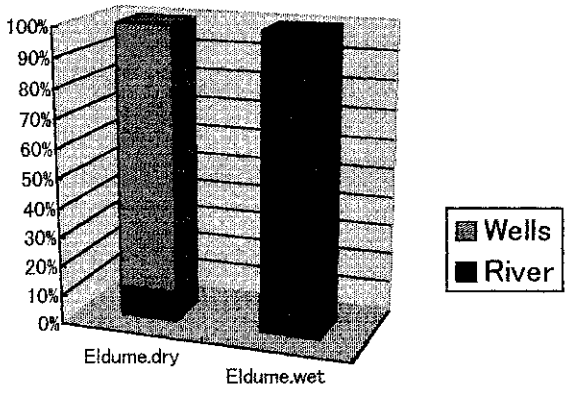


Figure 3: Choice of water source (wet season – dry season); Eldume

[3] Normally it is understood from December to March.

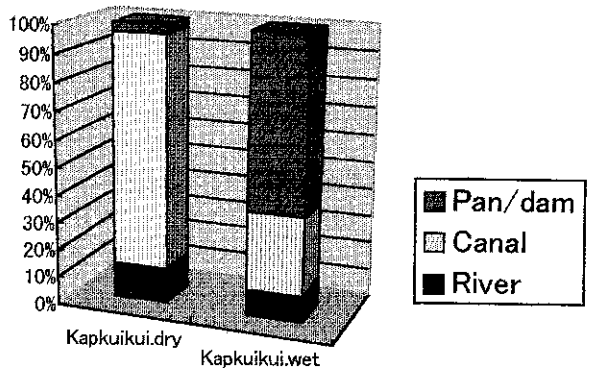


Figure 4: Choice of water source (wet season – dry season); Kapkuikui

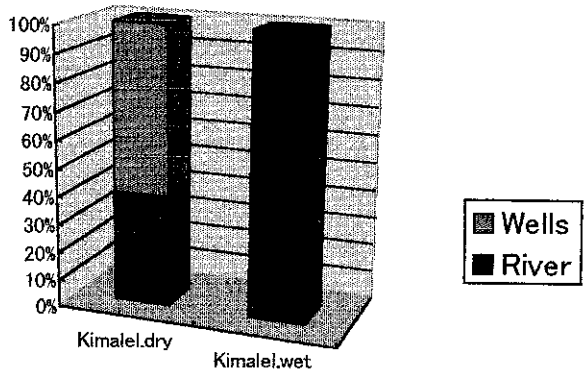


Figure 5: Choice of water source (wet season – dry season); Kimalel

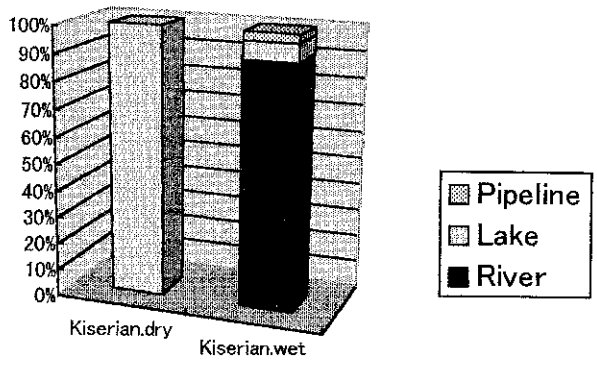


Figure 6: Choice of water source (wet season – dry season); Kiserian

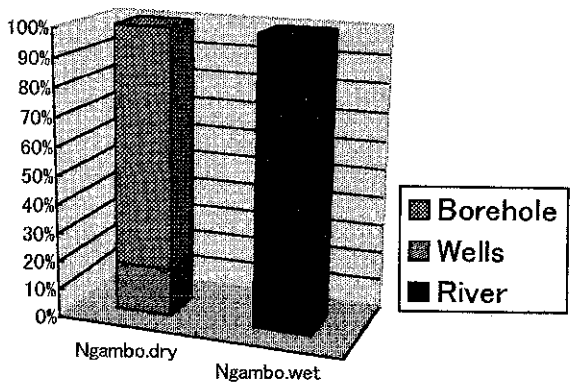


Figure 7: Choice of water source (wet season – dry season); Ngambo

As a whole, when dry season comes, roll of rivers and pan/dam decreased while the lake and others increased for compensation.

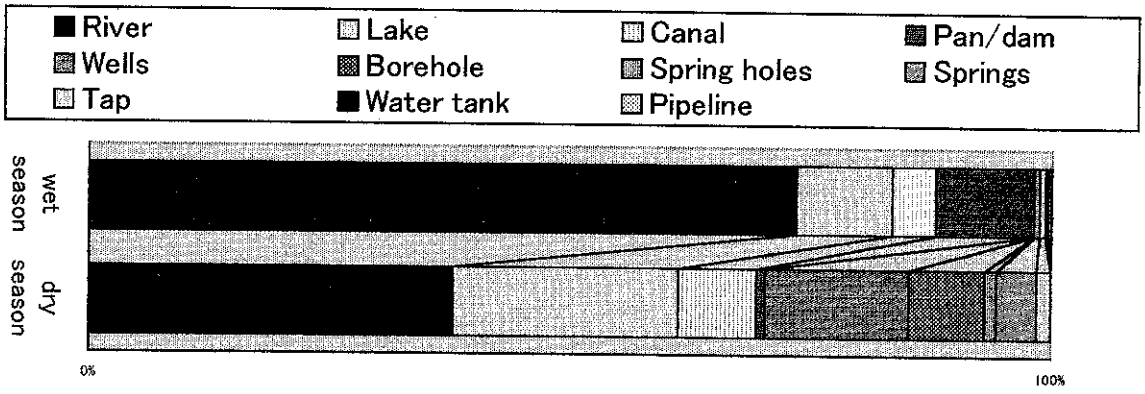


Figure 8: Choice of water source (wet season – dry season); Summary

The choice of water sources has been affected by the people's perception of 'quality' and 'safety' of water as well. For example, Il Chamus never drinks stagnant water left in the drying up riverbed or first rushing flow of returning river.

Question 1-5-2: Is the water source shared with animals?

The number of answers "shared" is as high as 324 out of 331 valid responses. It is somehow indicating their lifestyle, living closely to animals. Partly because of that, coliform bacilli have been found from the all water collecting points with few exceptions.

Question 1-5-3: How do you fetch water from the source?

As an indication of people's desire to have clean and clear water, they dig a small hole on

the ground next to the water flow or a pan to get filtered water. This method may work to remove silt from the water but still it is far from the germ free, safety assured.

Table 3: Water fetching methods by sources (1st priority, wet season)

	Direct	Small hole[4]	Other	Total
Canal	13	1		**14**
Lake	33			**33**
Pan/dam	32	2		**34**
Pipeline	1			**1**
River	188	35	21	**244**
Spring	2			**2**
Tap	2			**2**
Water tank	1			**1**
Total	**272**	**38**	**21**	**331**

Picture 1: Fetching water by excavated small hole

Question 1-5-4: How do you drink water?

The knowledge on boiling water seemed widely spread to the people particularly among school ages. However, in practice, it seems not so. One thirds of the total interviewees responded that they boil water for drinking. It seems pretty close to our observations. Another commonly observed water treatment method is to apply some aluminum sulfide into it. This has a significant effect on muddy water to clear but not much against germs.

[4] Excavate small hole near the source to silt water.

Table 4: Water treatment before drinking by water source (1st priority, wet season)

	Boiled	Direct	Other	Total
Canal	3	12		**15**
Lake	17	15	1	**33**
Pan/dam	15	19		**34**
Pipeline	1			**1**
River	49	192	1	**242**
Spring		2		**2**
Tap		2		**2**
Water tank	1			**1**
Total	**86**	**242**	**2**	**330**

Question 1-5-5: Do you have a latrine in your house?

Major merits of latrine are hygiene and privacy. Therefore it is understandable that urban and populated area equipped more latrines than rural and less populated ones. It should be noted that in KYS, people experienced severe Cholera outbreak in June '99. It seemed have significant impact to the people and push them to dig a pit latrine.

Table 5: Latrine by location

	Have	Haven't	Total
Arabal	2	23	**25**
Eldume	6	23	**29**
Kapkuikui	2	28	**30**
Kimalel	3	25	**28**
Kiserian	6	22	**28**
KYS	16	11	**27**
Loboi	2	25	**27**
Marigat	11	18	**29**
Ngambo	4	26	**30**
Rugus	3	22	**25**
Sandai	6	21	**27**
Total	**61**	**244**	**305**

Question 1-5-6: What disease was your family contracted in recent 3 years?

Answers for this question are not necessarily correct medical terms since we have collected the words based on the people's perceptions. It rather indicates "popularity" of the diseases, among the communities. There should be also a tendency to remember more events of diseases in recent past than three years ago. However, there was a huge and wider outbreak of Cholera in 1998, and it explained the reverse trend of 'Cholera' and 'Waterborne Diseases'.

Table 6: Common 'diseases[5]'; 1997 - 1999

	99	98	97	total
Malaria	204	101	53	**358**
Cough	128	52	26	**206**
Typhoid	44	24	18	**86**
Cholera	11	36	15	**62**
Waterborne D.	2	42	13	**57**
TB	6	37	11	**54**
Diarhoea	6	5	12	**23**
Pneumonia	3	6	3	**12**
Yellow fever	1	5	2	**8**
Chest problem	2	1	2	**5**
Eye problem	0	3	2	**5**
Anaemia	1	1	2	**4**
Kalazaa	0	1	3	**4**
Amoeba	0	3	0	**3**
Spleen problem	0	2	1	**3**
Vomiting	2	0	0	**2**
Hurt	1	1	0	**2**
Dysentery	1	0	1	**2**
Nose problem	0	2	0	**2**
Fever	1	0	0	**1**
Brucella	0	0	1	**1**

Question 1-5-7: In what situation do you use nearby dispensary? And how often do you

[5] People's perception, not necessarily reflecting medically confirmed disease name.

use it? And, Question 1-5-8: In what situation do you use Marigat Health Centre? And how often do you use it?

Table 7: Given health services from Dispensaries/MHC

	Dispensary	Marigat Health Centre
Treatment	220	152
Immunization	40	58
Medication	41	25
Clinic	25	12
Check up	16	45
First aid	3	0
Referral	0	51
Blood test	0	57
Drugs	0	17
Maternity	0	3
Stool test	0	2
Temperature	0	1
Never been	–	5
No Dispensary nearby	50	–

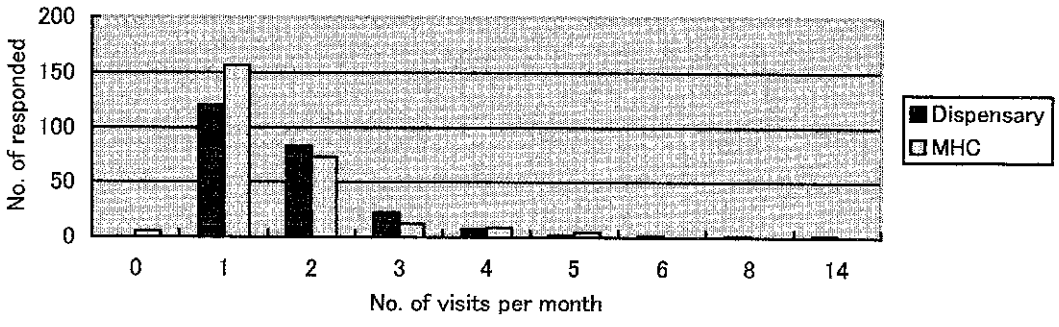


Figure 9: Distribution of No. of visits per month

5 Baseline Survey on People's Awareness

5.1 Questionnaires

A baseline survey to grasp the sense or awareness of beneficiaries was conducted in October and November 2000. The survey results are to be utilized to evaluate how the verification projects have impacts upon the sense or awareness of the beneficiaries in the end of the implementation period. Followings are the applied questionnaires.

Q-1 Looking back last year, how is your life now? Better? Why do you think so?

Q-2 What about comparing to 5 years ago (1995, year of rinderpest disease, Yellow fever occurrence)? Is life better? Why do you think so?

Q-3 What about comparing to 10 years ago (1990, Year of drought)? Is life better? Why do you think so?

Q-4 What is important in your life and why is it important? Give 5 items and prioritize if possible

Q-5 What is your future vision? What is your future plan? What is your dream? And how will you attain your plan/dream?

Q-6 What do you think the meaning of poor is?

Q-7 What do you think the meaning of rich is?

Q-8 What do you think the meaning of development is?

5.2 Interviewees

About 20 people/beneficiaries in each verification project site were interviewed with the questionnaires. But for Rugus, the survey was interfered with the clash between Il chamus and Pokots. The Il chamus in Rugus have been taking refuge from the incidence. It was therefore impossible to conduct the survey in Rugus. Followings are the characteristics of the interviewees.

1) Kampi ya Samaki/Salabani

20 samples (7 from Kampi ya Samaki, 3 from Kampi Turukana, 10 from Salabani sub-location)

Average age: 32

Sex: Male 2, Female 18

2) Sandai

20 samples (Male 9, Female 11)

Average Age 27

3) Arabal

19 samples (8 from Partalo, 11 from Other villages)

Average age: 32

Sex: Male 13, Female 7

4) Marigat Youth Polytechnic

20 samples (12 from Kampi Turukana, 3 from YP teachers, 5 from YP students)

Average age: 33

Sex: Male 11, Female 9 (all from Kampi Turukana)

5) Marigat Health Center

6 samples (all staff)

Average age: 33

Sex: Male 3, Female 3

5.3 Survey Results

5.3.1 Question Q1 to Q3

Questions 1 to 3 are about current status of people's life compared to last year (1999), five years ago (1995) and 10 years ago (1990). As compared to older times, ratings of the interviewees to their current life are more diversified from much worse to much better. Generally men are rather more optimistic than women showing better rating in their current life than that of women. Improvement of health facilities are the major reason for those who say this year is better than five or ten years ago. (Refer to Figure 5.1 to 5.3)

Compared to last year, about 70 % of women and 50 % of men answered this year is worse or much worse. Though about 35 % of men and 10 % of women say the current life is better than last year, the reason given by most of them are due to support with relief food and JICA verification project. Though this survey was aimed as baseline survey, it seems that the answer by the interviewees has already been oriented by the verification projects.

Further interesting issue is on relief food. Apart from the influence of JICA verification projects, most of those who say this year is better gave the reason as the benefit of relief food. On the other hand, some interviewees who say this year is worse give the reason because they depend on more relief food this year. Here the issue raises as **more support/relief food, better or worse?** It could be argued here that how the sense of people on independent will be. Followings are the summary of the survey in each verification project site.

1) Kampi ya Samaki/Salabani

Q How is your life now?

a) Compared to last year (1999)

Rate	Much better	Better	Same	Worse	Much worse
No.	0	2	6 (5 Kampi ya Samaki)	3	9

Major reason

Better:

- Assisted by World Vision and WFP

Worse:

- Shortage of food due to drought
- Relying only on relief food
- Collapse of business

Much worse:

- More animals died due to severe drought, hence lack of money to buy food
- Shortage of clean water
- More disease
- People are surviving without food even for three days

b) Compared to 5 years ago (1995)

Rate	Much better	Better	Same	Worse	Much worse
No.	0	2	4	11	3

Major reason

Better:

- There is support during the time of disease in this year.
- GOK has built a dispensary in Kampi Ya Samaki. JICA brought various facilities for health e.g. Laboratory for checking T.B.
- Improvement of health in the community e.g. getting clean water, having good latrine in some villages.

Worse:

- No shortage of food in 1995, no dead of livestock
- Nowadays many diseases like Malarias, Typhoid and HIV/AIDS.
- Lack of support

Much worse:

- More diseases and animals death. Whole community suffers from same problems
- Rising up of incurable diseases, lack of land for cultivation, lack of proper management to improve peoples living standards, worse climatic conditions, too much soil erosion

c) Compared to 10 years ago (1990)

Rate	Much better	Better	Same	Worse	Much worse
No.	0	5	5	4	6

Major reason

Better:

- Improving living standard by women group. NGO started mobilizing various communities. GOK/NGO started development from bottom to up. Many children have joined school. Men have known the term equality
- Shortage of food was worse than this year
- There is small work to do now

Worse:

- Though there was also drought, there was no outbreak of disease
- Drought was less severe than this year

Much worse:

- There was enough food, no death of animals. no outbreak of disease in 1990
- Climatic conditions has worsened, lack of rain, no green leaves in the area compared to 1990.

2) Sandai

a) Compared to last year (1999)

Rate	Much better	Better	Same	Worse	Much worse
No.	0	2	0	6	11

Major reason

Better:

- In spite of the long drought, frequent supply of relief food from the government, good supply of water in irrigation

Worse:

- There was drought which lead to animal dead and people depending on relief food

Much worse:

- People depend on others and relief food
- Due to poor rainfall which lead to crop failure last/this year
- Longer drought than last year, outbreak of diseases, shortage of water, dieing

of livestock

b) Compared to 5 years ago (1995)

Rate	Much better	Better	Same	Worse	Much worse
No.	0	7	0	11	2

Major reason

Better:

- Worse in 1995 because many people died out of yellow fever
- People trained in medical affairs, Canal has been improved, improved and available planting seeds
- Enough supply of relief food from the government, clean water from Arabal lead to reduced diseases, much water from the irrigation due to much efforts by the JICA study Team
- There are enough drugs for animal and human diseases near chemist, most people have been educated on prescribed drugs for animals and human beings

Worse:

- No enough food in the village compared to five years ago, No enough irrigation water as before
- Life was better in the last five years because there was no drought although there was outbreak of disease
- Expense in buying human drugs, new disease in livestock

Much worse:

- Because of drought people only depend on relief food
- All livestock died, much diseases than before

c) Compared to 10 years ago (1990)

Rate	Much better	Better	Same	Worse	Much worse
No.	2	5	3	7	3

Major reason

Much Better:

- Waste lands have been irrigated
- There was severe drought in 1990

Better:

- No supply of relief food during 1990's as compared to this time
- There was livestock improvement in mid this year, good supply of relief food, new agriculture technology from JICA Study Team

- Formation of groups have been done, GOK staff now closer to the community
- People have improved their living standards
- Villages united in doing their work

Worse:

- Life not better now because of consecutive drought
- In 1990 there was enough water, less diseases
- Better in 1990 because there was no animal dead

Much worse:

- All livestock died due to lack of pasture, many diseases unlike before, no water both for irrigation and human beings

3) Arabal

a) Compared to last year (1999)

Rate	Much better	Better	Same	Worse	Much worse
No.	0	4	2	7	6

Major reason

Better:

- Relief food is available (Statement includes Partalo rain-water harvesting group chairman)
- He harvested two times, less erosion and getting more food, if no water harvesting, he could not have any harvest. He hopes that he will be far better next year. (Statement of Partalo rain-water harvesting group secretary)
- There is enough rain during few months as from May to Aug and there is much improvements on health of their livestock so the price is not as it was and projects having started like dip, dispensary,

Worse:

- Shortage of food, dying of many animals, shortage of water
- Malaria attack to the people in this area
- They depend only on relief food

Much worse:

- There has been drought which means no harvest, animals died and there were a lot of diseases affecting people and animals
- No food even though we are getting relief food. this food is not permanent
- Bad prices of selling animals

b) Compared to 5 years ago (1995)

Rate	Much better	Better	Same	Worse	Much worse
No.	0	6	1	5	7

Major reason

Better:

- At that time there were a lot of diseases and they did not know how to treat, but vaccination is now easy to get.
- Formation of dip committee have put more efforts than before due to JICA support
- There was shortage of medicine and lack of support five years ago compared to now
- The year 1995 was worse because there was dead of people due to the fact that there was no hospital in the Location

Worse:

- Five years ago was better because there was rain and no shortage of food and no much death of animals

Much worse:

- There was drought in the other year and a lot of diseases affecting people but last and this year are much worse
- This drought is much worse than other years that I have experienced because of too much hunger and diseases
- Last and this year the price of necessities is very high and the selling of animals is very low

c) Compared to 10 years ago (1990)

Rate	Much better	Better	Same	Worse	Much worse
No.	2	3	0	8	5

Major reason

Much Better:

- There is full support from communities in formation of projects
- Sanitation has been improved by (a) Not using dirty water (b) Boiling water (c) Taking their children to hospital than before (people were using herbs instead of drugs
- People are more educated
- Community participation toward development has come up

Better:

- Now we have more knowledge
- In ten years ago it was worse because there was a drought no water, no grass, no food

Worse:

- The year 1990 was good because there was enough grass for cows and enough food because there was harvesting of crops
- There was no disease outbreak and no many animal diseases
- In those other years the government provided enough food. People were employed to work for food (food for work), though there were diseases, people were getting enough food

Much worse:

- Those other years were bad but better than last and this year. Last year and this year are affected by drought and diseases in both animals and people especially children are affected by malaria
- This and last year are worse compared with other because in last and this year no enough relief food than other years
- In the other years were no too much disease and drought and also the price of selling animals was high, but last and this year the price of necessities is very high and the selling of animals is very low

4) Marigat Youth Polytechnic

a) Compared to last year (1999)

Rate	Much better	Better	Same	Worse	Much worse
No.	5 (all students)	3 (all teachers)	1	5	7

Major reason

Much Better:

- Because they have acquired skills and knowledge by joining MYP (statement of MYP students).

Better:

- JICA assisted the MYP since June 2000 and up to now there is high rate of production in the woodwork department and TOT training organized by JICA has made a very big change in his life because of the skills and knowledge he got (Teacher's statement)
- Now there are things he has known compared to other years (Teacher'S statement)

Worse:

- Worse drought last year which lead to lack of food and education for children

Much worse:

- Too much drought, children getting sick all the time compared to other years
- No source of income only depending on relief food, sometimes goes to casual work which is not always available
- This is because of drought, lack of contract and no permanent relief food

b) Compared to 5 years ago (1995)

Rate	Much better	Better	Same	Worse	Much worse
No.	0	7 (include all 5 students)	4	5	4

Major reason

Better:

- This days though no rain there are contracts unlike five years ago
- Now JICA bought machines for the health center hence people are being treated effectively, hygiene also improved (A teacher and students' statement)
- Introduction of vaccination as a way of preventing many diseases (Students' statement)

Worse:

- Diseases killed more people, lack of food because of drought
- Arising of diseases, life is not affordable because of the current economy, many trainees miss school due to lack of fees (a teacher's statement)
- Poor economy of the country hence people cannot afford their livelihoods, increase of disease outbreaks (a teacher's statement)

Much worse:

- Diseases and drought is worse compared to the other years, More clashes than before e.g. Between Pokot , Ilchamus and Turkana
- She has never experience a worse drought last year since she was born
- No work at Irrigation scheme because people from Kenya seed have joined the Irrigation

c) Compared to 10 years ago (1990)

Rate	Much better	Better	Same	Worse	Much worse
No.	0	4	2	9	4

Major reason

Better:

- Ten years ago they had drought but better now because they have relief food
- Because she had not developed 10 years ago

Worse:

- Much disease compared to other years
- Worse now because drought now is three times that of 1990 and this has lead to high poverty rate

Much worse:

- Drought has made life impossible

Much worse:

- Worse drought compared to 1990-94
- Assistance by IMF to the country before used to be good hence fair economy, less diseases (a teacher's statement)

5) Marigat Health Center

a) Compared to last year (1999)

Rate	Much better	Better	Same	Worse	Much worse
No.	1	3	2	0	0

Major reason

Much Better:

- Generally JICA has assisted us so much and our lives will improve

Better:

- With health messages through the slide show I have noticed more changes toward health hygiene especially message during the outbreak of Cholera and know the way how to control Cholera

b) Compared to 5 years ago (1995)

Rate	Much better	Better	Same	Worse	Much worse
No.	1	4	0	1	0

Major reason

Much Better:

- This is because of the awarness that have been given to us by the experts in the field

Better:

- Because nowadays we can visit our local health facility at Marigat and get examination which we were not getting some times back.
- It is better because yellow fever was contolled in 1993 and there is no more

outbreak. Improved health services at Marigat Health Center. Animals diseases controlled because of the functioning cattle dip

Worse:

- There is change of weather and most of the animals have died because of drought

c) Compared to 10 years ago (1990)

Rate	Much better	Better	Same	Worse	Much worse
No.	1	0	0	3	1

Major reason

Much Better:

- It is better than that year because WFP supplied us with Maize and beans and it is reaching u

Worse:

- Most of the animals died and there is no harvest compared to the year of 1990
- The condition have become more worse than usual because of the economic situation

Much worse:

- Because of prolong drought which have killed our animals and now we are living in hardship life

5.3.2 Question 4

Question 4 asks what is important in your life. There are several common items people consider important in their lives such as;

- To have farm
- To have animals
- Good health
- To have children for security
- Educate children
- Good shelter
- Business
- Security

Followings are some unique items in each site.

1) Kampi ya Samaki/Salabani

- To be faithful to husband to avoid contracting HIV/AIDS

- Living in safe environment
- Good community
- To have knowledge to support his life
- To join various projects

2) Sandai

- Knowledge for invention of new idea in development
- Join various groups for development

3) Arabal

- To have bee-hives
- To believe in God and keep going to church

4) Marigat Youth Polytechnic

- Development
- To be independent
- Employment
- To be faithful to wife to avoid contracting HIV/AIDS

5.3.3 Question 5

Question 5 asks what are your future vision, plan and dreams. There are also common answers through the areas as follows:

- To have land
- To have animals and improved breed
- To get clean water
- To have business
- Build better house
- Send children to school
- To have good nutrition

Other unique items are shown below.

1) Kampi ya Samaki/Salabani

- To have improved jiko
- Sell cows and rent land
- Help somebody to work hard for community
- Initiate various projects
- Make all women group in unity for better success and ensure other left women to join the group

2) Sandai

- Most of the people say to cultivate more lands
- Avoid depending on relief food

3) Arabal

- Nobody knows, God knows
- Improve cultivation
- He will start a tree nursery so as to be selling tree seedlings to the community
- He wishes to cultivate more land in future and practicing horticultural products and educate his children to higher level. He wishes also to have improved goats and cows. He will attain this by selling and following instructions from JICA Team for improvement of goats
- She wishes to have less livestock but of improved quality (3) She wishes to have an hospital in her Location (4) She is going to attain by joining hands together with other people

4) Marigat Youth Polytechnic

- Do not know tomorrow (4 people say)
- Organize funds drive so as to send her children to school
- He is planning to buy two goats, try to go for casual labour and sell the relief food about 0.25 so as to get money to buy goats
- Working hard so as I can fulfill my needs
- He is planning to take his family to urban areas and look for a job elsewhere
- Within the year2005 MYP shall have produced qualified technicians, operating their workshop with and outside the community (MYP teacher)
- Marigat Youth Polytechnic should be a Technical Institite. This can be attained through fundraising, donor assistance commitment and hard work (MYP teacher)
- To be a carpenter/joiner and open a workshop (MYP students)

5) Marigat Health Center

- To have good farming skills
- To invest in fish farming and I will attain this by soliciting funds from donors and contribution

5.3.4 Question 6 to 8

Question 6 to 8 ask the meaning of Poor, Rich and Development. Some say poor is one who cannot support oneself. But some who have this definition of poor say their lives this year are better because of relief food. In their sense they should be poorer this year since they are more dependent. It would be expected that this contradiction may come to their sight and be taken into more serious consideration. Popular and unique definitions of those words by the interviewees are as follows. What definition will become popular would be one of the points to observe.

1) Poor

Popular definition

- Poor is someone who cannot support himself
- Someone earning very little or nothing at all
- Someone who does not posses anything
- Anyone who does not have animals and children

- When you don't have money to buy food and other necessities like clothes
- Poor is one who is needy

Unique definition

- Way of not working very hard to find life solutions
- Someone who cannot take care of his property
- Without education is poor
- The poor person is not very happy because he has nothing to do
- Poor is one who is not productive
- A person who does not have any effort to support himself
- Somebody might be strong but doesn't know how to look for resources is considered poor

2) Rich

Popular definition

- Anyone who can support yourself
- Anyone who has his own animals, farm and many children
- A rich is somebody who has a lot of cows, goat, sheep and many wives and children
- Rich is someone who can afford to educate his children
- Rich is having all the life necessities
- One who is stable financially
- If you are hard working and carefully maintaining your things then you are rich

Unique definition

- They have a lot of work to do
- One who is productive
- Having knowledge to create wealth and taking care of it
- Being capable of running your own life, your family and also contributing towards development of the country
- Good health and to have big wealth is rich
- The rich person have a lot of properties, hard working have farm and pipe line

3) Development

There has already been influence on their thinking of development as it is shown on Table 5.1.

Figure 5.1 Evaluation of current life compared to last year (1999)