

report of a rapid rural appraisal  
of

YWALATEKE

=====

CATCHMENT AREA

=====

C. Omondi

Kapenguria, 1992

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#### ABBREVIATIONS

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APSI	-	ASSISTANT PRIMARY SCHOOL INSPECTOR
ASAL	-	ARID AND SEMI ARID LANDS
CCPP	-	CONTAGIOUS CAPRINE PLEURO-PNEUMONIA
CPK	-	CHURCH PROVINCE OF KENYA
DAE	-	DISTRICT AGRICULTURAL OFFICER
DDO	-	DISTRICT DEVELOPMENT OFFICER
DFO	-	DISTRICT FOREST OFFICER
DLPO	-	DISTRICT LIVESTOCK PRODUCTION OFFICER
DSDO	-	DISTRICT SOCIAL DEVELOPMENT OFFICER
DVO	-	DISTRICT VETERINARY OFFICER
DWE	-	DISTRICT WATER ENGINEER
DWO	-	DISTRICT WORKS ENGINEER
ECF	-	EAST COAST FEVER
ELCK	-	EVANGELICAL LUTHERAN CHURCH OF KENYA
MOA	-	MINISTRY OF AGRICULTURE
MOWD	-	MINISTRY OF WATER DEVELOPMENT
NGO	-	NON GOVERNMENTAL ORGANIZATION
PHO	-	PUBLIC HEALTH OFFICER
PTA	-	PARENTS TEACHERS ASSOCIATION
WRAP	-	WATER RESOURCE ASSESSMENT PROGRAMME

## PROGRAMME

Monday 18/11/1991: the team left Kapenguria for Kaibichbich in Lelan Location Kapenguria Division. In the evening there was a short meeting about the objectives of the study tour. People would be sub-divided into groups and visit a certain area; every group would compile a report, which would be presented in the evening.

### DAY ONE: 19/11/91 STUDY OF YWALATEKE CATCHMENT

#### GROUP 1: CHEBINAT AREA

##### Participants:

F. Ombongi	-	Chairman
R. Njuguna	-	Secretary
P.N. Wambugu	-	Member
S. Lonyakou	-	Member
B.A.V. Shewa	-	Member
J. Losiangole	-	Guide

#### GROUP 2: LOTUPALE AREA

##### Participants:

J. Amayi	-	Chairman
B. Kiboi	-	Secretary
P.M. Okado	-	Member
R.M. Shemenga	-	Member
V. Limasia	-	Guide

#### GROUP 3: TENOYON AREA

##### Participants:

M.O. Ongong'a	-	Chairman
C. Omondi	-	Secretary
S.F.M. Trommelen	-	Member
S.E. Khachina	-	Member
P. Rengeruk	-	Local leader as well as guide



GROUP 4: PKONDOI AREA

Participants:

G.C.M. Mutiso	-	Chairman
J.M. Odongo	-	Secretary
B.A.C. Ndiwa	-	Member
B. Kwemoi	-	Member
T. Lobok	-	Guide

Tuesday evening of 19/11/1991, the team met at Simotwo Primary School for group presentation and discussion on that day's findings. The team slept at Simotwo Primary School.

DAY II 20/11/91

GROUP 1: KAPKAI AREA

Participants:

F. Ombongi	-	Chairman
S. Khachina	-	Secretary
B. Kiboi	-	Member
B. Kwemoi	-	Member
S.F.M. Trommelen	-	Member
V. Limasia	-	Guide

GROUP 2: CHEPTEREK AREA

Participants:

J. Amayi	-	Chairman
B.A.V. Shewa	-	Secretary
B.A.C. Ndiwa	-	Member
J.M. Odongo	-	Member
K. Lobos	-	Guide

GROUP 3: CHEPTIR AREA

Participants:

M.O. Ongong'a	-	Chairman
R. Njuguna	-	Secretary
G.C.M. Mutiso	-	Member
R.M. Shemenga	-	Member
J. Losiangole	-	Local leader as well as guide

GROUP 4: CHEMALTIN AREA

Participants:

P.M. Okado	-	Chairman
P.N. Loruchong'ar	-	Secretary
S. Lonyakou	-	Member
C. Omondi	-	Member
S. Losialima	-	Local leader (Chief Lelan location)
P. Rengeruk	-	Local leader as well as guide

Wednesday evening of 20/11/91, the team met at Misywon Primary School for group presentation and discussion on that day's findings. The team slept at Misywon Primary School.

DAY III: 21/11/91

GROUP 1: TOLL KOGHIN AREA

Participants:

C. Omondi	-	Chairman
F. Ombongi	-	Secretary
B.A.V. Shewa	-	Member
G.C.M. Mutiso	-	Member
R. Ekwata	-	Local leader
Limanguria	-	Guide

GROUP 2: KOSULOL AREA

Participants:

S. Khachina	-	Chairman
B. Kwemoi	-	Secretary
R. Njuguna	-	Member
M.O. Ongong'a	-	Member
S.F.M. Trommelen	-	Member
S. Kiptarus	-	Local leader
Keditukei	-	Guide

GROUP 3: MUMUCH AREA

Participants:

R.M. Shemenga	-	Chairman
J.M. Odongo	-	Secretary
P.M. Okado	-	Member
W. de Leeuw	-	Member
P.N. Wambugu	-	Member
W. Koutula	-	Guide

GROUP 4: NATALENG AREA

Participants:

P.N. Loruchong'ar	-	Chairman
B. Kiboi	-	Secretary
J. Amayi	-	Member
S. Lonyakou	-	Member
B.A.C. Ndiwa	-	Member
J. Longelecha	-	Guide
S. Pkite	-	Local leader

Thursday evening of 21/11/91, the team met at Propoi Primary School for group presentation and discussion on that day's findings. The team slept at Propoi Primary School.

DAY IV: 22/11/91

GROUP 1: LOYATUM AREA

Participants:

B. Kwemoi	-	Chairman
P.M. Okado	-	Secretary
S.F.M. Trommelen	-	Member
J.M. Odongo	-	Member
S. Kiptaru	-	Local leader as well as a guide

GROUP 2: PKINYAT AREA

Participants:

J. Amavi	-	Chairman
F. Owino	-	Secretary
B.A.V. Shewa	-	Member
M.O. Ongong'a	-	Member
C. Omondi	-	Member
Losirinyang	-	Guide

GROUP 3: KOKWOKALIA AREA

Participants:

S. Lonyakou	-	Chairman
B.A.C. Ndiwa	-	Secretary
R. Njuguna	-	Member
G.C.M. Mutiso	-	Member
P.N. Loruchong'ar	-	Member
S. Pkite	-	Local leader
J. Long'elecha	-	Guide

GROUP 4: KAMAUWA AREA

Participants:

B. Kiboi	-	Chairman
F. Ombongi	-	Secretary
R.M. Shemenga	-	Member
W. de Leeuw	-	Member
F.N. Wambungu	-	Member
P. Kodan	-	Local leader as well as a guide

Friday evening of 22/11/91, the team met again at Propoi Primary School for the day's presentation and discussion on that day's findings. The team slept at Propoi Primary School.

DAY V: 23/11/91

On the last day, three groups were formed with every group having a S.M.S. (Subject Matter Specialist) from the District Planning Unit. Three topics summarizing the four days deliberations were skimmed out as follows to come out with final recommendations:

Group 1:

Topic I - AGRICULTURE AND LIVESTOCK

Participants:

B. Kiboi	-	Chairman
R. Njuguna	-	Secretary
J. Amayi	-	Member
P.N. Okado	-	Member
R.M. Shimenga	-	Member
B. Kwemai	-	Member

Group 2:

Topic II - ENVIRONMENTAL ISSUES

Participants:

F. Owino	-	Chairman
P.N. Loruchong'ar	-	Secretary
J.M. Odongo	-	Member
W. de Leeuw	-	Member
P.N. Wambungu	-	Member
C. Omondi	-	Member

Group 3:

Topic III - ORGANISATIONAL STRUCTURE AND OTHERS

Participants:

M.D. Ongong'a	-	Chairman
F. Ombongi	-	Secretary
G.C.M. Mutiso	-	Member
B.A.V. Shewa	-	Member
S. Lonyakou	-	Member
B.A.C. Ndiwa	-	Member
S.F.M. Trommelen	-	Member
R. Ekwata	-	Local leader

## PART I

### YWALATEKE CATCHMENT AREA

The Ywalateke catchment is in both Lelan and Kipkomo locations of Kapenguria and Chepareria divisions respectively. The catchment covers an area over 10,200 ha. and extends from the highlands to the lowlands (along a stretch of the main road from Kapenguria to Lodwar between Chepareria centre and Chepkorniswa centre). The area has about 2000 households with an estimated population of about 14,000 people. The population of the catchment area increases as one moves from lowland towards highland (forested area).

The present land use within the catchment is both for arable agriculture and livestock farming. Apart from the mentioned land use, the Ywalateke catchment also provides water for domestic and other essential uses to Chepareria trading centre, and its environs of nearly 10 km radius.

The Ywalateke catchment being the main source of reliable water as such there is need for conservation of the catchment together with proper land use system in order to improve water resource and other land management practices.

The idea of ASAL to start the "sondeo" approach was fully supported: (Report: Tree Planting in West Pokot District: ASAL and Ministry of Environment and Natural Resources Kapenguria 1990). Therefore, this sondeo is also funded by ASAL.

The study tour should be farmer oriented, and all aspects at farmers level should be looked into. Farmers needs and interests to be of paramount importance, his views and suggestions should be first among other things and will be deliberated with groups opinion to synthesize a harmonized strategy of approach.

Every session will start with various groups of 4 to 5 people and every group will be given an area to explore. A local leader will be incorporated who will also act as a guide. The group members of every team will have to elect a chairman and a secretary who will in turn report to the whole team of the day's activities and their deliberations. This will be every evening of each day. Every day the compositions of groups will change, but as much as possible it will be tried to have people from different ministries in each group.

During the last day a plenary session will be held to deliberate on the week's activities and to draw up recommendations.

As in the last two sondeos in Batei location of Chepareria division and Kalapata and Lorsuk catchments in Alale division (see the reports) our investigations should look for a design conservation system, workable and implementable.

It should be:

- (a) Productive in increasing tree products output, improved yields of crops, increased efficiency, satisfaction of basic needs and other measures of economic efficiency.
- (b) Sustainable by achieving conservation goals while appealing directly to the motivation of low income farmers who may not always be interested in conservation for its own sake.
- (c) Adoptable: it should fit the social as well as the environmental characteristics of the land use system for which it is designed.

For us to achieve the above, it is vital to readdress ourselves to a few questions, although this is not rigidly what individual groups should answer itself to, but an exhaustion of the following could be significant:

- (i) It is utmost important to know present, past and future land use, the average family size and what do the users contend as the bottlenecks.
- (ii) While carrying out our exercise, what conservation efforts have been done and how far are the users concerned about degrading environment. If so, what intervention would they seek to enhance their conservation efforts and what kind of integration would they sought to promote productivity and a conserved catchment.
- (iii) Find out information on present and past programmes of the NGOs and the government.
- (iv) What farm resources are at the users disposal e.g. land, labour, water, trees and livestock.
- (v) Investigate capital investment/input in every farming system in relation to farm/enterprise output. Inquire how this has influenced the farmers re-organization of his resources.
- (vi) Find out who is responsible for specific enterprises and farming practices and what are the major constraints in these particular activities. How would an intervention with multipurpose afforestation programme help the individuals.



(vii) Inquire from the farmers how group formation would benefit them in harmonizing various farming systems with agro-forestry.

(viii) It is also important to inquire the farmers' feeling towards development programmes, either by the government or by NGOs. How far would they go in supporting those programmes.

The above is not exhaustive and participants are requested to ask more questions which they might deem necessary for the exercise.



PART II

DAY 5: OVERALL RECOMMENDATIONS

During the last day, three groups were formed with every group having a S.M.S. (Subject Matter Specialist) from the District Planning Unit. Three topics summarizing the four days deliberations were skimmed out as follows to come out with final recommendations:

Group 1:

Topic I - AGRICULTURE AND LIVESTOCK

Members

B. Kiboi	-	Chairman
R. Njuguna	-	Secretary
J. Amayi	-	Member
P.N. Okado	-	Member
R.M. Shemenga	-	Member
B. Kwemoi	-	Member

Group 2:

Topic II - ENVIRONMENTAL ISSUES

Members

F. Owino	-	Chairman
P.N. Loruchong'ar	-	Secretary
J.M. Odongo	-	Member
W. de Leeuw	-	Member
P.N. Wambungu	-	Member
C. Omondi	-	Member

Group 3:

Topic III - ORGANIZATION STRUCTURES AND OTHERS

Members

M.O. Ongong'a	-	Chairman
F. Ombongi	-	Secretary
G.M.C. Mutiso	-	Member
B.A.V. Shewa	-	Member
S. Lonyakou	-	Member
B.A.C. Ndiwa	-	Member
S.F.M. Trommelen	-	Member
R. Ekwata	-	Local leader

When deliberating the overall recommendations the following members joined the team:

J.M. Otticha	-	District Environment Officer
J.K. Cheruiyot	-	District Agricultural Officer
S.J. Otieno	-	District Officer, Kapenguria Division

FINAL RECOMMENDATIONS

Group 1

TOPIC: AGRICULTURE AND LIVESTOCK

OBSERVATIONS

AGRICULTURE

(a) Soil Conservation

Some parts of the area didn't have soil conservation structures. However in areas where the structures existed they were either neglected or poorly maintained. There were serious cases of river bank encroachment.

(b) Extension Services

The impact of extension services in the interior parts of the area is extremely low. Farmers in the area lack knowledge in the application of various farm inputs, crop diversification and agro-forestry.

### LIVESTOCK

- (a) Most farmers have indigenous animals. However some have a few crosses of galla goats, dorper sheep and sahiwals.
- (b) The area is covered with poor quality of natural grasses and very little fodder crops.
- (c) Incidents of livestock diseases coupled with absence of dipping facilities were observed.
- (d) Extension services are fairly felt in the area.

### RECOMMENDATIONS

- (1) All arable farms should have soil conservation structures. In farms where structures exist, follow-up on maintenance should be intensified.

Action: DAO  
Provincial Administration

- (2) Encroachment on river banks should be stopped. Forest department should establish a suitable tree species to be used for river bank pegging.

Action: DFO  
DAO  
Provincial Administration

- (3) Extension staff should be localized to serve the farmers effectively.

Action: DFO  
DAO  
PHO  
DLPO  
DVO

- (4) Farmers should be encouraged to upgrade their animals for higher production.

Action: DLPO  
DVO  
ASAL

(5) Farmers should be encouraged to establish improved pastures and fodder crops for livestock use.

Action: DLPO  
DVO

(6) The Veterinary Department should be vigilant in curbing the spread of livestock diseases. Farmers should be encouraged to buy hand spray pumps either on individual or group basis.

Action: DVO

#### DISCUSSION/MATTERS ARISING

(a) The issue of extension staff fairly felt in the area was discussed and members agreed that the impact of extension services from agricultural staff was extremely low and that of livestock was fairly felt in the area.

(b) A suitable tree species to be used for river bank pegging was deferred as group 11 had the same to handle, though after discussion use of vegetative material e.g. sisal planted at a wider spacing could be appropriate.

Group 2:

#### TOPIC: ENVIRONMENTAL ISSUES

The topic was sub-divided into the following components:

- (a) Afforestation
- (b) Water and soil conservation
- (c) Sanitation

The area of study was divided into two regions:

- (i) Higher area which consists of farm land and water catchment.
- (ii) Lower drier land which is mainly used for livestock farming.

The population of the area is less dense in the higher region, but becomes dense in the lower area especially around Propoi area. The drier area below Propoi towards Ywalateke is less dense.

In the higher region there was serious deforestation except for riverine forest. It was noted that the felling of trees in the lower areas occurred when farm land was being opened up but has decreased as there are only a few farms being opened up. There is serious destruction of vegetation along the riverbanks in the lower area.

#### OBSERVATIONS

- (a) Due to pressing needs farmers want short-term benefits and are not interested in long-term conservation; that is why forests have been cleared for livestock and farming purposes by both tenant farmers and the land owners.
- (b) There is some afforestation efforts in the homesteads and farmlands in the lower areas. However there is total destruction of the riverine vegetation in the same area. Extension agents are not covering the area adequately especially on environmental matters.
- (c) The springs in the upper area are well protected even though land is owned by individual farmers. The people served by the various water supplies use the water along the mainline for irrigation, yet the water is not enough.
- (d) Kosulol and Ririmbeyi streams have enough water to serve Chepareria and Propoi areas.
- (e) At the moment Chepareria water supply is not used to capacity due to lack of a proper water intake.
- (f) Some roof-catchment was observed in the area.
- (g) Development of sub-surface dams should be investigated.
- (h) There were few latrines in the area and worm infestation was observed in the animals. We assume there is a link between the two.

## RECOMMENDATIONS

1. The extension message as pertains to environment conservation should be geared towards giving the farmer an alternative to grazing on grass. This should be mainly fodder trees, for example *Leucania* and *Sesbania sesban*.

Action: DFO  
DAO  
DLPO

2. All new farmland must have soil conservation structures laid down before farming is carried out. The practices as laid down in recommendation one (1) will be incorporated in the soil conservation in the farms.

Action: DAO  
Prov. Administration

3. The landlords must be instructed to enforce environment conservation measures on their tenants. There is need to educate the landlords on guidelines for the tenants. This should be carried out by the Ministry of Agriculture.

Action: DAO  
Prov. Administration

4. The extension service needs to be strengthened in the area. As much as possible staff from agriculture and livestock ministries should be housed in the area. The subordinate staff in the Ministry of Environment and Natural Resources (forest department) nurseries should be trained and used for extension service, especially in the month of March, April and May.

Action: DAO  
DFO  
DLPO

5. A few satellite tree nurseries need to be opened in strategic places. The research by VI Tree Planting Project on indigenous tree species is commended and as much as possible, the results should be shared with other organizations.

Action: DFO  
VI Tree Planting  
Project

6. There is need to carry out an integrated approach to river bank protection with use of vegetative materials e.g. sisal for marking the pegged boundaries. Field days on protection of river banks should be held on sites that are of interest to all the farmers e.g. water intakes or farmers' fields. Tree planting should be the main activity.

Action: DAO  
DFO  
Prov. Administration

7. The farmers owning land with protected springs should be encouraged to continue carrying out protective measures.

Action: DWE  
DAO  
DFO

8. No piped water should be used for irrigation purposes.

Action: DWE  
Prov. Administration

9. There is no need to have supplementary water from Ywalateke water project to serve Chepareria. However, a small pipe can serve the people living between Ywalateke and Propoi.

Action: ASAL Office  
DDO  
DWE

10. A water intake needs to be constructed for the Chepareria and Propoi supplies.

Action: DWE  
DDO  
ASAL Office

11. Roof-catchments should be encouraged.

Action: DWE  
ASAL Office



12. A study should be conducted to determine the possibility of constructing sub-surface dams to serve some areas.

Action: DWE  
ASAL Office

13. Vigorous campaigns should be carried out on construction of pit latrines in each homestead. The activity should be coordinated by the District Environment Officer as a follow-up to the environmental seminars which were held for chiefs and are to be held for KANU leaders and councillors.

Action: PHO  
Prov. Administration  
D.O. Environment

#### DISCUSSION/MATTERS ARISING

(a) It was confirmed to all members that there is a relationship between the worm infestation and the absence of pit latrines.

(b) Trees as an alternative for marking the pegged boundaries along the river bank but subjected to destruction by livestock in case the farmers don't like them. Therefore sisal was preferred.

Group 3:

#### TOPIC: ORGANISATIONAL STRUCTURES AND OTHERS

#### INTRODUCTION

The group was charged with the responsibility of identifying how the existing organizational structures can be used to achieve the environmental protection.

#### OBSERVATIONS

During the survey the following organizations were existing in most of the area:



(a) SIKOM/HARAMBEES:

It was observed that this was mainly to assist an individual who is a member of the group to perform a particular farm work.

(b) WOMEN GROUPS:

Activities of women groups, NGOs and Departments were fairly felt in the area.

(c) SCHOOLS/SCHOOL COMMITTEES:

There was evidence that some schools had undertaken environmental protection activities.

(d) LOCATIONAL DEVELOPMENT COMMITTEES:

They exist but are not trained on environmental matters.

(e) LOCATIONAL ENVIRONMENTAL MANAGEMENT COMMITTEES:

These were not observed to be in operation.

(f) NON-GOVERNMENTAL ORGANIZATIONS:

Three NGOs were observed viz VI Tree Planting Project, Roman Catholic Mission and E.L.C.K.

(g) CATCHMENT PROTECTION GROUP: (MOA, Chiefs, KANU, Local leaders and NGOs)

They were not active in the area.

(h) INFRASTRUCTURES:

There are no rural access roads on the escarpment.

(i) MARKET CENTRES/IN-PUT SUPPLY CENTRE

The upper zones are badly served by market centres and input supply channels.

(j) ENVIRONMENTAL HEALTH:

More than 75% households don't have pit-latrines facilities.  
Most of the water sources are shared by livestock and human beings.

RECOMMENDATIONS

1. "Sikom" to be upgraded to working groups and be represented in the Locational Development Committees.

Action: DSDO  
Prov. Administration

2. Ministry of Culture and Social Services to organize more women groups and Ministry of Agriculture (Home Economics Division) should work hand in hand with the women groups and NGOs to join hands.

Action: DSDO  
DAO

3. Materials to be developed for use by schools on environmental protection. P.T.A. to organize environmental days in their respective schools.

Action: DEO/PTA  
D.O. Environment

4. The exercise on training the Locational Development Committee on environmental matters should continue.

Action: ASAL Office  
D.O. Environment

5. VI Tree Planting Project and other NGOs to extend their activities to zone three and two.

Action: VI Tree Planting Project  
ELCK

6. Ministry of Agriculture to organize catchment protection groups especially in ecological zone three and two.

Action: DAO

7. A major rural access road needs to be constructed from Kosulol to cross Ririmbeyi river then to Kotulpogh to Chemaltin with a branch to serve the pipeline from the intake to the tank at Cheptuyis.

Action: DWO (Minor Roads Programme)

8. Pit-latrines should be mandatory to all households.

Action: PHD  
Prov. Administration

9. Water sources should be protected from livestock pollution and a system be identified for safe watering of animals.

Action: DWE  
DLPO

#### DISCUSSION/MATTERS ARISING

(a) The existence of Locational Development Committees but not trained on environmental matters arose and members agreed that the observation was incorrect. Training of local leaders especially chiefs and their assistants had been completed all-over the district and very soon their impact will be felt. For KANU leaders and councillors the same training on environmental matters has been programmed and to take off soon.

(b) It was clarified that livestock watering points should be separate from those of human beings.

(c) The Sikom groups to have representatives in Locational Development Committees and their activities be upgraded to involve soil conservation protection. The groups then need to be registered by the Ministry of Culture and Social Services.

(d) After a short discussion members agreed that roads will open areas for easy access to the markets.

MINISTRY OF ENVIRONMENT AND NATURAL RESOURCES

Telephone: Kapenguria 27/31

When replying please quote

Ref. No. R/15/1/13 Vol.II/8.  
and date



THE FOREST DEPARTMENT  
DISTRICT FOREST OFFICE  
WEST POKOT DISTRICT  
P.O. Box 42, KAPENGURIA

.....10th July,....., 19...92

To Mr...G.C.M. MURDO...

RE: YWABALIKE CATCHMENT EVALUATION

Please find enclosed copy of the above mentioned report.

Yours Faithfully,

(*dhad*)  
( C.O. OMODI )  
For: DISTRICT FOREST OFFICER,  
WEST POKOT DISTRICT



MINISTRY OF ENVIRONMENT AND NATURAL RESOURCES

Telephone: Kampung 27/44

When writing please quote

Ref. No. and date



THE FOREST DEPARTMENT  
DISTRICT FOREST OFFICE  
WEST POKOT DISTRICT  
P.O. BOX 4, KAMPUNG

**EVALUATION**

**Group 1**

It was a good practical exercise which should continue. However, there should be a days break for report writing, discussions and resting. There should be an induction on how to carry interviews for the people participating. There is felt need for the programme to acquire some canvas beds.

Incorporation of independent professional observers like the current study tour adds the quality of the work.

Refreshments during the last evening is crucial for free exchange of ideas on various disciplines.

**Group 2**

There was very low input from the local leaders, especially during the evening sessions.

Some guides in the lower area were not very knowledgeable about the area.

Some information got from the interviews was doubtful due to wrong approach by the interviewers. The groups should try to be humble and friendly to the farmers and not pose direct questions.

**Group 3**

The training of all participants prior to the exercise and a joint formulation of a check-list.

The welfare of the participants especially sleeping and bathing arrangements in future. Camping beds should be provided by the programme.

The five day duration was adequate but daily schedules were too long for effective working because things were not properly timed.

A farewell get-together would be necessary at the end of the exercise.

### PART III : GROUP REPORTS

DAY ONE : 19/11/91

Group 1: Chebinat Area

#### Members

F. Ombongi	-	Chairman
R. Njuguna	-	Secretary
P.N. Wambungu	-	Member
S. Lonyakou	-	Member
B.A.V. Shewa	-	Member
J. Losiangole	-	Guide

#### FACTS ABOUT THE AREA

The area covers parts of Eaphanyar and Chepkono sub-locations. Eco-zone II. Vegetation: scattered forests and bushes.

Where land has never been cultivated the dominant grass is the tufted wire grass, while fields which were once cultivated is the kikuyu grass.

On fields left fallow for the last two years they have been invaded by a weed locally known as "Lomkera". It is almost colonizing the fields and suppressing any other vegetation.

Soils found in the area are sandy loamy soils which are shallow. Gradients: Average land slope = 35%.

#### OBSERVATIONS

##### LAND-USE

Predominantly used for cultivation of crops, livestock farming and re-afforestation.

##### CROPS

The main crop grown is maize for both commercial and subsistence. Others include vegetables, pyrethrum, finger millet, irish potatoes. Average holding - 30 acres. Tenure system - freehold

The system of ownership is through clans, allocation through land committees inheritance and through buying.

Generally rotational bush fallow is practised as a farm management aspect.

#### LIVESTOCK

Main livestock is cattle of indigenous origin. Some farmers are trying to improve their livestock through cross-breeding. Other stocks include wool sheep, local sheep, goats, poultry and to a lesser extent donkeys. The livestock generally looked healthy.

#### RE-AFFORESTATION

Farmers cleared the forest to make room for pastures and cropland, but now they have realized the need for planting trees as a source of timber and fuelwood.

#### SOIL AND WATER CONSERVATION

Farmers are aware of soil and water conservation as terraces were evident on the farms and a good vegetation cover along water courses.

#### FARMERS OPINIONS

They have observed decreased crop yields and would like improved or pure breeds of animals although these ones are more prone to diseases.

They would like trees and would not like to see any further felling of trees.

They said the tree seedlings are expensive from the nurseries. Extension service staff have slackened in visiting the farmers. Farmers have also realized the benefits of soil conservation. As a result of deforestation they have noted the following:

- (a) Water pollution since a lot of run-off reach the rivers and streams.
- (b) Reduction of water discharge.
- (c) Climatic changes (high temperature being experienced which in turn has increased pest infestation).

### RECOMMENDATIONS

1. Use of fertilizers and diversification of crops.
2. Improved breeds coupled with intensive extension services.
3. Improve the accessibility of tree seedlings. No more clearing of existing forests.
4. All departments to intensify extension services to the farmers.
5. More awareness to be created on environmental conservation issues.

### DISCUSSION/MATTERS ARISING

(a) The group recommended the use of fertilizers in arable land in order to attain high crop yield. A question arose as to whether all the farmers were able to buy fertilizers and if not what could be done. To this the group suggested that the farmers could use farm yard manure since this was abundant.

### Group 2: Lotupale Area

#### Members:

J. Amayi	-	Chairman
B. Kiboi	-	Secretary
P.M. Okado	-	Member
R.M. Shemenga	-	Member
V. Limasia	-	Guide

### INTRODUCTION

The group started from Chepkono trading centre down to Kamasian river. It then traversed the following areas: Lotupale, Kamusa and Chepkata.

### TOPOGRAPHY AND VEGETATION

The area is generally hilly with a slope ranging from 10-40% and densely forested. The soils are generally black forest soil and also stony particularly on hilly tops. The vegetation consists of indigenous tree species and natural indigenous grass. The area covers ecological zones II and III.



#### HUMAN POPULATION

The area is sparsely populated and most settlement is on hilly tops. Each family consists of about seven people and there are about twenty families in the area.

#### LAND USE

The main land use in the area is crop production and livestock keeping. The major crops grown include maize, finger millet, tobacco, pyrethrum and kales. The animals kept are mainly indigenous and a few crosses. Indigenous sheep, goats and poultry are also kept.

#### WATER SOURCES

There are six main water sources in the area namely: Chepkono river, Kamasian river, Lotupale river, Kamusa, Chepkata and Kaibichbich rivers. Most of these water sources originate from small springs.

#### WORKING ORGANIZATIONS

There exist some form of group work among the people, especially on farming issues. Such groups are locally known as "Kiyech".

#### PEOPLES' VIEWS/OPINIONS

- (a) Complaints about livestock diseases e.g. heart water, lumpy skin and diarrhoea.  
There was also a complaint on plant poisoning to livestock during the onset of rains after a dry season.
- (b) Lack of knowledge on various tree species to be planted.
- (c) Inconsistent visits of various extension officers in the area of study.
- (d) Observable environmental changes in the area with the rise in temperatures, reduction of rainfall and diminishing river flows.

#### GROUP OBSERVATIONS

- (a) There are no cut-off drains and terraces in some farms and where they exist, they have been neglected and or destroyed.
- (b) Most farms are worked upon without the necessary farm inputs.
- (c) Pyrethrum and tobacco are grown on minor scale.
- (d) No emphasis on fodder production.
- (e) There is a high level of deforestation and lack of reforestation.
- (f) There is readiness of people to cooperate with both government staff and NGOs.
- (g) Milk is produced for family use only.
- (h) Present are natural kikuyu grass, "poroiywo", "limaywa", Acacia abyssinica trees and other palatable weeds.

#### RECOMMENDATIONS

- 1. The area should be turned into a catchment area for soil and water conservation.
- 2. A stockist should be introduced at Chepkono trading centre.
- 3. Pyrethrum and tobacco should be expanded in the area as the main cash crop.
- 4. More emphasis should be put on fodder crop establishment/improved pastures.
- 5. Indiscriminate deforestation should be stopped and reforestation programmes stepped up.
- 6. Government staff and NGOs should take the advantage of the readiness and willingness of the people to be with them.
- 7. Farmers should be encouraged to keep highly yielding diary animals to enable them produce enough milk for both family use and sale.
- 8. Technical staff from livestock, agriculture and forest should make frequent visits to assist the farmers.

#### DISCUSSION/MATTERS ARISING

One of the group recommendation was that farmers should upgrade their cattle. A question arose as to how this should be done. The group concerned suggested that farmers could:

- (a) buy bulls from elsewhere on their own.
- (b) approach livestock department office which should search for bulls from elsewhere and provide transport while farmers meet the price of the bulls.

#### Group 3: Tenoyon Area

##### Members:

M.O. Ongong'a	-	Chairman
C. Omondi	-	Secretary
S.F.M. Trommelen	-	Member
S.E. Khachina	-	Member
P. Rengeruk	-	Guide as well as local leader

#### INTRODUCTION

We started our survey from Daraja Mungu and interviewed five households and ended up at Simotwo Primary School.

#### OBSERVATIONS

##### TOPOGRAPHY AND VEGETATION

The area was generally hilly and the average slope ranged from 10-35% with very small stretches of flat land. Shallow loamy soils and many rocky patches on the apex of the farms were observed. Most of the natural forests had been cleared to give way for agricultural activities. The natural water ways still had their forests. Among the tree species in these forests are *Acacia abyssinica*, *Hagenia abyssinica*, *Prunus africanum* (mwiri) and *Cordia microstrachyus*. As one moves from Daraja Mungu to Simotwo Primary School the afforestation activities decrease. In certain areas we found the stinging nettle and a shrub known as "Topongo" growing in the bush. The dominant vegetation was grass.

#### LAND USE

The land has been demarcated. The farm size varies from 12-200 acres per family. Three quarters of the land is for pasture and the rest used for growing agricultural crops. Crops grown are maize, vegetables, potatoes, beans, coffee on trials and onions.

#### LIVESTOCK

From Daraja Mungu approaching Simotwo Primary School the cattle breeds were gradually changing from improved to local breed. A few goats and local sheep were also kept.

Incidents of over grazing were negligible and the animals appear to be in good health. The cropped area was generally conserved with structures such as cut-off drains and unploughed strips.

#### FARMERS OPINIONS

(a) Household size - This varies from six to ten (an average of seven). Most of the family members were under fifteen years old and were going to school. Majority of men were polygamous.

(b) Settlement

Most of the settlements were established from 1970 onwards, before their coming the land was occupied by natural forests.

(c) Agriculture

Crops: Maize and vegetables are grown both for the household consumption and also for sale, at about 40% for consumption and 60% for marketing. The growing of beans is discouraged due to destruction caused by wild animals. There is a tendency to monocropping.

Livestock: There is a favourable market for milk but most of the animals are low yielders. Only 30% of milk is for sale and the rest are for local consumption. Livestock forms the major saving and income source.

(d) Water Source

Most families have access to water within a radius of 200 metres. The water sources are underground springs and streams. The water use ranges from seven to ten litres per person per day.

(e) Prioritization

Health and water were overriding priorities, but after elaborate discussion the priorities are:

- (i) Health - dispensary with clinic.
- (ii) Water - piped gravity.
- (iii) Tree Nursery - nearby.
- (iv) Improved cattle breeds and veterinary services.

NB: From local experience gravity system is highly recommended.

COMMUNITY ORGANIZATION

They have work groups ranging from fifteen to forty individuals assisting each other in farm development.

RECOMMENDATIONS

1. There is need to train the farmers in new agricultural techniques after doing a feasibility study on appropriate method in the area.
2. A dispensary with maternity facilities is very necessary.
3. The group recommends that the Kaibichbich water project should be fully operational. For any new water project gravity system is preferable.
4. Tree nursery should be established within the sub-location (Chepkono).
5. The Ministry of Livestock Development should help the local community identifying bulls suitable for improving the present livestock in the area, and help in the management of the improved stock that would result.
6. Animal traction should be used.

#### DISCUSSION/MATTERS ARISING

(a) One of the recommendations was that farmers should be encouraged to use animal traction for ploughing. A question arose as to why many farmers have not practised this. The answer was that farmers lacked technical know-how.

#### Group 4: Kodoi Area

##### Members:

B.A.C. Ndiwa	-	Chairman
J.M. Odongo	-	Secretary
G.C.M. Mutiso	-	Member
B. Kwemoi	-	Member
T. Lobok	-	Guide

#### INTRODUCTION

The group covered an area known as Kodoi and Simotwo, a total of thirteen households were interviewed. The group left Kaibichbich at around 8:00 a.m.

#### OBSERVATIONS

##### HYDROLOGY AND HYDROGEOLOGY

From our observation, we noticed that the area lies in a high potential area with moderate rainfall.

It is covered with various springs, whose capacity has reduced of late due to deforestation and cultivation of steep slopes. There is a confirmed spring which has dried up. The area is entirely composed of clay loam soils.

The top part of the area is in zone II and the lower part in zone III.

##### AGRICULTURE

The area is used for arable farming with maize being dominant crop. The type of maize grown is H614. Other crops grown include beans, english potatoes, sweet potatoes, vegetables (i.e. cabbage), spinach, onions, pyrethrum, kales, delicious lablab, peas, rosecoco beans, bananas, sugarcane, tobacco and tomatoes.



In most of the farms, farming is carried out without biological or physical conservation structures. Very few farmers use fertilizers and a few others used farm yard manure.

Due to the steepness of the farms, most of the farmers dig up and down the contours which is not recommended.

From what we observed, only two farmers were visited by the agricultural staff in this year.

#### LIVESTOCK

From the observations, all farmers practise livestock keeping. The animals reared are cows, sheep and goats.

It was noticed that both local and cross-breed cows are kept. Sheep for wool production dominate the upper point of the region and the local sheep the lower part.

Poultry keeping is practised on a small scale. There were few goats on the lower part. This was due to intensive farming being practised.

Farmers in the upper part complained of bracken fern on livestock and heart water disease.

On the lower part of the region the farmers complained of CCPP for their sheep. From observation the animals didn't look healthy.

No natural salt leaks were noticed. The farmers complained of bracken fern fever affecting their animals' milk production and reproduction.

#### WATER SOURCES AND ENVIRONMENTAL PROTECTION

It was noticed that the entire area is served by natural springs. Also observed was destruction of natural vegetation just on top of the highest areas near the springs, these vegetation cover was estimated to be 10%. This results into a very low rate of infiltration into the springs. But just next to the springs there are some vegetation cover.

Given that we don't have any biological or physical agricultural conservation practices, the catchment has reduced infiltration.

We observed that there was indiscriminate felling of trees in the last ten years and minimal planting of trees other than in two primary schools and one home.

It was noticed that trees mostly planted are cypress, thus there is danger of aphid problem in the area (schools were Muruny and Simotwo).

It was observed that some sheet erosion has started in the grazing land and formation of gullies also has begun. Also erosion was noted on foot paths.

#### POPULATION

It was observed that the area is generally sparsely populated, with a family size having an average of about twenty persons. Average farm size is twenty hectares. In all of these farms, there exist at least one tenant.

It was observed that tenants do not practise good agricultural conservation measures in their farms.

#### INFRASTRUCTURE AND SOCIAL ASPECTS

The area is served by two schools i.e. Morun and Simotwo. There is no dispensary. The access to the area is quite poor. The only means of transport noticed was the use of donkeys.

It was noticed that a water supply which used to serve the area is grounded. There were no shops seen in the area, all inhabitants go to Kaibichbich for essential commodities except those around Simotwo area.

Two women groups were observed to be in the area and they engage in farming. There is also KANU Maendeleo ya Wanawake in the area. There are also three KANU youth leaders in the area.

#### OTHER OBSERVATIONS

- (a) It was noticed that there are no NGOs operating in the area except the Roman Catholic sisters from Kaibichbich who teach family health care at Morun Catholic Church.
- (b) It was observed that at the intersection of Kutinak and Chapor streams, there is more water in Chapor stream than that in Kutinak, so for catchment protection emphasis should be put on Chapor stream.
- (c) The area is served by two main denominations that is Catholic Church and Church Province of Kenya (CPK).
- (d) No cattle dip was noticed.



### PROBLEMS OF THE PEOPLE

The main problems people complained of were:

- (i) Diseases on their animals
- (ii) Poor road conditions
- (iii) Lack of medical care for human beings.

### RECOMMENDATIONS

1. It is recommended that biological and physical conservation practices to be done by the farmers.
2. We recommended that agro-forestry be introduced in the area by the Ministry of Agriculture in conjunction with the Forest Department by introducing the following tree species:
  - Acacia abyssinica
  - Acacia lahai
  - Sesbania sesban
  - Gravellea robusta
  - Luecania leucasephala
3. It is recommended that agricultural staff have regular visits to farmers to educate them on agricultural practices.
4. The Veterinary Department should have regular visits to the area to eradicate animal diseases. They should also up-grade animals for more meat and milk production.
5. The farmers should be encouraged to have hand pumps for spraying animals.
6. All areas adjacent to the springs should be covered with trees.
7. On cropland, agroforestry trees should be planted along the terraces.
8. Agroforestry trees should be planted along all boundaries.
9. On grazing land, we suggest extensive number of trees to stabilize sheet erosion. The trees to be planted along the terrace.
10. Tea growing should be encouraged for conservation measures.
11. Catchment protection should be enhanced by planting trees all along the stream banks.

12. Napier grass be planted along the terraces and stream banks for cattle.

#### GENERAL DISCUSSION

1. It was agreed that as far as population estimates are concerned "persons per household" should be used instead of "persons per family" for the sake of harmonizing records.
2. Where leasing of land to tenants was prevalent there was tendency of soil conservation structures not being taken care of.

#### MEASURES AGAINST CARELESS TENANTS

The ownership of land should be authorized by agricultural staff/administration to either ensure that structures be made and maintained or do away with leasing of land or leave the land without cultivating it.

DAY II 20/11/91

#### Group 1: Kapkai Area

##### Members

F. Ombongi	-	Chairman
S. Khachina	-	Secretary
B. Kiboi	-	Member
B. Kwemai	-	Member
S.F.M. Trommelen	-	Member
Limasia	-	Guide

#### INTRODUCTION

We started off from Simotwo and covered the area up to Misywon Primary School. The area is hilly and rocky and is characterized by a few trees, shrubs and natural pastures.

The area is covered by shallow sandy loam soil. The area is sparsely populated and the people grow some crops and keep indigenous livestock. Kapkai lies in agro-ecological zone III.

#### OBSERVATION

#### AGRICULTURE

##### CROPS

The crops grown are the following maize; beans, fingermillet, tobacco, sweet potatoes, bananas. These crops are grown on a minor scale. The cultivated area is about two to three acres per household and the plant populations were way below the recommended populations.

##### TOPOGRAPHY AND VEGETATION

The slope ranges from 25% to 40%. The dominant vegetation is bush and natural pastures but at river sources the dominant vegetation is "Lamaywa" and "Leberwa" tree species. As we approached Misywon Acacia tree species becomes evident.

##### SOIL CONSERVATION

This is done on a negligible scale.

##### LIVESTOCK

The people keep indigenous cattle, goats and poultry. Although the animals are healthy there are signs of land degradation which points a finger at overgrazing.

##### FOREST

There has been no cutting of trees and very little planting of agro-forestry tree species.

##### WATER

We came across two streams with a small volume of water and two that had dried up.

#### FACTS AND OPINIONS OF FARMERS

(a) Households

The members ranged from five to ten members.

(b) Agriculture

Maize which is the main crop grown is mainly used for home consumption with very little left for sale. Termites attack the crops in different degrees. Family labour is the only one used.

(c) Livestock

Livestock diseases are found e.g. E.C.F. and red water. Milk production was not enough to cater for even a family. The number of livestock has been decreasing over the years largely as a result of land demarcation.

(d) Forest

Termites have destroyed the few cypress seedlings planted.

(e) Water

During the rainy season they travel half to one kilometre for water for both domestic and livestock use but during the dry season the animals go three to four kilometres away for water. Leech is a problem in the streams.

(f) Education

They are served by two primary schools: Misywon and Simotwo. These are adequate as the children do not travel long distances to school. The financial position of some families do not allow them to pay for their childrens' primary education.

#### PRIORITIZATION (FARMERS') FOR IMPROVEMENT

- (a) Water for livestock
- (b) Health

#### RECOMMENDATIONS

1. They should diversify the crops they grow to include finger millet, sorghum, cassava, sweet potatoes on a larger scale.
2. Regular visits should be made by livestock staff to check diseases.
3. The animals should be upgraded to give more milk by cross-breeding with appropriate breeds.
4. A forest extension agent should be deployed to this area to assist the farmers in tree production techniques.
5. A feasibility study should be carried out to assess the increased availability of water to the people.
6. The poor families should be identified and given a bursary.
7. Afforestation should be done especially on the river sources.
8. Soil conservation measures should be intensified in the area by relevant ministries.

#### DISCUSSION/MATTERS ARISING

- (a) Under observation, the issue of land degradation which points a finger at overgrazing arose. Members wanted clarification on the matter. One of the group members defined the word over-grazing as the carrying capacity of land. In zone III it is recommended ten hectares of land per livestock unit. Though stones increases the number of hectareage per carrying capacity. As one moves downwards the land becomes marginal.
- (b) Destruction of cypress trees seedlings by termites in zone III was put off by one member from the Forest Department as termites is not common in zone III and this has never been experienced.

The issues of termite destruction to cypress tree seedlings and educational bursary funds for poor families were to be discussed the next day because of the time factor.

## Group 2: Chepterek Area

### Members

J. Amayi	-	Chairman
B.A.V. Shewa	-	Secretary
J.M. Odongo	-	Member
B.A.C. Ndiwa	-	Member
L. Kilikwang	-	Guide

### INTRODUCTION

The group set off for descending the Chepterek area from Simotwo Primary School. The route went through the following villages: Chepterek, Mariny, Kapkai and lastly Misywon.

### TOPOGRAPHY AND VEGETATION

The area is hilly with steep slopes, with fair vegetative cover at the upper part. However as you move from Kapkai to Misywon centre the vegetation diminishes. Far from farmers encroaching near the river bank (Misywon) some have settled and ploughed down in the river.

The area basically lies in ecological zone III but changes gradually as you approach Msiywon to ecological zone IV.

The soil at the upper part of the area at Simotwo is black sandy soils but as you descend towards Kapkai village the soil changes to rocky sandy light soil. Average percentage slope is sixty-five percent.

### HUMAN POPULATION

The area is sparsely populated with an average of fifteen persons per household.

### LAND USE

The major activity in the area is farming with more emphasis on livestock keeping followed by agricultural production. The types of animals kept in the area consist of indigenous cattle, sheep, goats and poultry. The types of crops grown are maize, beans, finger millet, sweet potatoes and cassava.

Tobacco is also grown in the area on a small scale.

#### ENVIRONMENTAL CONSERVATION

- (a) The natural vegetation is fairly conserved especially the upper part of the area from Simotwo to Mariny area.
- (b) However, the area covering Kapkai to Misywon has been environmentally tampered with particularly at the river bank.
- (c) Trees and bushes have been cleared indiscriminately.
- (d) Most farms have terraces which were laid by the farmers themselves without the assistance of technical staff. There was no clear evidence of serious soil erosion where these structures existed. Grazing grounds on the upper ridge of the hill without terraces had evidence of erosion.
- (e) There was strong revelation of felling the indigenous trees without re-afforestation.

#### WORKING ORGANIZATION

There exists some form of group work among the people, especially on-farm activities. Such groups are locally known as "sikom".

#### PEOPLES VIEWS/OPINIONS

- (a) Farmers felt that farm inputs e.g. fertilizers and certified seeds are not readily accessible.
- (b) The farmers appreciated the work of the agricultural extension staff done in early 1980's in regard to terraces.
- (c) The farmers complained of livestock diseases and inadequacy of the veterinary services.
- (d) People complained of inavailability of tree seedlings for reforestation.

#### GROUP OBSERVATIONS

- (a) Some animals did not look healthy, and this was associated with livestock disease e.g. E.C.F., heart water and attack by leeches.
- (b) Monocropping is highly practised in the area, maize being the major crop.



- (c) There is no application of chemical fertilizer and extensive use of boma manure.
- (d) The area is well served with river Msiywon water.
- (e) The infrastructure in the area is very poor.
- (f) There is no nearby tree nursery to supply seedlings to the area.
- (g) The people are very much willing to cooperate with any development agency.
- (h) No pit latrines observed in the area hence pollution in the river.

#### RECOMMENDATIONS

- 1. A stockist should be appointed in the area to serve the local community.
- 2. All the departmental extension workers should intensify their activities in the area.
- 3. A tree nursery should be established in the area.
- 4. Farmers should diversify their farm enterprises.
- 5. Farmers should use the readily available boma manure and where necessary the farmer can go for chemical fertilizers.
- 6. There is need to improve the infrastructure e.g. roads.
- 7. Every homestead should have at least a pit latrine.
- 8. There is need for re-afforestation along the river bank. However, the area between Kapkai and Misywon needs immediate attention.

#### DISCUSSION/MATTERS ARISING

- (a) It was discussed and agreed on that the stockist once appointed should make readily available farm inputs which farmers need.
- (b) Establishing a permanent tree nursery is quite expensive, after discussion it was suggested that a temporary (satellite) tree nursery was more appropriate to the area.

### Group 3: Cheptir Area

#### Members

M.O. Ongong'a	-	Chairman
R. Njuguna	-	Secretary
G.C.M. Mutiso	-	Member
R.M. Shemenga	-	Member
J. Losiangole	-	Local leader as well as guide

#### INTRODUCTION

The group started on the west bank of river Kutinak at the Ywalateke intake site, through Kainakel, Cheptir, Chepkuskus to Misywon school. Land ownership is freehold.

#### FACTS ABOUT THE AREA

The area covers zone III and zone IV, characterized by slopes of between 30 and 40% in farm lands and 50 to 70% on grazing land.

Only four springs were traversed and hence the area is not endowed with many water sources.

Tree cover is about 15% with the Acacia species being dominant with some bush thicket interspaced by Terminalia tree species. There is shallow sandy loams with rock outcrops on the upper ledges.

The dominant grass is "chepkopaya" which is an indigenous grass. Average farm household size is ten people.

#### GROUP OBSERVATIONS

##### Land use

The land is mainly used for crop and livestock farming. The crop land is 20-30% and reduces along the gradient to about less than 50% of the original crop land. The rest of the land is bushland and suitable for grazing.

##### Crops

Main crops are maize, finger millet, beans, sorghum, bananas, and cassava.

One farmer had diversified and apart from the common crops had washington novel, passion fruit, sweet potatoes, chillies, pumpkin, tobacco, sugarcane, kales, cabbages and onions.

### Livestock

Cattle is dominant with fair health condition. Others include sheep, goats, poultry and donkeys. Cattle is mainly of indigenous origin.

### Water sources

Most farming families are within access to water sources at a radius of about 50m. The Ywalateke water supply line traverses the area. Plastic pipes need to be protected, and the gully and river crossings should be reinforced. At the intake, siltation was evident. The inlet pipes are in the main river channel and the supports were broken.

### Population resources

The area is sparsely populated with about 30 households. Youth is dominant. There isn't any NGO or local working group.

### ENVIRONMENTAL CONSERVATION

Farmers are aware of soil loss in the farming areas due to observed terraces. The terraces were not technically laid.

In the upper zone one farmer had planted trees. Sheet erosion was observed. Only one farmer had some sanitation facilities.

### FARMERS OPINION

Accessability to tree nursery is tedious and the cost of tree seedlings high. There is high infestation of pests and worms on animals. Some farmers would like tree seedlings from which they accrue direct benefits viz: for housing, and fencing e.g. "Chelowo", "Nakpou", "Moyokwa" and "Makunga".

Extension services is not readily available. They requested for health facilities in the area.

### RECOMMENDATIONS

1. Extension services to be intensified by all departments.
2. An access road to serve the area should be constructed.
3. For afforestation, the desired tree species should be availed to farmers.

4. For environmental health, pit latrines should be mandatory in all homesteads.
5. Intake of the Ywalateke water supply needs some protection from siltation and the mainline at the intake should be well protected.
6. Upgrading of animals should be done.
7. Health services to be brought near the people.
8. Diversify crops by increasing pulses, citrus and vegetables.

#### DISCUSSION/MATTERS ARISING

The cost of tree seedlings in a normal container went down recently from one shilling per seedling to seventy-five cents per seedling. This issue was brought forward by one member who wanted to know the present cost per seedling.

Whether it was correct to use degree slope or percentage slope arose, after lengthy discussion it was left to the technical people to find out which was more appropriate.

#### Group 4: Chemaltin Area

##### Members

P.M. Okado	-	Chairman
P.N. Loruchong'ar	-	Secretary
P.N. Wambungu	-	Member
S. Lonyakou	-	Member
C. Omondi	-	Member
S. Losialima	-	Local leader/Chief Lelan
P. Rengeruk	-	Local leader/Guide

#### INTRODUCTION

The group started off from Chemaltin down to Koitumot, Motpokor and then Msiywon river.

#### TOPOGRAPHY, VEGETATION AND SOILS

The area is generally hilly with an average slope of 30 degrees. The upper part falls in ecological zone III with scattered trees and shrubs.

Dominant tree species is *Acacia abyssinica*. The lower part falls in ecological zone IV with vegetation of wooded bushland. There was fair grass cover with kikuyu grass dominating in the upper zone and *Hyperania* species in the lower area.

The soil was generally shallow sandy loam.

#### HUMAN POPULATION

The area is sparsely populated with nuclear families consisting of about five people each. Total households were about thirty.

#### LAND USE

Crop production and livestock keeping are the main land uses. Main crops grown are maize, beans, millet, tobacco, potatoes and vegetables. Livestock kept are cattle, sheep, goats, donkeys, poultry and bees. Most of the cattle were indigenous except for one farmer who had some crosses.

Farm size ranged between five and fifty acres. The average number of animals owned were as follows:

cattle	10 - 30
goats	10
sheep	10

#### WATER SOURCES

Water is obtained from natural wells, streams and piped gravity water from Ywalateke-Morbus water project tank.

#### VIEWS AND OPINIONS OF THE FARMERS

- (a) Lack of wood and woodfuel.
- (b) Lack of water near homes and too much siltation where water is near homes.
- (c) Lack of cattle dips.
- (d) Lack of health centres/dispensaries.
- (e) Presence of a poisonous insect which encysts in grass and kills animals that eat grass.
- (f) Tree nursery is far.

- (g) Communication is poor.
- (h) Land infertility.
- (i) Livestock diseases, mainly tick-borne and worm infestation.
- (j) NGO activities not observed except Catholic sisters who bring medicine for sale every month.

#### GROUP OBSERVATIONS

- (a) Lack of sanitary facilities.
- (b) Maize monocropping is a main feature.
- (c) Individual terracing was observed.
- (d) In ecological zone IV a few pockets of land were fit for arable farming.
- (e) Livestock were in poor health condition.
- (f) Lack of adequate pasture/fodder.
- (g) Most animals were indigenous.
- (h) Predation of poultry by wild animals is common.
- (i) Log hives were observed.
- (j) Small plots of tobacco were observed.
- (k) Afforestation was observed in a few homesteads.
- (l) Labour is obtained from family members and harambee work (commonly known as "sikom").
- (m) Nursery school is far.
- (n) One to two kilometres water source from homes.



#### RECOMMENDATIONS

1. Afforestation to be practised in the area and provision of tree nurseries.
2. Water supply to be improved in the area.
3. Dips to be constructed in the area.
4. Health centre/dispensary to be built.
5. Research to be done into poisonous insect that encysts in grass.
6. Access roads to be improved.
7. Farmers should use fertilizers and stockists should be appointed to avail these at Chepkono.
8. On sanitary facilities, extension staff to provide education to farmers.
9. Diversification of crops to be emphasized by extension staff.
10. Upgrading of livestock to be encouraged.
11. Education facilities to be provided in the area, e.g. nursery school.
12. Livestock production extension staff to be deployed in the area to educate farmers on fodder/pasture establishment. This is to keep the animals in good condition.

#### DISCUSSION/MATTERS ARISING

- (a) Members complained that group recommendations were not written according to the priorities.

#### GENERAL DISCUSSION

- (a) The question of termite destruction to planted trees arose again, this was left to technicians to find out the appropriate trees species not prone to termite attack and also to issue farmers with suitable tree seedlings which could do well in their respective ecological zones (agro-forestry tree species).

- (b) Latrines to be mandatory. Through Provincial Administration, NGOs, Churches and local leaders to spread the message of the need to have pit latrines. It was noted that in some cases school pupils have latrines but they don't use them because of one reason or the other. Pollution down the stream could easily be reduced with the availability of pit-latrines in the catchment.

DAY III    21/11/91

Group 1: Toll Koghin Area

Members:

C. Omondi	-	Chairman
F. Ombongi	-	Secretary
B.A.V. Shewa	-	Member
G.C.M. Mutiso	-	Member
R. Ekwata	-	Local leader
Limangura	-	Guide

INTRODUCTION

The area we covered had 31 homesteads, stretching all the way from Toll Koghin church through Ririmbeyi to Propoi school.

TOPOGRAPHY AND VEGETATION

The area is made up of four distinct physical features. There is a narrow ledge on top next to the road, then an escarpment, the third is an undulating area and the bottom area is fairly flat. We managed to interview people in each of the aforesaid areas.

Our area of study was between Wiisilat and Mumui springs in the east and west respectively. The ecological zone varies from II at narrow top ledge to IV at lower region.

From the top the tree cover is less than 5% but improves in the second with 70% continuous tree and bush cover. In the third area the river cover was about 25% and lastly in the fourth it is between 5% and 10% tree cover.

The soils were generally sandy loam in all areas and very shallow in the escarpment which was also rocky.

Below the escarpment all the riverine vegetation has been destroyed with only a few scattered trees. Cultivation has been done to an extent of encroaching the river bank. Generally the percentage slope ranged between 20 to 55%.

#### LAND USE

Most of the land is used for cultivation and livestock keeping at 30% and 70% respectively. Average land holding is 10 acres, and the land is under demarcation.

#### CROPS

The main crop grown in the area is maize. Others include pomegranate, arrowroots, pumpkins, chillies, tobacco, guavas, kales, onions, tomatoes, bananas and citrus. Sugarcane and beans were also observed. There is no application of fertilizers. There are a number of tenant farmers.

#### LIVESTOCK

Most of the livestock kept were indigenous cattle, goats, sheep and chicken. Outstanding is the keeping of guinea pigs ("kanyiera"). Most of the animals were fairly in good condition. Average herd size is 6 cows, 12 goats and 4 sheep.

#### ENVIRONMENTAL CONSERVATION

##### Afforestation

One farmer's children had established their own tree nursery where we saw about 200 seedlings. Some other three farmers have planted trees. The key tree species were *Gravellea robusta*, *Eucalyptus salicina* and a few *Cupressus lusitanica*.

##### Soil conservation

Most of the soil conservation structures were laid down during the colonial time and are maintained to date. We also observed a farmer's initiative to construct stone terraces on his own. However, these practices were noted in the upper two zones and not in the last two.

#### Water resources

There are two key intakes for water supply for the lower areas namely Chepareria and Propoi water projects. The upper and eastern parts at the Ririmbei intake are well protected unlike the western part, where cultivation is done up to the intake. Below the intake the river bank is not protected.

There is no construction of the intake's structure, therefore the Chepareria water supply is incomplete. We were informed that the same applies to the Propoi water supply.

Individual tapping has been done from the main pipe. On most of these, water was just free flowing. One farmer had extensively irrigated with this water. Most of the farmers are well accessible to water sources.

#### WORK ORGANIZATION

No group organization in the area other than the community work that was carried out during the Chepareria water project. No NGOs are operating in the area currently.

#### HUMAN RESOURCES

The area is sparsely populated and the average farm household is eight.

#### INFRASTRUCTURE

There are no roads, schools, health facilities, however, one family constructed a VIP latrine.

#### FARMERS OPINION

- (a) Roads to be constructed.
- (b) Water to be distributed to the homes.
- (c) There is need to destock.
- (d) There is need to keep smaller families.
- (e) There is need to organize and educate the community on development.
- (f) Increase the veterinary service personnel.

(g) The desired species of trees were:-

- (i) "Marsitet" for fodder
- (ii) "Mersiembo" for fodder
- (iii) "Moyokwo" for building
- (iv) "Tingoswo" for fruit

(h) Afforestation on the river bank.

#### RECOMMENDATIONS

1. The lower part of the river bank needs immediate protection. The community should stop irrigation and cultivation along the river bank.  
Action: Provincial Administration.
2. Most of the water from the taps are free flowing therefore we recommend charging system to facilitate servicing.
3. Tracks to be improved to facilitate the agricultural produce to be ferried to the market.
4. Conservation measures to be taken seriously by tenant farmers through the land owner.
5. There is need for identification of local tree-species for afforestation and agro-forestry e.g. Albizzia lobbeck.
6. Intensify veterinary services especially in the upper region.

#### DISCUSSION/MATTERS ARISING

- (a) Np NGO in the area. The Propoi intake was done by ELCK.
- (b) Some people get their income from the farming activities but others are employed elsewhere.

#### Group 2: Kosulol Area

##### Members:

S. Khachina	-	Chairman
B. Kwemoi	-	Secretary
R. Njuguna	-	Member
M.O. Ongong'a	-	Member
F.B. Trommelen	-	Member
S. Adams	-	Member
Kiptugei	-	Guide

### INTRODUCTION

The group started from Kaisagat through Kapyukuk, Kosulol and finally to Propoi Primary School.

The area falls in marginal area zone II. Natural vegetation cover was between (30-40%) and this includes trees and natural grass.

The species observed were:-

- (i) Makaranga kilimandscharika
- (ii) Croton macrostachyus
- (iii) Limaywa (Zyzygium spp)
- (iv) Ficus hochstateri
- (v) Prunus africanum
- (vi) Albizia gummifera etc.

There were few planted exotic species, and these include:

- (i) Eucalyptus ficifolia
- (ii) Gravellea robusta
- (iii) Cupressus lusitanica

### SOILS AND GENERAL GRADIENT

The type of soils observed were silty sandy loam soils. The gradient was varying from 35-50%.

### OBSERVATIONS

#### Land use

Most of the land is under crop and livestock farming and others under forest which is the source of firewood and building materials.

#### Agriculture

The major crops are maize, bananas, sugarcane, tobacco, finger millet and sorghum. Crops like maize, sugarcane, bananas, onions and tomatoes are grown for both domestic use and sale.

#### Soil conservation

Conservation has been undertaken especially laying down of terraces and a few cut-off drains.



#### Water sources

Proximity of water sources within 50 metres. The intake is facing a problem of siltation.

#### Livestock

The farmers keep cattle, sheep, goats and poultry on small scale. The animals apparently looked healthy.

The upper part of the zone or area, there are no improved breeds of cattle but around Ririmbeyi improved crossed and pure breeds are found. There was no overgrazing.

#### Health

There were no health facilities nearby. Accessibility to the area by road is poor.

Very few pit latrines realized on the upper zone, whereas the lower zone majority of the people have them.

#### FARMERS OPINIONS

- (a) Household size range from 6 to 13 persons.
- (b) Farmers say that the production of crops especially maize is coming down.
- (c) Farmers are regularly visited by agricultural extension staff.
- (d) Livestock officers don't visit the area.
- (e) Farmers alleged the forest guards come frequently to the area and arrest charcoal burners and those involved in illegal tree felling.
- (f) Farmers complained of leeches found in the river sources.
- (g) Farmers get adequate medical treatment at Chepareria but their homes are not accessible to vehicles.

### PRIORITIES

Road to be constructed to link Chepareria and Kapenguria-Kaibichb-ich road. The local people have started road construction on self help basis. Ways and means should be found to eradicate the leeches.

### GROUP RECOMMENDATIONS

1. Community should be assisted to complete the road that is being constructed on self help basis.
2. The agricultural staff, public health officers and provincial administration to carry out joint efforts in order to create additional soil conservation structures, rehabilitation of existing structures and digging of pit-latrines in each household.
3. Veterinary officers to visit the farmers and eradicate leeches.
4. Forest department to deploy extension agents to the area to assist in tree planting.

### DISCUSSION/MATTERS ARISING

- (a) Despite the fact that the agricultural staff are in the area, the crop yields were decreasing.
- (b) Farmers were aware of the use of fertilizers but they were not using them.
- (c) Pit-latrines missing in the upper part but available in the lower part. What was the main reason for this ?  
It was found out that there were more bushes on the upper zone and high water table.
- (d) Extension staff to emphasize on the need for latrines for the upper zone.
- (e) Maintenance of structures, people should be free in asking questions to farmers so that they get good answers. Most maintenance problems are due to lack of communication. Some members felt that farmers couldn't give satisfactory answers because of the way the questions were put forward to them e.g. some members had a habit of asking sometimes very direct questions.

- (f) The forest guards should be taught on extension services so that they can assist farmers to plant trees.

Group 3: Mumuch Area

Members:

R.M. Shimenga	-	Chairman
J.M. Odongo	-	Secretary
W. de Leeuw	-	Member
P.N. Wambungu	-	Member
P.M. Okado	-	Member
W. Katula	-	Member

INTRODUCTION

The group set off to study an area known as Mumuch which covers villages like Kosulol upto Propoi Primary School.

OBSERVATIONS

Topography and vegetation

The area is generally hilly with steep slopes on the upper part and gentle slopes on the lower part.

On the upper part, there are pockets of farming and forests with trees sparsely spaced and the lower part consist of grassland with some few trees.

The area consists of black forest soils, however due to erosion in some places, the top soil has been washed away leaving rocky sandy soils.

Human population

The area is sparsely populated. From the number of households that were interviewed, we could not come up with an average of a family size, since most of the farmers were not present to give the number of their households, this was attributed to the day, being a market day in Chepareria.

#### Land use

The land is mainly used for mixed farming, i.e. livestock keeping and crop production. The main crops grown are maize, beans, vegetables, tobacco with maize being a major crop.

The animals kept by farmers are cattle, goats and sheep. Cows and sheep are kept in a small number but goats were many. Some farmers in the lower part of the area, have started cross-breeding with cows.

#### Water sources

On the upper part of the area, farmers get their water from springs and streams, however the lower area is served by Chepareria river. There exists a water supply on the lower part of the area and it was noted that some farmers have tapped water from the gravity main, and even use it for irrigation.

#### FARMERS VIEWS

- (a) The farmers on upper part of the area complained of the long distances to the water sources and the steep slopes to be climbed to reach the water sources.
- (b) The farmers complained of lack of roads in the area.
- (c) The farmers complained of yields from their farms going down and down annually.

#### GROUP OBSERVATIONS

- (a) The group noted shifting cultivation being practised but due to increase of population, this practice is becoming less and less viable.
- (b) There exist conservation agricultural structures e.g. terraces but they are poorly maintained.
- (c) There was no re-afforestation noticed on the upper part of the area, but the lower part was fairly re-afforested and people showed interest in re-afforestation.
- (d) There were no toilets noticed on the upper part of the area but lower part had a few.

- (e) Many of the farmers do not depend on farming for their livelihood as others depend on off-farm incomes (e.g. employment).
- (f) It was observed that the river changed its course just near the Chepareria intake, thus resulting into less water entering the intake structure.
- (g) It was observed that some farmers encroached into the river banks.

#### GROUP RECOMMENDATIONS

1. The group recommended regular extension services to the farmers, on soil conservation, agro-forestry and the focus should be on labour intensive techniques.
2. Priority should be given by extension staff to maintenance of existing structures.
3. The farmers on the upper part of the area should be educated and encouraged to do some re-afforestation using trees which can be used by their animals, because at present, they see trees as a hindrance to their grazing land.
4. The group recommended toilets to be dug by those households living on the upper part of the area.
5. The group suggested that the Chepareria water supply to be an open subject for discussion.
6. Farmers who encroached the river banks should be removed.
7. The group recommended use of either farm yard manure or chemical manure to boost the yield from the farms.

#### DISCUSSION/MATTERS ARISING

- (a) It was observed that only exotic trees were planted. Why don't farmers get the indigenous trees ?  
It was suggested that the forest staff should ask farmers what trees are best suited to their areas and the trees they make most use of.
- (b) The upper zone is deteriorating drastically and yet there are no solutions given. It was felt that there was a need for discussion with the local people so as to arrest the situation.

#### GENERAL DISCUSSION

(a) The intake can be moved upstream but the complainants should be served with a different line separate from the one which serves the storage tank.

The Propoi water supply is a harambee project and therefore the people upstream should only get water if they participate in the project. The people complaining should contribute and organize themselves to have a water supply and then share a common intake with Propoi water supply.

(b) Farmers should be given a chance to choose the trees which should be raised in the nurseries depending on their local needs and utilization.

#### Group 4: Nataleng Area

##### Members

P. Loruchong'ar	-	Chairman
B. Kiboi	-	Secretary
J. Amayi	-	Member
S. Lonyakou	-	Member
B. Ndiwa	-	Member
J. Longelecha	-	Guide
S. Pkite	-	Local leader

#### INTRODUCTION

The group started off by descending from Ket-po-Chepokoro area which is in an ecological zone II down to Chepsungwa river. The group then traversed through the following areas, Nateleng hill, Ririmbeyi and finally ended at Propoi Primary School.

#### TOPOGRAPHY AND VEGETATION

The area between Ket-po-Chepokoro and Ririmbeyi is hilly with an average percentage slope of about 60%.

The soil type is black loam. The landscape between Ririmbeyi and Propoi primary school is undulating with average percentage slope of 30%. The soil type is mainly sandy loam. The vegetation is wooded bushland dominated by *Acacia abyssinica* in the upper part, *Acacia lahai* in the middle part and *Acacia hawaii* in the lower part.



There is a fair grass cover in the area with kikuyu grass dominating the upper part and Hyperanum themada association in the lower part. Riverine forest was observed.

#### HUMAN POPULATION

The upper part of the area is sparsely populated with about twenty households whereas the lower part is densely populated with about fifty households. The average households size is about nine persons.

#### LAND USE

Mixed farming is practised in the area. Crops grown in the area include maize, beans, vegetables, potatoes, bananas, fruits, sugarcane, cassava and tobacco. Maize is dominant in the area but only sold when there is a pressing domestic need.

Vegetables are grown for both home consumption and a source of income.

The livestock kept in the area include cattle mainly indigenous with a few crosses, sheep, goats, bees and poultry. The animals were generally in good condition apart from isolated cases of emaciation.

#### ENVIRONMENTAL CONSERVATION

People of the area are aware of environmental conservation issues. Soil conservation structures exist in most cultivated farms and indiscriminate felling of trees has subsided. This applies mainly to the upper part.

However in the lower part of the area, there is encroachment by farmers along the river bank (Ririmbeyi).

Sanitary facilities, e.g. pit-latrines don't exist in the upper part of the area, but a few were observed in the lower part.

#### WATER SOURCES

The main water source is river Ririmbeyi though there are other small springs serving the area. There are two water intakes (temporary) on the river Ririmbeyi meant to serve Chepareria trading centre and Propoi area.

#### WORKING ORGANIZATION

There exists a form or group working among the people. This is locally known as "sikom".

#### PEOPLES VIEWS/OPINIONS

1. The dips are far away especially for the farmers in the upper part of the hills.
2. Tree nurseries are far away for the farmers in the upper region of the area.
3. Some farmers in the lower region complained that the water from Ririmbeyi river to Propoi does not reach them.

#### GROUP OBSERVATION

1. Milk is produced mainly for home consumption.
2. Most areas lack extension services.
3. There is river bank encroachment near the water intakes on river Ririmbeyi.
4. The role of NGO's in the area is not felt.

#### GROUP RECOMMENDATIONS

1. The farmers should be encouraged to buy hand spray pumps either on individual or group basis.
2. A satellite tree nursery should be availed to farmers during tree planting period.
3. Water intake for Propoi area should be moved upstream in order to avail water to those who are missing among others.
4. The upgrading of the indigenous cattle should be encouraged in the area for more milk production enough for domestic use and sale.
5. Extension service should be intensified in the area by relevant departments e.g. livestock, agriculture, health, water, etc.

6. The current encroachment near the two intakes on river Ririmbeyi should be stopped and the area be reforested.
7. NGOs in the area should play an active role in the development issues of the area.

#### DISCUSSION/MATTERS ARISING

- (a) Clarification was sought on moving the intake. People felt that the water from the intake should be moved. However the water was to be tapped from the storage tank and hence not from the rising pipe. The issue was pushed to a latter session.
- (b) Reasons for encroachment at intakes were discussed.
- (c) Crops left in the pegged banks encouraged the farmers to recultivate the referred area. This is particularly due to lack of follow-up.
- (d) If the intakes are fenced then the people are made responsible of the maintenance through the Ministries of Water and Provincial Administration.
- (e) Satellite tree nursery - a nursery which is taken to the people when necessary.
- (f) The intake is not fenced and hence the people are going through the unfenced sections.
- (g) Pit latrines to be catered for by the Department of Health.
- (h) The figure of nine persons per household was arrived at after having interviewed only six out of 70 households. It was agreed that the data used wasn't conclusive or true representative of the whole population. It was therefore concluded that the sample taken ought to have been with a minimum of 10% intensity of the population.

DAY IV: 22/11/91

Group 1: Loyatum Area

Members

B. Kwemol	-	Chairman
P.M. Okado	-	Secretary
F.M. Trommelen	-	Member
J.M. Odongo	-	Member
S. Adams	-	Guide

INTRODUCTION

The group started at Loyatum area through Cheparua all the way down to Ywalateke Primary School.

VEGETATION AND TOPOGRAPHY

The land is generally sloppy with a few hills on the upper part, but the lower section is fairly flat.

The vegetation cover consists of scattered bushes and shrubs with fair grass cover on the upper section, while the lower part consists of Acacia and Euphorbia species, with most of the ground bare in most places.

The soils are mainly sandy loam with some areas having the basement rock exposed.

HUMAN POPULATION

On the upper part of the area we found that it was fairly populated, while the lower area was sparsely populated.

LAND USE

The area is mainly used for mixed farming that is livestock and crop production on the upper part but on the lower part mainly livestock.

#### CROPS

Maize, beans, finger millet, bananas and cassava were the main crops observed, with maize being the major crop for both consumption and sale.

#### LIVESTOCK

The livestock consisted of cattle, sheep, goats and poultry. With cattle, we observed some cross-breeds on the upper section while on the lower section the livestock were mainly indigenous.

#### ENVIRONMENTAL CONSERVATION

- (a) Reforestation of exotic trees was observed in the upper part of the area, while the lower part had nothing except for conserved areas by the VI Project.
- (b) Soil conservation structures were present on the upper part while nothing was evident in the lower section.

#### WATER SOURCES

The upper section mainly got its water from Chepareria water project and the river in dry seasons.

River water from river Kosulol is the main source of water for the lower area and also roof-catchment.

#### VIEWS AND OPINIONS OF THE PEOPLE

- (a) The people from the upper part of the area complained of inadequate water supply, animal disease e.g. E.C.F. and heart-water.
- (b) Farmers from both areas complain of soil erosion and termites.
- (c) The farmers using the water from Chepareria water project said they used it for both irrigation and domestic use.

#### RECOMMENDATIONS AND SOLUTIONS

1. The Chepareria water problem should be left for discussion as details are not very clear.
2. Soil erosion problem and the termite problem to be dealt with intensively by the Ministry of Agriculture.
3. Discourage use of the piped water for irrigation. Fee introduction.
4. Encourage use of roof-catchment by Ministry of Water Development.
5. Step up agro-forestry practices in the area.
6. Animals moving in the farmland with structures should be discouraged as they spoil the terraces and grass strips are later attacked by the termites.

#### DISCUSSION/MATTERS ARISING

- (a) Clarification was sought whether the roof catchment was recommended for irrigation.  
The roof catchment was recommended purely for domestic use.
- (b) Clarification was sought to know whether a farmer with the money to pay can use the water for irrigation.  
No domestic water should be used for irrigation.
- (c) A suggestion was sought on how the agricultural staff can solve the termite problem.  
It was suggested that the Agricultural Department should look into ways e.g. encouraging the farmers to buy chemicals.

#### PENDING ISSUES FROM MATTERS ARISING FROM DISCUSSIONS

- (a) Deforestation on the upper zone of Ywalateke catchment. What strategy can be applied to check the problem?

#### The participants suggested:

A baraza to be held to educate farmers on the need to reafforest the area.

This to include Forest staff, Agriculture, Livestock, Water and the Provincial Administration. After that, during planting seasons, the Agriculture and Forest Departments should see to it that soil conservation structures are made and trees planted.

The causes of deforestation should be investigated by the Departments concerned i.e. Agriculture and Forest; and if found, clearing of forest to give way to grazing grounds, fodder trees should be planted in the grazing lands instead of felling trees.

A member suggested that what can help rehabilitate the area is catchment approach, which requires the catchment team to stay in the catchments while doing the actual work. This is to be followed by regular visits to the areas by the extension staff.

Another member suggested that the Agricultural Department should deploy permanent staff in each agricultural area to stay with the farmers and not have one person centralized at a place, serving quite a large area.

#### Conclusion on the issue

Members suggested a catchment approach to be used to rehabilitate the area and extension staff should make frequent visits. They also suggested that the issue be brought to the attention of the District Agricultural Officer.

(b) Ywalateke water supply, i.e. the line from the tank to Chepareria and construction of intake for Chepareria.

#### The participants suggested:

A member suggested that since there is enough water at the proposed intake, construction should just be done.

Another member suggested that a small pipe should be connected to the storage tank at Ywalateke to serve those who live between Ywalateke and Propoi.

#### Conclusion on the issue

It was suggested that the development office i.e. DDO, ASAL, together with the Ministry of Water Development to liaise to solve the problem that is either to finance the Ywalateke line to serve Chepareria or construct Chepareria intake.

(c) Harmony between Forest Department and VI Project:

It was decided that both parties should work in harmony to facilitate their work. They should work as a team. Each team should consult each other for new techniques.



## Group 2: Pkinyat Area

### Members

J. Amayi	-	Chairman
F. Owino	-	Secretary
B. Shewa	-	Member
M.O. Ongong'a	-	Member
C. Omondi	-	Member
Losirinyang	-	Guide

### INTRODUCTION

The group started from Chepkorniswo centre, went through Pkinyat and ended at Ywalateke Primary School.

### TOPOGRAPHY AND VEGETATION

The area comprises of gently rolling, eroded grounds with gullies created by run-off. The area is agro-ecological zone IV characterized by *Acacia hockii*, *Balanites aegyptiaca*, *Euphorbia caledendrum* and *Terminalia brownii*.

Most areas are devoid of grass cover except for a few farms which have been fenced off. There are also scattered shrubs in the area.

The soils are shallow and sandy in most areas except Pkinyat area which is stony and Ywalateke area which has sandy loams.

### HUMAN POPULATION

The area is sparsely populated with the number of people per household ranging from eight to twelve.

### LAND USE

The main activity in the area is farming, with more emphasis on livestock production. The animals kept include cattle, goats, sheep and chicken. The major crop is maize but beans, finger millet, sorghum and vegetation are also grown. Citrus, avocados, bananas, mangoes were seen by the group.

#### ENVIRONMENTAL CONSERVATION

Farmland have old soil conservation structures (grass strips, cut-off drains) which are not being maintained.  
Trees are being cut for domestic use without replacement.

#### ENVIRONMENTAL HEALTH

Out of the ten homes visited, only two had pit latrines.

#### WATER SOURCES

There are two seasonal streams namely Anwan and Kiptarapon which are the major sources of water for both domestic and livestock use.

During dry season, water for domestic use is scooped from the two riverbeds while the cattle is moved to Chepkono area.

The Chepareria water project which serves part of the area is unreliable. Ywalateke water project is expected to serve the area once completed.

#### WORKING ORGANIZATION

Two women groups exist in the area namely Ywalateke and Chepkorniswa. There are also informal organised work groups among the people known locally as "sikom".

#### PEOPLES OPINIONS/VIEWS

- (a) Extension staff are inconsistent in their visit to the area.
- (b) Farmers want both exotic and indigenous trees but indigenous preference was for

- (i) Reberwo
- (ii) Priak
- (iii) Kalas
- (iv) Rotin
- (v) Simotwa
- (vi) Tuyunwo.

- (c) Water for domestic and livestock use is a problem.

#### GROUP OBSERVATIONS

- (a) There was very little afforestation in the area except for recent efforts of the VI Tree Planting Project.
- (b) There are two upgraded animals.
- (c) There is monocropping in the area, especially of maize.
- (d) Most of the area has evidence of soil erosion.
- (e) Some farmers have made an effort to harness water from the roof-catchments.
- (f) All homes visited had dish racks for utensils.

#### RECOMMENDATIONS

- 1. Extension staff should intensify their activities in the area.
- 2. Tree seedlings should be made easily available to the farmers and special attention to be paid to the preferred indigenous tree species.
- 3. Farmers should be sensitised to focus on harnessing water from the roof catchments and where possible should be assisted with construction of sub-surface dams.
- 4. Upgrading of livestock in the area should be encouraged by the department concerned.
- 5. Farmers should be encouraged to go in for diversification by the department concerned, e.g. tests for pigeon peas.
- 6. The success story of dish racks to be emulated in the construction of pit latrines.

#### DISCUSSION/MATTERS ARISING

- (a) A member wanted to know whether sub-surface dams can suit the area. It was recommended that at Chepkorniswa a sub-surface dam can work.
- (b) What type of structures were used for collecting roof catchment water? One of the group member answered that, structures such as water jars, drums, etc. were used.

- (c) The question arose whether the group members have any suggestion on how the conservation structures could be maintained.

The response was that it was an oversight by the group members but they have suggested that animals should not be left to roam about, as they are the main cause of destruction.

#### Group 3: Kokwokalia Area

##### Members:

S. Lonyakou	-	Chairman
B.A.C. Ndiwa	-	Secretary
R. Njuguna	-	Member
G.C.M. Mutiso	-	Member
P. Loruchong'or	-	Member
S. Pkite	-	Local leader
J. Longelecha	-	Guide

##### INTRODUCTION

The group set off from Propoi Primary School through Kapsimotwo, Kokwokalia to Ywalateke primary school. The area covered is under ecological zone IV, but gets drier as one descends.

##### TOPOGRAPHY, SOILS AND VEGETATION

The area is characterized by undulating slopes. The soils in the upper part is silty sandy loam, whereas in the lower part is sodic loamy soils. The vegetative cover is poor and is dominated by *Acacia hockii* and *Ocimum* species. The grass is extremely grazed and is dominated by *Chloris pycnothrix*.

##### HUMAN POPULATION

The area is heavily populated with fairly small farm holdings (the farmer averagely owning 1½ acres) in relation to Simotwo and other areas.

### LAND USE

The main land use is livestock keeping followed by arable agriculture. The animals kept include cattle, goats, sheep, poultry and ducks. A few crosses of cattle and galla buck with some healthy progeny were observed in the area.

Established pastures of (Pokot) rhodes and napier grass was also observed. Some farmers have padlocked their pieces of land. The milk produced in the area is only subsistence. The crops in the area are maize, beans, cassava, bananas, finger millet, sweet potatoes, sorghum, vegetables, Washington navel, lemons, guavas, pawpaws, passion fruit, grafted mangoes and nutmeg (kungumanga) being a unique crop in the area. The yields from maize crop is very low with an average of six bags per acre.

### ENVIRONMENTAL CONSERVATION

#### Soil conservation

The people are aware of soil conservation techniques, but few structures were observed in the area. Gully and Sheet erosion is evident especially in the lower portion.

#### Afforestation

Some farmers have planted the following trees: Gravellea robusta, Cup. lusitanica, Leucania leucesphala, Croton megalocarpus, Eucalyptus camaldulensis, Ficus natalensis "Nyorpotwo", Eurphorbia spp and some Sisal. The Eurphobia and Sisal are for fencing and soil conservation measures.

#### Environmental health

Some homes have pit latrines while others don't.

#### Water resources

We observed one flowing stream. From Propoi Primary School to Kapsimotwo area has piped water. Kokwokalia and Ywalateke areas have water problem for they get their water from Ywalateke river.

#### WORKING ORGANIZATION

Apart from "sikom" there is no other organized group. Other than VI Project rehabilitating eroded areas around Ywalateke Primary School.

#### FARMERS OPINIONS

- (a) Farmers said exotic trees are fast growing.
- (b) Cypress trees were being attacked by termites.
- (c) They said they prefer tree species which are not palatable to animals.
- (d) Farmers said they collected only available tree seedlings.
- (e) Farmers said seedlings are distributed late after the first rains.
- (f) Farmers are worried about shortage of piped water during dry season.
- (g) They suggested that the intake be moved upstream (Propoi).
- (h) Farmers suggested that the Ywalateke Morbus water be availed to them.
- (i) They said they want piped water to irrigate their farms.
- (j) They also said they are ready to go and assist the other farmers on the escarpments to plant trees to protect the water sources.
- (k) Farmers said they wanted more extension services to enable them manage their individual denuded plots.

#### RECOMMENDATIONS

1. Tree seedlings be availed to farmers on time.
2. Farmers should be given choice on tree seedlings species.
3. Cypress species is not suitable for zone IV.
4. Propoi water intake be moved upstream with community participation.



5. Extension services in the area to be intensified by all departments now that farmers have individual plots.
6. Now that farmers have offered to assist in the afforestation of the water sources the D.O. Environment should work out details.
7. Farmers should be discouraged from using piped water for irrigation. The water should be left for domestic use only.

#### DISCUSSION/MATTERS ARISING

- (a) One participant wanted to know why the Propoi intake should be moved up.  
For fear of shortage of water during the dry season was the reason given out.
- (b) One farmer's view was that, farmers were willing to go and plant trees in Ywalateke area, the question arose as to why the farmers haven't planted any tree in their own farms and this was not a pleasing statement.
- (c) It was stressed that the farmers should not use Ywalateke piped water for irrigation. The members felt that there is no option for irrigation as there is not enough water, and the farmers should be educated on that.

#### Group 4: Kamauwa Area

##### Members:

B. Kiboi	-	Chairman
F. Ombongi	-	Secretary
R.M. Shemenga	-	Member
W. de Leeuw	-	Member
P.N. Wambungu	-	Member
P. Kodan	-	Local leader/guide

#### INTRODUCTION

The area stretches from Chepkununu at the foot of Cherata hill through Cheptuyis, Kalalos, Kalimnyang and down to Kamauwa river along Msiywon-Ywalateke road. In general, landscape is between 0% and 48% but most of the area is flat. The sloppy area had sandy loam type of soils while the lower areas has silty loam soils.



There was fairly good vegetation cover with wooden bushed grassland. The vegetation mainly consisted of Euphorbia, Acacia, Croton, Gravellea and Balanites trees. The grass cover was mainly Cynodon (Star grass) and Eragrostis.

#### POPULATION

Generally, the area is moderately populated. From the farmers interviewed the household size ranged from five to ten numbers. Quite a number of the farmers had migrated from elsewhere to settle in the area, but all are Pokots.

#### LAND USE

Land use is mainly for cultivation and animal farming. We estimated the percentage of cultivation and animal farming to be 25% and 75% respectively. A few soil conservation structures were seen.

#### CROPS

The main crop grown is maize, others include beans, finger millet, bananas and tobacco. Many farmers used sisal for fencing and poles are used for various construction purposes. Labour is mainly on family basis. It was noted that after the harvest grazing is done freely.

#### LIVESTOCK

Livestock kept are mainly cattle and goats. Others include sheep, chicken which are generally of the indigenous breeds. A majority of the cattle were in good condition, although cases of animals in poor condition could easily be detected. However, the goats and sheep were generally in good condition.

#### SOIL AND WATER CONSERVATION

The farmers in this area are served by Chemorit and Kapotongo streams. The river banks are not protected as it was evident that farmers cultivated up to the river banks. There were a few trees planted in the farms. The existing indigenous trees are gradually diminishing.

#### FARMERS OPINIONS

- (a) The water project should be finalized and supply them with water to facilitate irrigation of vegetables and domestic use including livestock.
- (b) Farmers are not interested in indigenous trees but instead would prefer the exotic type which is fast growing.
- (c) They should be assisted to curb the problem of leeches.
- (d) That they are not well served by the extension officers nor the NGOs.

#### RECOMMENDATIONS

- 1. The people should be fully informed that the Ywalateke water project is not for irrigation.
- 2. VI Tree Planting Project to be requested to share the information on the indigenous trees, especially from the local people, with other interested parties.
- 3. The possibility of fruit tree seedlings should be investigated.
- 4. Agro-forestry should be introduced in the area especially with *Sesbania sesban* (nitrogen fixing tree species).
- 5. Extension workers to re-organize their functions to enable farmers benefit from their services.
- 6. Other economical viable crops should be identified for the area.
- 7. The river banks should be protected and re-afforested.

#### DISCUSSION/MATTERS ARISING

- (a) The group was asked to include river bank protection in their report as it was part of their observation.
- (b) The question arose as to what criteria the VI Project use to collect indigenous seeds to be raised for planting by the farmers. The VI Project had set up a committee to interview farmers on the type of indigenous trees they want before raising such seedlings, members were told.

# LIST OF PARTICIPANTS

1.	W. de Leeuw	ASAL Programme Advisor
2.	R.W. Njuguna	ASAL Agriculture Coordinator
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25.	Losirinyang	Guide
26.	W. Katula	Guide
27.	S. Pkite	Local Leader
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MAP 3

