RAPID CATCHMENT ANALYSIS FOR EXTENSION AGENTS:

Notes on the 1990 Kericho Training Workshop for the Ministry of Agriculture, Kenya

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SUSTAINABLE AGRICULTURE PROGRAMME

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RAPID CATCHMENT ANALYSIS FOR EXTENSION AGENTS: NOTES ON THE 1990 KERICHO TRAINING WORKSHOP FOR THE MINISTRY OF AGRICULTURE, KENYA

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"The soil said to man, "make the best use of me when you are alive or else, when I get hold of you, you'll never be free again; I can always regenerate but you cannot".

Arap Koech, farmer in Chemorir Catchment, Kericho District

Executive Summary

This is a report of the May 1990 training workshop on Rapid Catchment Analysis held in Kericho, Kenya. Thirty six participants from a range of departments within the Ministry of Agriculture and other Ministries, such as the Ministry of Livestock Development, attended. The lead agency was the Soil and Water Conservation Branch of the Ministry of Agriculture. The workshop resulted in the rapid analysis and planning of six catchments within a single Division of Kericho District. These were Chemorir, Cheplanget, Cheronget, Kasbaswet, Koiwalelach and Mindililwet. Each of these is written up in a separate document, available from the Soil and Water Conservation Branch, Nairobi.

This report describes the mode of training and the results of group exercises; compares the approaches taken by each of the six groups during their RCA's; and draws conclusions for the future of Rapid Rural Appraisal methods within the SWCB. The appendices contain detailed instructions and tips for the use of many of the techniques.

The principal trainer, Jules Pretty, was able to attend as a result of a grant made by the Swedish International Development Authority to the International Institute for Environment and Development in London.

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1. Soil and Water Conservation in Kenya

Current Status

The conservation of soil and water has long been an important element of agricultural and economic life in Kenya. In the last 15 years the number of farms conserved with physical, cultural or biological measures has grown by about 1.1 million. But the total number conserved still only represents about a third of all small farmholdings. Despite great effort by government and non-government agencies, the rate of implementation is still too slow. Current predictions suggest it may take another 20 to 25 years before all are conserved.

The result will be a continuing growth in direct (production) and indirect (environmental) costs imposed upon the economy. Farming households will lose as yields suffer through loss of soils and water from farms; and environmental quality will decline as waterways are filled with soil, as nutrients encourage algal blooms, as reservoirs fill, and as coral reefs die.

In order to increase the implementation rate through improved planning, the Catchment (or Area Concentration) Approach was introduced in 1987 by the Ministry of Agriculture. The objective is to concentrate resources and efforts within a specified area for a limited period of time, so conserving all farms and leaving small adjustments and maintenance to be conducted by local extension agents and the community itself. The organisation of the catchment approach has three key elements: community mobilisation and participation, planning in partnership and implementation (see Table 1).

The long-term strategy is to develop and support farming and livelihood systems that both conserve resources and are seen as profitable by farmers. The major benefits of using catchments as planning units are thus:

Table 1. Organisation of the Catchment Approach

For the 'Catchment Approach' to achieve its goals of improved planning and effective implementation, the following three components must be oberved.

1. **Total community mobilisation and participation, by:**

   (i) Interviews and interaction with farmers by the planning teams
   (ii) Formation of catchment committees by the farmers themselves
   (iii) Intensified publicity and training through field-days, barazas, demonstrations and tours

This will help pass information widely to the catchment inhabitants, to develop better understanding of the conservation problems specific to each area and to cultivate closer collaboration between the farmers, Ministry of Agriculture and other agencies and Ministries.

2. **Catchment planning, by:**

   (i) Identification of problems by extension staff and farmers through interviews
   (ii) Discussing these problems and opportunities with other government ministries and agencies
   (iii) Production of physical plans with details of best measures already discussed by the individuals affected

3. **Implementation of the plan, by:**

   (i) Allocation of duties to the catchment planning team (DivSCO + 2 TAs)
   (ii) Actual lay out of appropriate conservation measures
   (iii) Technical and organizational supervision by the extension staff and local committees to ensure adoption by the farmers in the whole catchments

* increased public awareness of conservation issues;

* increased identification of land capabilities and opportunities for agricultural development;

* reduction of water run-off and consequent environmental damage;

* conservation of soil fertility and maintenance and improvement of agricultural productivity;

* intensified livestock management through the use of zero-grazing units and improved fodder grasses;

* maintenance and improvement of trees; and

* protection of wildlife habitats.

But there have remained two central constraints to soil and water conservation efforts. Soil conservation is rarely the first priority for action amongst farmers, especially if it is in the form of physical structures such as terraces. And Kenya is biophysically and socio-economically highly diverse, and so effective strategies for soil and water conservation in one catchment are likely to differ from those in another, neighbouring catchment. The fundamental challenge is to develop an extension approach that is capable of finely-tuning the soil and water conservation strategies to the specific needs of farming households in every catchment of the country.

Rural Extension Practice

Agricultural extension in Kenya is organised along the lines of the widely promoted and institutionalised Training and Visit (T & V) system. In the Soil and Water Conservation Branch (SWCB)

there are 13 Provincial Soil Conservation Officers (PSCOs), based in the offices of the Provincial Director's of Agriculture. Each of these maintain a team of District Soil Conservation Officers (DSCOs), based in the District Agricultural Offices; in turn each DSCO has a team of Divisional SCOs (DivSCOs), each of whom in turn supervises two Technical Assistants. Farmers also come into contact with extension staff from other Departments in the Ministry of Agriculture (eg Crops Officers, Farm Management Officers) and other Ministries (eg Livestock Officers, Range Officers, Environment Officers, Water Officers).

The T & V system of extension is based upon three central premises:

1. Field-level workers are upgraded through regular training to enhance their technical skills. This is achieved by concentrating upon a narrow range of tasks.

2. Extension agents then pass on this subject-specific advice through regular contact with farmers by the use of demonstrations on the fields of contact farmers (CFs), field days and group meetings. The CFs are supposed to be selected from those farmers who have most to gain from technical imporvements, though should be representative of all groups in the target area.

3. The technical advice and knowledge then diffuses from the CFs to other farmers, who are able to get advice from the CFs and observe their practices.

Despite these good intentions, experience from a wide range of countries is now suggesting that this system of extension is flawed with contradictions and dilemmas. It is permeated by a belief in the inherent value of information and the 'trickle-down' approach. This Transfer of Technology (TOT) or diffusion model thinking means that new technologies are transferred to a minority group of innovators, progressive-farmers, the high-

access group of contact farmers, who demand advice. Farmers who chose not to adopt are thus labelled as laggards and non-adopters, and as having attitudinal barriers (Russell et al, 1989; Chambers & Ghildyal, 1985; Rogers, 1983). There is now clear evidence that the message does not go much beyond the contact farmers: adoption rates are always poorer in the non-CF group compared with CFs (Chapman, 1988; Mullen, 1989). In Somalia, for example, successful adoption of extended technologies requires a ratio of CF to non-CF adopters of about 1:10 - in practice it rarely exceeds 1:1 (Mullen, 1989). This is despite the fact that maize and sorghum yields were 41-45% higher on CF fields during 1983-1986 (Chapman, 1988).

This means that extension officers are dealing with farmers who have better yields, better returns, are more wealthy, and are thus less likely to be constrained from adopting new even more productive technologies. Extension messages commonly reinforce this large or wealthy farmer bias by concentrating upon an input intensive strategy. Extension agents recommend intensive applications of fertiliser and pesticides and the use of hybrid seeds and provide credit - in Somalia, again, the extension package recommends 100 kg urea are applied to each hectare of maize, an impossible amount for farmers remote from roads or simply too poor (Mullen, 1989). The training element of T & V, in order to upgrade skills, has produced subject-matter specialists who by definition are discouraged from taking a holistic view of the farming household's livelihood.

The final problem is a structural issue relating to the insititutional collaboration between research and extension systems. In practice information flows easily from research station outwards to extension agents and hence to farmers - the technology is transferred. But feedback of site specific knowledge is commonly poor, researchers rarely hearing of the specific needs of farmers. The result is that researchers work in isolation from the constraints and needs of the rural poor. In a recent authoritative review of extension theory and practice, David Russell and colleagues (1989) have said that:

"Farmers have almost universally been sold short as both competent scientific thinkers and researchers".

And yet it is not enough to consider the constraints within and between outside agencies. The responsiveness of farmers to extension messages does not depend upon agricultural and infrastructural factors alone. As important are the social cohesion in the community, the quality of communication between extension agents and the community, the quality of leadership in the community and the strength of local institutions. As Joseph Mullen (1989) has put it:

"Extension can hardly be considered as purely a mechanistic phenomenon, nor are villages mini-factories which transform a given quantum of inputs into a quantum of outputs".

There is a need, thus, to see farmers as adult learners who respond when they are asked, rather than told, what it is they need to know about farming. It is with these issues and challenges in mind that the Soil and Water Conservation Branch of the Ministry of Agriculture has begun to adjust the extension of soil and water conservation in Kenya. As the former Head of the Branch, Mr H.G. Kimaru, put it early in 1990:

> "We seek to develop a dialogue between the change agent and the farmer in order to ensure that new technologies can be focussed towards solving the farmers' perceived problems (and not merely what the change agent may want to promote)...All of us should learn to recognise the central role of the farmer in development." (Kiara et al, 1990).

2. Rapid Catchment Analysis for the SWCB

In 1989 the Soil and Water Conservation Branch decided to test the suitability of Rapid Rural Appraisal (RRA) as a methodology for helping in catchment planning. A two-week training course was held for both Provincial and District Soil Conservation Officers, and personnel from the SWCB HQ in July of 1989. The course was run by Jules Pretty and Jennifer McCracken of the Sustainable Agriculture Programme, IIED, London, and is reported in "Rapid Catchment Analysis: An Application of RRA to the Catchment Approach of the SWCB, Ministry of Agriculture, Kenya" (Kiara et al, 1990).

Contribution of Rapid Rural Appraisal

Rapid Rural Appraisal has developed rapidly over the last decade or so in response to growing concerns over the commonly encountered pitfalls in conventional rural research and extension approaches. It can be defined in this way:

"RRA is a structured yet flexible learning process conducted in the field and workshop by a multidisciplinary and/or multisectoral team. It is designed to generate new insights about rural life and soil and water conservation using both local knowledge and the knowledge of the investigating team.

Six core principles characterise most RRAs:

Learning Process: during the process everyone learns - researchers and farmers, and learning doesn't stop.

Systematic & Structured Approach: the approach is highly structured with the use of a range of core techniques and methods, often in particular sequences; during this there is a search for relationships and connections between components, of livelihood, farming, and catchment systems.

Local Perceptions: there is a focus on building upon rural people's knowledge and perceptions.

Multidisciplinary Partnerships: during the RRA, the investigators work together as a team; the whole group achieves more than the sum of the parts ever could; partnerships are developed between investigators and other investigators and with rural people.

Offsetting Biases: investigators explicitly try to avoid the pitfalls and biases of rural investigation, eg seasonal, spatial, big farmer, and remember to learn from women, the poor, the disadvantaged etc.

Flexibility: the methods and approach are chosen to suit the objectives of the particular RRA; these change during the RRA as the team learns more and makes modifications.

The techniques of RRA used in the Rapid Catchment Analysis approach include

*Semi-Structured Interviewing,
*Participatory Mapping
*Transect Walks,
*Group Meetings,
*Farm Sketches,
*Venn Diagrams,
*Seasonal Calendars,
*Historical Profiles,
*Matrix Ranking,
*Indigenous Practices, Quotes and Stories,
*Tree Ranking,
*Attitudes to Soil and Water Conservation, and
*Rapid Report Writing.

Users' notes for these techniques are reproduced in Appendix A, together with examples from Rapid Catchment Analyses conducted in Kenya.

Rapid Catchment Analyses (RCA), 1989-1990

The first workshop, held at the Blue Posts Hotel, Thika, and analysing two catchments in Murang'a District, demonstrated that RRA techniques could be successfully used in the planning and extension of soil and water conservation activities. In the two catchments of Mbari ya Hiti and Mihang'o-Retire, it was found that the RRA could give technical information on the status of soil and water conservation(SWC) and erosion problems; could mobilise farming households to understand better the problems of SWC and to take responsibility to deal with them; and could create the conditions for successful interdisciplinary and intersectoral partnerships between extension workers of different disciplines and departments or ministries. It was concluded that RCA should be further tested within MoA. Some of the participants would run further RCAs without the help of outside agencies, which would then be reported on at a further seminar or workshop.

In March 1990 three further catchments were thus planned using the methodology of RCA. These were:

1. Kerrison, in Nyandarua District; the officers who had attended the Murang'a exercise were Mikael Segerros of HQ and J.C. Ling'ang'a (DSCO Nyandarua).

2. Ngenia/Kalalu, in Laikipia District; the officer with the experience of RCA was J.K. Kiara (PSCO Rift Valley)

3. Miathene, in Embu District; the officers with experience were E. Mwenda (HQ) and B. Gacheru (DSCO Meru).

These three RCAs are recorded in separate reports (Segerros et al, 1990; Kiara & Waweru, 1990; Mwenda et al, 1990) and are available from the SWCB, MoA. There were three principal departures from the Murang'a exercise:

* each RCA lasted for one week only, so making it easier for participants to arrange for a week away from normal duties;

* participants came from several ministries, departments and agencies;

* at the barazas, findings from the planning exercises were presented to farmers, who were able to comment and make changes; problems and opportunities were also presented and then ranked in order of importance.

* following the planning exercise findings of the RCA planning were presented to local officials and administrators.

A comparison of the three RCAs is contained in Table 2. All three teams contained a diversity of disciplines and made use of the same core of techniques. All focussed strongly on regular meetings between team members, and all had a feedback baraza. One team was joined by elders during the exercise, and their involvement led to them wishing to present the diagrams during the baraza. Two of the barazas were rain-disrupted, and had to reconvene in a church and village hall. All three teams produced preliminary proposals, but one went further to produce an action plan and schedule that was presented to the villagers. Two teams arranged for a follow-up meeting with district officials; for one of these no one came, but the other was a great success, leading to several officers giving their commitment to follow up upon recommended preliminary proposals. The exercises cost 8600-20,000 Kenya Shillings each (US $500-1200).

These three further testings of RCA have greatly furthered the understanding of what can be achieved with these methods. In all cases, soil conservation officers reported enthusiasm amongst colleagues and farmers. All three thus formed a further platform for the next stage of the development of RCA within the SWCB. By the end of March 1990 the total number of people trained at least once in RRA/RCA was 54.

Table 2 Comparison of three RCAs conducted in March 1990

	Kerrison	Ngenia/Kalalu	Miathene
Disciplines in Field	SWC, Livestock, health, Social Services, roads, water, forestry	SWC, Social Services, Livestock, Prov Admin., Home Economics	SWC, Livestock, Prov. Administration KANU, KNFU, Forestry, CDA, Teacher
Days in Field	3 & 1/2 field 1/2 PP writing 1 Baraza 1 Writing up	1 Introduction 3 Field 1 Baraza 1 Writing up	1 Baraza 2 Field 1 Formulating plan 1 Baraza
No. of groups in Field	2 (one day 5)	2	2
Tools in Field	SSIs Map (1:50,000 and High Point)	SSIs Map (drawn by TA)	SSIs Map (copies from DAO's Office, High Point and Assistance of leaders)
	Transect walks Seasonal calendars Historical profiles Farm sketches Venn diagram Trees: good and weak features Attitudes and opinions to SWC	Transect walks Seasonal calendars Historical profiles Farm sketches Venn diagram Tree ranking SWC ranking	Transect walks Seasonal calendar Historical profiles Farm sketches Venn diagram Attitudes to SWC
Points of Interest	Rainfall patterns differed between farmers and local research station	DO (Envt) thought team had been coached for their presentation, but not the case	Team joined by appointed elders, diagrams presented by villagers at baraza

Style of Final Presentation	Findings presented to Baraza (300 present) on card; people ranked problems and opportunities elected catchment committee	Achievements, problems and opportunities presented; people made changes; rain disrupted meeting chief subverted to aims of team	At initial meeting villagers agreed to present findings at baraza rain disrupted (40 at meeting); Formulation of action plan and schedules
Intensity of Work	Brief evening meeting; one late evening	Late working several evenings	Meetings in the morning and late afternoon
Group stayed at	Home	Hotel	Home
Final output	Preliminary proposals	Preliminary proposals	Action plan and schedule
Follow-up meeting	Arranged; No one turned up	Very successful, various officers agreed to act	Not arranged
Cost (K shillings)	12,000 (incl. 7000 for baraza lunch)	20,000	8,600

3. The Kericho Workshop, May 1990

Objectives

There were three objectives for the Kericho Workshop:

1. To test further RCA in 6 unplanned catchments close to Kericho.

2. To train about 35 participants in both RCA techniques and in methods of training trainers. Participants attending were affiliated with a range of departments and agencies (see Appendix B).

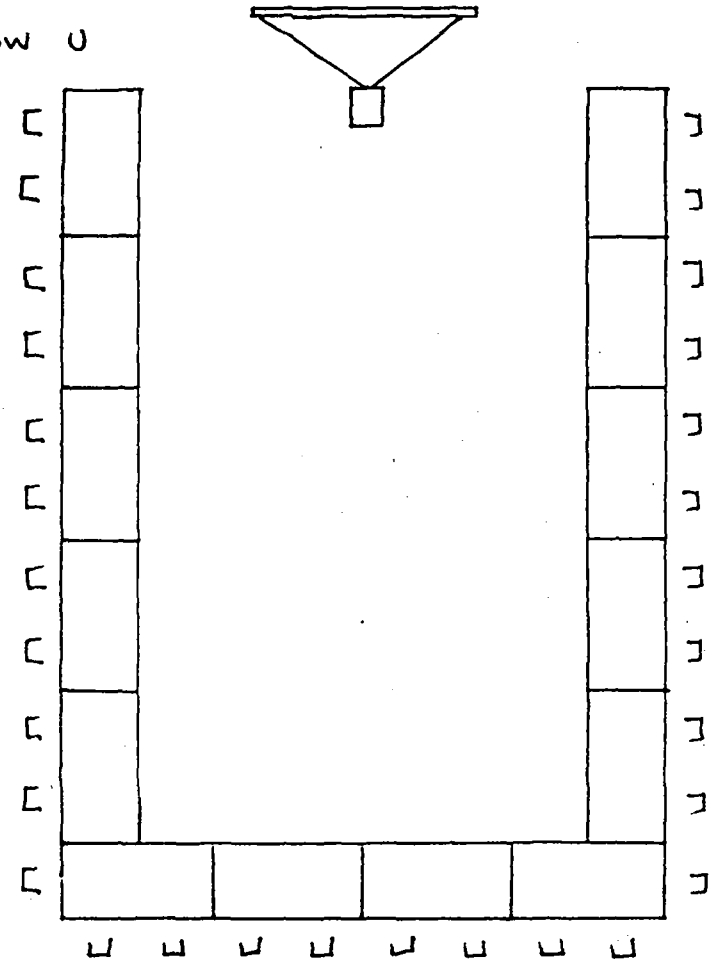
3. To identify further strengths and weaknesses in the methodology.

Preparations

The Mid-West Hotel, Kericho, was selected by HQ in advance, as there were both sufficient rooms to accommodate all participants, and one large room for the workshop proceedings. Trainers, participants and materials arrived on the evening of Tuesday 1st May. The materials brought included slide projector, overhead projector and spare bulbs, large sheets of paper and card, small field notebooks, clinometers, pens, writing pads, overhead transparencies, reference books and reports, maps, and caps and bags for participants at the end of the workshop.

The tables in the workshop had been pre-arranged into a hollow-U. This has the advantage of all participants being able to see the front and each other, but it does mean those along the bottom of the U can be a long distance from the facilitator (Figure 1). On this occasion we set up 6 tables in banquet style. Although this requires that some participants shift their position in order to talk face-to-face, this disadvantage is offset by the fact that

A. HOLLOW U



B. BANQUET STYLE

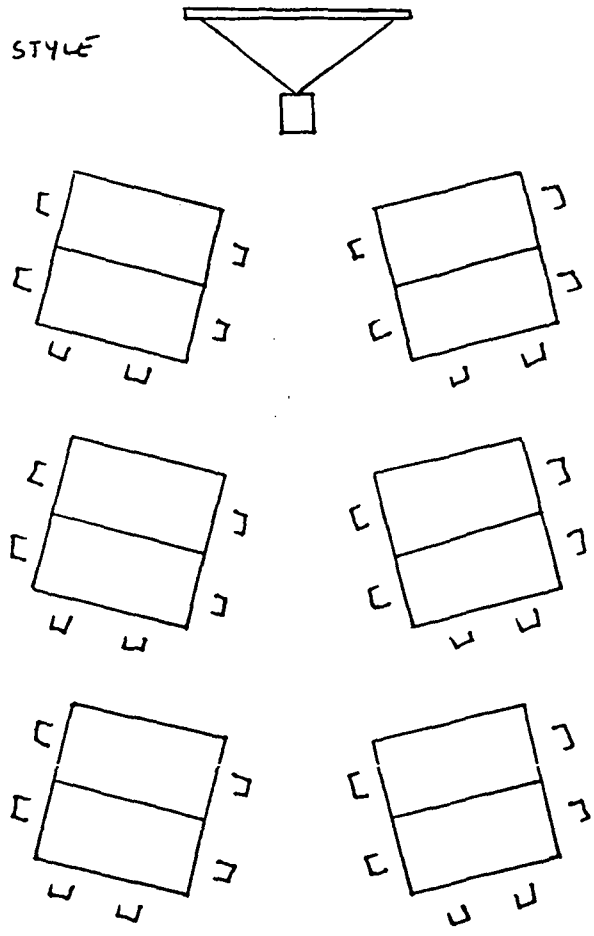


Figure 1. Alternative arrangements for tables in workshop

groups are already established for breaking into group work and buzz sessions. This saves considerably on disruptive reorganisation during sessions.

Participants were allocated to the 6 groups to give a mix of disciplines and experience. There were only 3 women out of 36 participants. The resource people for the groups were J.K. Kiara; E. Mwenda; J.A. Njeka and M. Segerros; J.A.M. Ling'ang'a and G G Runyora; M.A. Mwakileo; and J.N. Pretty. Seven had been present at the Murang'a exercise in July 1989, and four had also taken part in the three follow-up exercises in March 1990.

A summary of the workshop schedule is shown in Table 3.

Introduction to RCA and Techniques

For the first 3 days participants were introduced to catchment planning and its history; to the principles of RRA; and to each of the techniques to be used in the field. Presentations were alternated with group work and exercises throughout the three days .

Following the introduction to the workshop, participants divided into pairs to interview each other on their expectations for the workshop. Each participant then reported back by introducing his or her partner to plenary and describing their expectations. The expectations were written on large sheets of paper and taped to the wall for the duration of the workshop for all to see (Appendix C).

A Group Strategy Exercise was conducted on the first morning, following the introduction to RCA (see Table 4). In all multidisciplinary team work, attention must be paid to the fostering of successful group dynamics. Groups commonly pass through 3 distinct stages before individuals begin to work well together. In the first the individuals come together and FORM

Table 3 Summary schedule of workshop May 1-12, 1990

Day 0:	Arrive Mid West Hotel
Days 1-3:	Workshop - Introduction to RRA and RCA techniques & methods - Presentation of case studies - Preparation for fieldwork
Day 4:	Fieldwork (first field day)
Day 5:	Morning - rest Afternoon - training of trainers (voluntary)
Days 6-9:	Fieldwork (field days 2-4)
Day 10:	Report writing (Day 5 of RCA)
Day 11:	Presentations in plenary Review of RCA Evaluations Closing ceremony
Day 12:	Return

Table 4. Group strategies exercise

The objective is to demonstrate that groups can evolve competitive or cooperative strategies or stances. The game explores trust, the effects of betrayal of trust, the effects of competition and the process of developing cooperation.

Divide participants into even number of teams. Explain to the group that the objective of the game is for each team to maximise its own score. The teams are paired and instructed not to communicate with the other team in any way, verbally or non-verbally, except when told to do so by the animator. Ten rounds are conducted, in which each team chooses the Red or Blue strategy. A time limit of 2 or 3 minutes should be set for each round. Red or Blue is written on separate pieces of paper, which are exchanged. The scores for each team are computed and recorded based on the following:

Both choose Red -	Both score 2
Both choose Blue -	Both score 1
One chooses Blue	Chooser of Blue scores 3
One chooses Red	Chooser of Red scores 0

At rounds 4 and 8 the teams send out representatives for negotiations.

The normal result is that they agree both to choose Red A to get maximum group allocation, and then one or both plays Blue. The double-crossers score more, and teams will try to get their double-crossing in first. There are two scenarios: trust slowly becomes eroded until each is determined to mislead and cheat; trust becomes enhanced and fixed by mutual agreement.

At the end the animator compares the scores of individual teams, the aggregate pair scores and the overall score. It is revealed that all the teams are part of an overall group, and internecine conflict has greatly reduced the total possible score of the group. The maximum individual team score is 30 points, the maximum aggregate pair score is 40 points.

the group. In the second the established structure breaks done and individuals begin to express their private agenda, and a period of STORMING ensues. Once the storming is complete the group can establish NORMS of behaviour and working; and can then go on to PERFORM. The Group Strategies exercise is designed to give participants the opportunity to get to know each other better, and competition with other groups helps to forge these linkages. The exercise led into a discussion on the merits of risk-averse and risk-taking behaviour in farming.

The afternoon of the first day was devoted to an analysis of interviewing technique. The subject of Semi-Structured Interviewing was introduced. Then a brief sketch on an insensitive and then sensitive interview was conducted by P.K. Mwangi and W. Kimani. These two actors used a pre-prepared script, from which they ad-libbed. This introduction to the good and the bad in interviewing led to the analysis of interviewing techniques in groups. Each group analysed some 6-8 photographs of interviews, and then produced guidelines for the conduct of SSIs. These were written on large sheets of paper and stuck on wall space close by each group, once again for examination during the remainder of the workshop (see Appendix D).

A central departure of RRA from more conventional methods of both rural investigation and extension practice is the emphasis upon the value of traditional or indigenous practices and beliefs. In the Murang'a workshop participants produced a selection of intriguing traditional practices, beliefs and myths they had encountered during their past work. This technique was first used by Anil Gupta and his colleagues to help biological scientists in India and Bangladesh to understand farmer innovations (Gupta, 1989). This was then supplemented by further discoveries from the fieldwork in Murang'a (see Table 5a and b). The exercise was repeated at this workshop, producing an ever more complete list, participants having been warned a day in advance (see Table 6). Some of these are myths, apparently having little relation to science. But other intriguing

Table 5a Farmers' beliefs and practices reported by participants of the Murang'a workshop as intriguing, unusual or untested, which they had previously encountered in their work.

1. Grevillea planted with coffee reduces pests on coffee (Mbari-ya-Hiti; M Segerros)

2. Cutting the sacred fig tree lead to landslides (Murang'a; B. Gacheru)

3. Insert 4-5 nails into the trunk of citrus to help bear fruit (J. Kiara)

4. Insert nails into the trunk of coconut to prevent leaves from falling (Coast Province; M. Mwakileo)

5. Mix maize flour with cement to control rats (B. Gacheru)

6. Planting Croton too near the house will lead to the roots spreading to the house, causing a series of deaths, beginning with the husband, wife, the children (E. Mwenda)

7. Married women cannot harvest banana (West Province; J. Njeka)

8. Insert a stick in the trunk of a papaya to change the sex from male to female (Angola; M. Segerros)

9. A landslide was caused when an uncle snatched a farm from a son who had inherited it following the death of his father. The son left for Nairobi, and the farm thought - I cannot be farmed by anyone except for my family, so it jumped into the river (Kenya; B Gacheru)

10. A solution of Omo washing powder and water decreases dormancy in potatoes (East and Rift Valley Provinces; J Kiara)

11. If soil is placed into the top of a young coconut, then if it is attacked by Rhinocerus beetle the soil will become lodged between the head and the carapace and thus the beetle will die (Coast Province; M Mwakileo)

Table 5b Some traditional practices and beliefs reported by the RRA team from Mbari-ya-Hiti catchment, Murang'a District

- When leaves of the matathi tree are boiled, mashed, strained and the solution fed to cattle then this is effective for deworming. Between 5-8 bottle are sufficient to treat each cow.

- Pumpkin (squash) boiled and mashed into solution is also effective for deworming.

- Grevillea grown amongst coffee reduces pests on coffee.

- If avocado and mango take too long to bear fruit, make several cuts on the bark with a panga to induce flowering.

- If fig sheds its leaves or black wattle comes into flower, then these are indicators that rain is about to come.

- A woman farmer described how she once saw someone put soil dust into the top leaf of maize to control stalk borer. As an experiment she tried it herself in only one row of maize. When it worked she extended the practice to all the crop in the next season.

- Two neighbouring farmers added wood ash to the soil at the time of planting maize, potatoes and brassicas to control soil pests.

- Intercropping coffee with various kinds of vegetables does not reduce coffee yields if sufficient animal manure is applied.

- Napier grass consumes nutrients.

- Local varieties of maize are more drought-tolerant than the certified seed.

- Mulching of coffee plants produces heavier beans than for those not mulched.

Table 6 Traditional practices and beliefs reported as intriguing by participants of RCA/RRA workshop, May, 1990, Kericho

- Use of chili pepper mixture with water to feed to chickens to control diarrhoea (M. Njuru)
- Black soot taken from top part of chimney and made into a solution to feed to chickens to treat NCD (Newcastle's Disease). Sometimes the effect is better than vaccine (M. Njuru)
- Soot solution is taken by people with complications of the liver (E. Mwenda)
- Yam and tree are grown together in M because they are mutually beneficial to each other (E. Mwenda)
- Yam is believed to be only a meal for old men (E. Mwenda)
- Banana growing regions of Kenya are also those of highest population growth rate (S. Maiko)
- Banana stems are used to show where weddings are held. Is banana related to fertility (M. Njuru)
- Cement is mixed with maize to kill rats (G M Mucai)
- The Mexican marigold is used to prevent safari ants from entering livestock bomas. The plant emits a strong odour (M. Njuru)
- Mexican marigold also used to control nematode infestations (A M Kinampiu)
- When there is a hailstorm people go outside and dig with a jembe to stop the hail (A S Omushieni)
- If someone gets the sap of Euphorbia in their eyes, then only human milk will dissolve this sap (A M Kinampiu)
- In the evenings children are not supposed to mention the names of wildlife, for example, leopard or snake. If they do, they must scratch the kitchen stones (M. Njuru)
- Disputes used to be settled by elders under the Erythrina abyssinica tree. Individuals would touch the tree and wish upon themselves the worst of catastrophes if they were not telling the truth (M Mbegera, R L Maina)
- Erythrina abyssinica helps to get rid of mumps: sufferer of mumps get up early in the morning, takes the previous day's ugali, walks around the tree singing a local lyric, and then goes away from the tree without looking back (A S Omushieni)
- Mixture of Neem and water to control malaria (TST Kipkoech)

practices are sometimes more efficient than well-established 'scientific' practice. Take one of the examples given by Mr Njuru: he recalled that the black soot mixture was more efficient in treating Newcastle's Disease in chickens than the vaccine.

One comment on this exercise is that although it is difficult to encourage participants to speak aloud beliefs and practices that are usually taken to be thoroughly unscientific, once the ice is broken then many follow. For the future I suggest that trainers prime one participant so that they lead the way, or listing intriguing practices themselves. Throughout this workshop these practices were regularly referred to, and formed a major focus for all discussions of indigenous agricultural knowledge.

Thursday morning to mid afternoon were devoted to detailed presentation, discussion and practice of the remaining tools and techniques to be used in the field. These included participatory mapping, transect walks, farm sketches and profiles, seasonal calendars, historical profiles, and venn diagrams for institutional analysis (see Appendix A for details). A more lengthy exercise was conducted on the technique of Matrix Ranking and Scoring.

The instructions for this ranking exercise are in Appendix A. Each of the 6 groups conducted a ranking on a collectively agreed selection of soil and water conservation measures: the fanya juu, fanya chini, grass strip, trash line, stone line, strip crop, unploughed strip, and contour ridge. Each group discussed advantageous and disadvantageous criteria for SWC measures; these were listed, and each measure ranked for each criterion. The matrix ranking illustrated the importance of considering a wide range of criteria (see Table 7 for full list produced by participants) before coming to any decision about the best measure for a given location (see Appendix E for details).

The remainder of the day was devoted to presentations by the three teams who had conducted the RCAs in Kerrison, Ngenia/Kalalu

Table 7 List of all criteria for soil and water conservation measures produced by matrix ranking exercise

1. Speed of development of measure, especially for bench terrace
2. Fodder production
3. Labour costs for establishment
4. Amount of land used for measure, so removing it from other uses
5. Time taken before results seen by farmer
6. Water conservation
7. Level of technical knowledge and skills required by farmer
8. Labour requirement for maintenance
9. Impact upon crops - eg using up nutrients
10. Harbours rats and snakes
11. Impact on pests and diseases
12. Impact on soil fertility
13. Requirement for special tools eg wheelbarrow, jembes and spades
14. Effectiveness at quickly reducing slope
15. Infiltration of run-off
16. Breadth of application, eg limited to only certain sizes of farm
17. Breadth of application, eg limited to only certain sizes of farms
18. Breadth of application, eg limited to only certain agro-ecological zones
19. Applicability to shallow soils
20. Degree of permanency of measures
21. Impact on drainage

and Miathene. These presentations led to lengthy and considerably detailed discussions on the methodologies used. This session was particularly valuable in enabling participants new to RCA to raise concerns and detail advantages. In all presentations and discussions lasted for five hours, well into the evening.

The final preparatory day of the workshop was devoted to the design and planning of the fieldwork. Brainstorming sessions were conducted for the development of checklists for interviews. Each group was asked to explore:

* the interactions between soil and water conservation and other components of livelihood systems

* what encourages SWC

* what discourages SWC

These were written up in lists and diagrammatic form on large sheets of paper and then presented to plenary. All presentations save one happened to be made by non-SWCB staff, who as a result of the exercise were able to talk authoritatively about SWC. Appendix F contains the list of issues relating to SWC that fed into the production of checklists and interview guides.

Each group also planned for fieldwork by collecting materials, making arrangements for vehicles etc., and making rough maps to carry around the catchment. These were made by tracing the catchment from a 1:50,000 map onto an overhead transparency, which was then projected onto a large sheet and drawn again. These maps gave each group something to refer to during the fieldwork. The maps were adapted and changed as they learnt more in the field.

Field Work

The first field day was devoted to protocol meetings in catchment with chiefs and elders, mapping exercises, transect walks and interviews. On return to Kericho all groups conducted debriefing and brainstorming sessions to share within the groups their findings from the field. The value of these meetings cannot be underestimated, even though the team may be tired. It is vital for sharing findings, suggesting new topics for investigation and ensuring the group works and acts as a group.

Sunday came after the first field day. The morning was free; the afternoon was devoted to a voluntary training of trainers session. About half the participants attended and analysed a video to produce their own recommendations on how workshops should be run (see Appendix G).

On the second and third field days, the general theme was to hold a brief meeting before leaving for the field; conduct interviewing, diagramming, meetings etc., return to Kericho and hold further brainstorming meetings within groups. On the final field day, all 6 catchment groups held the baraza, the open meeting with a group of villagers. The baraza is a common medium for transferring information from authority to rural households. However, in this context the function has been adapted to incorporate a dialogue with farmers. At each meeting the RCA team present their findings, having described in detail the reasons for their presence in the catchment. They conclude with a description of the most important problems discovered in the catchment: those present at the baraza are then asked to comment, make additions or deletions, and in some cases to rank these in order of importance. Then the opportunities are presented - most of these relate in some way to SWC, albeit often indirectly. As participants demonstrated in the Matrix Ranking exercise (Day 2) and the linkages to livelihood component exercise (Day 3), SWC is linked all elements of farming household livelihoods. A farmer may not perceive soil erosion as the most important problem, but

if action can be taken on supplying tree seedlings, then better cover through agroforestry will, of course, benefit SWC. In most cases Barazas concluded with the election of a soil conservation committee of local farmers, and handing over of a selection of tools - jembes, fork jembes, shovels and pangas - for the committee to lend to farmers in their catchment.

These barazas thus have a critical function. They are useful for:

* extending messages
* learning from farmers
* assessing the coverage of current development activity in the region (do farmers know the extension workers by name; how often do they come?)
* assessing the readiness of the community to take on new SWC ideas.

The final day of the nominal 5-day RCA was devoted to report writing. All six groups completed their catchment reports. Although it was initially thought that reports would be best if short, it proved that each group had so much to write about that length soon expanded. The reports included sections selected from the list in Table 8. Maps, transects, seasonal calendars, pye diagrams, historical profiles, venn diagrams, list of indigenous practices, and farmers comments were also included. Following the baraza each group developed a list of Preliminary Proposals for action in their catchment. These are written in expanded hypothesis form, and include details of assumptions and conditions, importance for soil and water conservation and action required (see Table 9 for two examples). Most groups worked until 10 pm to complete their reports. The reports, by Mbegera et al, Kiara et al, Mwakileo et al, Njeka et al, Mwenda et al and Ling'ang'a et al, are available from the Ministry of Agriculture.

Table 8 Suggested sections for RCA reports

Location and setting
Status SWC measures
History
Spatial patterns of land use
Traditional practices and beliefs
Food and cash crops
Labour demand
Livestock
Fuelwood and stoves
Profiles of farms
Institutions involved in development
Water availability and quality
Health
Education
Credit, marketing
General marketing
General welfare
Transport and other infrastructures
Climate
Topography and soils
Population
Farming system
Trees and tree planting
Problems
Opportunities
Preliminary Proposals

Table 9 Two preliminary proposals from Chemorir catchment plan

A. **Zero Grazing Units (ZGUs)**

If:

More farmers construct zero grazing units.

Then:

1. Milk yields will increase.
2. Carrying capacity will increase.
3. Disease control will be improved.
4. There will be no overgrazing.
5. Crop and fodder production will increase.
6. Increase the standard of clean milk production.

Because:

1. No energy wasted in walking.
2. There will be close supervision of the animals.
3. No contact with other naimals.
4. There will be more space for crop and fodder production.
5. Soil erosion through overgrazing will be reduced.
6. The animals will get adequate forage.
7. Farm yard manure will be increased.

This proposal is important to soil and water conservation because:

1. No overgrazing/overstocking.
2. No formation of gullies through cattle tracks.
3. More FYM will be available for healthy crops.
4. Fodder crops will be planted along the terraces and grass strips.

This proposal will only work if:

1. Attention is drawn to the DLPO.
2. Funds all available from ROD, DDC or elsewhere for construction of zero grazing demonstration units in the area and for extension services.
3. Availability of credit facility to the farmers.
4. Existence of an active catchment committee in the area.
5. Farmers are willing to adopt.
6. The frontline extension staff educate the farmers more on the importance of ZGU.

Action:

1. Draw attention to the DLPO.
2. Prepare project proposal for funding.
3. Financial institution to avail credit facility for the farmers.
4. Farmers education by the frontline staff.
5. Participation by the catchment committee in ZGU extension.
6. Farmers attendance to field days, agricultural shows and tours.

B. Tree and fruit nurseries establishment

If:
Nurseries are started within the catchment.

Then:
More farmers will get access to diversified tree and fruit seedlings more easily

Because:
- Currently there is no nursery within or near the catchment;
- Farmers have to travel more than 5 km to get the seedlings from Kericho or Kabiayanga FTC which is 28 km. away;
- There are few tree and fruit species planted in the catchment;
- There is lack of fueldwood;
- There are insufficient fruit trees grown in the catchment;
- There is low survival rate of the seedlings;
- More time and money are spent during the collection of seedling by farmers.

This proposal is important to soil and water conservation because:

- There will be availability of fuelwood and people will save time for use in soil conservation activities;
- The trees will conserve the soils by slowing down raindrops, and excessive run-off;
- Some trees e.g. Calliandra, Leucaena apart from improving soil fertility could be used as fodder for the animals;
- More indigenous trees will be planted along the river banks and water sources for water conservation.

This proposal will only work if:
- Farming community accept;
- Funds will be available to establish the nurseries;
- Land will be available;
- Seed availability for different species of tree and fruit is ascertained.

Actions
1. The Catchment Committee to liase with the chief to earmark land for the nurseries.
2. The Soil Conservation Officer, the DO-Environment and the forester to liase and arrange for the procurement of the necessary inputs.
3. The divisional soil conservation officer and the divisional forest extension officer to organize educational meetings especially for the nursery attendants.

The final day of the workshop was reserved for presentations of findings in plenary; discussion on RCA; evaluation by participants; and the closing ceremony. With 6 groups to present their findings to plenary the available time was very short. Each group showed great discipline in ensuring presentations did not exceed half an hour each. Attention was primarily focussed on methodological issues rather than substantial findings. In the afternoon participants concluded the workshop analysis by considering RCA in the future by producing two lists - the essential components of RCA and the optional components. Their comments are listed in Appendix J. The workshop closing ceremony was attended by the Director of Training in the Ministry of Agriculture and the Kericho District Agricultural Officer.

4. Comparison of the Six RCA Studies

Comparison of Findings

As described earlier, the Preliminary Proposals of the two teams in Murang'a (July, 1989) differed quite considerably. Although both elected to propose tree nurseries, bulking sites and energy-saving stoves (Jikos), the remaining seven were different (see Table 10). This suggested that the proposals had been finely-tuned according to the local biophysical and socio-economic conditions.

In this exercise six catchments from within Belqut Division of Kericho District were planned, in which Cheplanget and Chemorir were neighbouring catchments; and Kabaswet, Koiwalelach and Mindililwet were also neighbouring (Figure 2). All are within the tea-dairy (UMI) agro-ecological zone. A preliminary observation of each catchment suggests that the key problems and solutions should vary little between sites. Yet the proposals varied greatly. In all 30 different proposals were produced out of a total of 57, of which only six were selected in three or more of the catchments (Table 11).

This is the firmest and most conclusive evidence yet that the approach is able to produce recommendations finely-tuned to individual localities. Even with the opposing forces of geographic closeness and the possibility that participants from the same workshop might gravitate toward similar proposals, the range is extraordinary. On this basis it is quite clear that the catchment is an appropriate level for planning.

Nonetheless, recommendations for action at a broader strategic level can be made: for example, the popularity of the roof catchments proposal to ease the drinking water constraint for villages and their livestock, dairy cooperatives and the pressing requirement for upgrading of rural access roads demonstrate that these options would be important across at least the whole of Belgut Division in Kericho District. A full list of Preliminary Proposals by catchment is contained in Appendix H.

Table 10 Comparison of preliminary proposals from July 1989 exercise

Mbari ya Hiti	Mihang'o - Retire
- On-farm nurseries	- Community tree nursery
- Energy saving stoves	- Individual tree nurseries
- Bulking sites for grasses	- Energy saving stoves
	- Bulking sites
- Improving + diversified terracing techniques	- Formation soil conservation sub-committees
- Drainage sharing from roads	- Supply handtools
- Animal waste management and composting	- Demonstration plots for new cropping practice
- Fodder conservation (Silaging)	- Agricultural marketing cooperative
- Improve input supplies	- Farm access roads
- Roof-catchment water harvesting	- Improved drinking water supply
- Alternative cash crops to coffee (fruit & vegetables)	

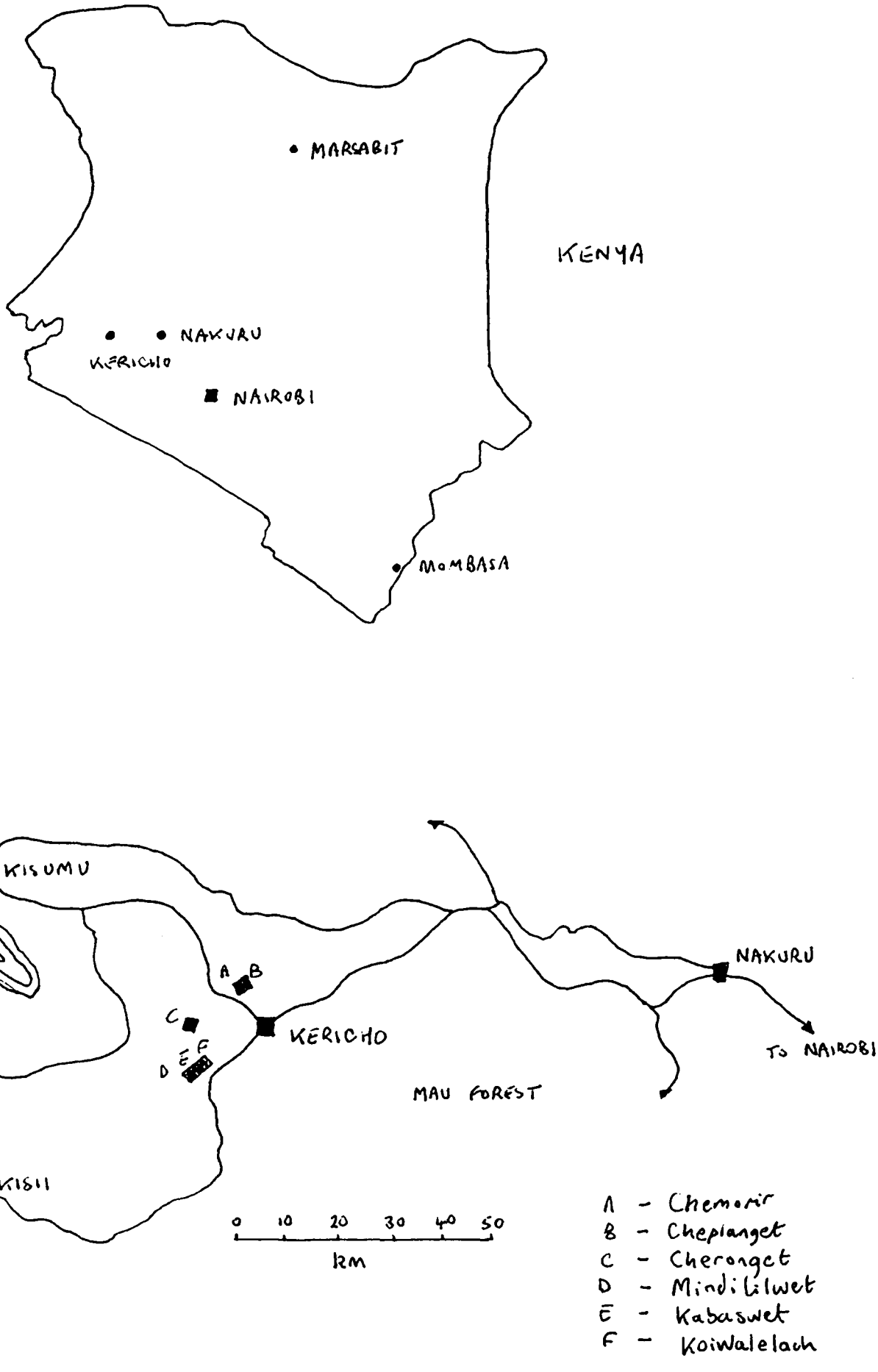


Figure 2. Location of catchments in Kericho District

Table 11 Complete list of preliminary proposals produced by the six RCA teams and number of times selected.

Selected in 5 catchments

Roof catchments

Selected in 4 catchments

Marketing infrastructure (eg dairy)
Road infrastructure & access roads
SWC extension & training

Selected in 3 catchments

Fodder production
Tree nurseries

Selected in 2 catchments

Agroforestry extension
VIP latrines and public health
School & rural youth agric. groups
Diversified fruit and vegetable growing
Establish catchment committee
Expansion of cash crops

Selected in 1 catchment only

Livestock extension
Diversified food crops
Conserve cattle tracks
Improved cattle breeds
Energy-saving stoves
Land transfers within families
Road maintenance by community
Woodlots & agroforestry
Farmyard manure
Napier grass
Zero-grazing
Diversified small livestock
Dip management
Adult education
Demonstration plots
A I services
Institutional interactions
Access to credit

Comparison of Approaches of Each Team

Although all six catchments were planned over the same five day period, the organisation and order of tasks varied. These are detailed in Appendix I.

5. The Next Stage for the SWCB

Farmers' and Participants' Comments

Comments made by farmers and participants are now clearly demonstrating the value of RCA to catchment planning. Farmers have particularly recognised the value of extension agents working in teams:

> "One farmer was sceptical, but when we explained with the help of the map what we were doing he said this was very good. He was so pleased to see the different ministries working together" (Extension agent).
>
> "We are surprised that the MoA can work with the Community Development Officer, Veterinary Officer and others" (farmer).
>
> "We have not seen this before" (farmer).

They also expressed pleasure on several occasions at having a route for making contact with the Ministry staff. Lines of communication have now been established, and farming communities can now exert a pull on the services of extension agents.

> "Farmers realise that MoA does not have the money to solve all their problems, but they do like the fact that they can easily make contact with us now" (Extension agent).
>
> "Now when I meet people from Kerrison catchment they are anxious to know when we are going to be doing work" (Extension agent).
>
> "Farmers said at the Baraza that they would not let the team down - 'you should return after 6 months and see what we have done'" (Extension agent)
>
> "Thank you very much for electing me chairman, and now that we have these implements for soil conservation we are going to embark on serious business" (Farmer, on being elected chairman of the committee at a baraza)

These comments are all highly encouraging. They are the beginnings of **sensitive extension**, in which extension agents work as a team, focus on the problems of farmers, and avoid visitor-book extension - the focus on contact and progressive farmers to the exclusion of all others. As one senior extension agent put it:

> "It is a challenge: we have so much work to do, we should be able to give up a bit of our leisure time".

Further Testing of RCA

At the conclusion of the workshop, participants expressed a desire to test the methods further in their own Provinces and Districts. The number of staff of SWCB and other departments or ministries trained in RCA by the end of May 1990 are listed in Table 12.

By end May, eleven catchments have been planned with RCA. Further testing will help to refine the methodology, identify weaknesses and suggest new strengths. Since the workshop several participants have either begun new RCAs or have expressed a desire to conduct RCAs. Pairs of trained participants will plan catchments and write reports before the end of 1990, resulting in at least a doubling in the number of catchments planned. These will then feed into the third review workshop, planned for May, 1991.

Monitoring and Evaluation RRAs (MERRAs)

A proposal for the further development of the RRA methodology suggested at the workshop concerns the institutionalisation of short monitoring and evaluation(M&E) RRAs of catchments already planned. Anecdotal evidence from officers driving past the

Table 12 Number of personnel trained in RCA by end May, 1990

Number of catchments each individual has planned as trainee or trainer	Soil Conservation Officers	Personnel of Other Depts. or Ministries
3	4	0
2	4	0
1	36	31

Mihang'o-Retire catchment (planned in July 1989) suggests that there has been considerable subsequent uptake of SWC measures. But it is not clear whether this is related to the RCA and the establishment of the catchment committee.

It is proposed that all catchments planned using RCA are monitored some 9 months or more after planning to evaluate the extent of impact of the RCA, and the subsequent work of the catchment committee and extension agents. The RCA methodology is still sufficiently young that it needs every form of feedback possible, both from extension agents and the farmers themselves. These MERRAs would probably take the form of short visits by a small team, mainly from the Ministry of Agriculture, but possible also the Ministry of Livestock. It is expected that these MERRAs would generate information relevant to future RCAs.

Review Workshop

It is proposed that a third review workshop be held in May 1991. This would:

1. Review the methodology to date, both RCAs and MERRAs, and
2. Train further SCOs.

Swahili Term for RCA or RRA

The RRA methodology is now evolving in a unique way in Kenya. It was proposed at the workshop that time be given to the development of a Swahili term for RRA that would have the effect of locating the methodology firmly within Kenya. The Samuhik Bhraman, or Group Trek, conducted from the Pakhribas Agricultural Centre is now firmly recognised as a Nepalese methodology, for example. Ideally the term should:

- reflect the priorities of RRA, such as working in partnership with farmers and other disciplines

- involve the concept of learning from farmers
- have a recognisable and unique acronym
- be fairly easy to remember
- reflect flexibility for different situations

The following are some suggestions that have been made to date:

1. Uchanguzi wa haraka mashamba (UHAMA)

2. Kuharakisha maendeleo mashambani (KUMMA, KUMAMA)

3. Utafiti pamojo na mkulima (UPAM)

4. Utafiti na mkulima (UNAM)

Potential Pitfalls for RCA

The continuing trade-off in institutionalising a flexible methodology like RRA is that it must lose some of the flexibility and complexity in order to be widely replicated. But during this process it is important that certain essential components of RCA are not lost. The following changes should be expressly avoided:

1. The fieldwork component should not be eroded. It is essential to emphasise that **4 days in the field is a minimum** requirement.

2. The checklists for interviewing must not be seen as an end in themselves, in which as each element is checked off it is not returned to. It is essential that interviewers are encouraged to check and cross-check all information.

Participants' Comments on the Kericho Workshop

The major advantages of the RCA approach were said to relate to the involvement of local people, the accommodation of their views and the speed at which a team can discover information on all the catchment. The drawbacks related to the intensity of the work, the need for allocation of sufficient resources and the dangers of raising expectations in a community that may not be met. A list of comments is contained in Appendix J.

Guidelines and Instructions for RCA

The eventual aim is for the Divisional planning teams to conduct RCAs alone. Detailed guidelines will thus be required for the catchment file. In the final exercise participants considered the essential and optional elements of their RCAs. The following is a list of those components of RCA that participants were in general agreement as being essential:

1. A preliminary site visit to meet and consult local administration and extension staff, and assess logistical constraints.

2. Publicise in the catchment the arrival of the RCA team.

3. Involve different ministries - recruit staff to give a multidisciplinary team.

4. Allocate sufficient financial resources.

5. Arrange a training day prior to fieldwork.

6. Conduct secondary data review, including drawing of preliminary map.

7. Construct checklist and interview guide, which is constantly reviewed throughout RCA.

8. Allocate 5 days for RCA, including 4 field days.

9. Conduct SSIs, transect walks, group meetings; draw farm sketches and profiles, maps, seasonal diagrams, venn diagrams; discover attitudes to SWC and intriguing practices and beliefs.

10. Choose a central site in the catchment for the baraza; pre-publicise baraza widely.

11. At baraza present findings and encourage farmers to rank problems and opportunities.

12. Write up report before team depart.

13. Arrange follow-up meeting with local administration to report on findings.

14. DSCO to arrange local seminars at Divisional level.

15. Begin implementation by supporting catchment committee as soon as possible.

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Appendix A: Users' Notes for 9 RRA Techniques

This appendix contains users' notes on each of the following RRA techniques currently considered of value to Rapid Catchment Analysis for the SWCB:

1. Semi-Structured Interviewing
2. Participatory Mapping
3. Transect Walks
4. Seasonal Calendars
5. Historical Profiles, Time Trends and Future Horizons
6. Venn Diagrams
7. Intriguing Practices, Beliefs and Myths.
8. Matrix Ranking
9. Farm Profiles and Sketches

This is not a list inclusive of all RRA techniques. Each users' note contains a brief elaboration of the particular uses of the technique plus an indication of the range of applications. The major part is tips in the form of do's and don'ts. These have been developed through the experience of many field practitioners, and by definition should be ignored if you feel they are not relevant. For further information consult:

*Users' Notes produced by James Mascarenhas & Prem Kumar of MYRADA, Station Road, Bangalore, India
*Introduction to RRA by McCracken, Pretty & Conway, IIED, London.
*RRA Notes series, available free from IIED, London.

1:A USERS' NOTE: SEMI-STRUCTURED INTERVIEWING

Semi-structured interviewing is guided interviewing where only some of the topics are predetermined, and questions arise during the interview. The interviews appear informal and conventional, but are actually carefully controlled and structured. Using a guide or checklist the multidisciplinary team poses open-ended questions and probes topics as they arise. New avenues of questioning are pursued as the interview develops. The output is usually in the form of hypotheses and propositions, but can also be in quantitative form.

DO	DON'T
*do spend time preparing a comprehensive interview guide or checklist. Write it in for guidance during interviews	*don't interurupt each other
	*don't accept the first answer- probe all topics
*do remember the interview is structured by the team for a purpose.	*don't ask leading questions. Any question that can be answered with a 'yes' or 'no' is a leading question.
*do be relaxed and intense	*don't interrupt informants
*do let explain clearly who you are	*don't supply answers for an informant who is hesitating
*do let each team member finish their line of questioning	*don't dominate proceedings by using inappropriate non-verbal behaviour
*do probe a topic by using the 6 helpers, what, when, where, who, why, how.	*don't take up too much time of an informant who is busy
Also use the key probes: -how do you mean? -tell me more about that. -anything else? -but why?	*don't show disapproval or distaste about local conditions or drinks or food offered
*Also probe by asking informants to role play- "suppose....."	*don't indicate disbelief by criticising or even just smiling
*do judge the responses-	

are they fact, opinion or rumour? Ask yourself, what qualifies the informant to give me that response? Also evaluate the reliability of the interview.

*do take a neutral attitude, listen carefully and pay great attention to non-verbal facts

*do record the interview by taking notes in detail during or afterwards

*do pay attention to the selection of informants. Use participatory maps or wealth rankings to ensure a good mix of informants.

*do record the names of the informants

*do be open-minded, be prepared for bad and good interviews. If it is going badly conclude politely and leave

*do pay attention to group dynamics, by holding regular meetings and brainstorming sessions. These are often as important (even more so, something) then the interviews themselves

*don't ask questions that, combine two queries -e.g. "do you have a medical centre here and are you happy with it?"

*don't ever let the informant feel cross-examined

*don't ask about sensitive information in front of a group of onlookers

*don't ask about sensitive information in front of a group of onlookers.

2. A USERS' NOTE: PARTICIPATORY MAPPING

Maps are especially important in rural development projects where planning, implementation, monitoring or evaluation are required. And the people who know most about the village or catchment under study are those who live and farm there. Maps are thus used to learn quickly from rural people by using their collective local knowledge. Maps are valuable for exploring spatial patterns of land use, for exploring key differences in farming practices, and for discovering key constraints. The shared analysis creates consensus and facilitates communication and as a result the outsiders gain insights into the ways rural people think, their priorities and their reasons for wanting or not wanting to do something.

DO	DON'T
*do spend sometime thinking about the purpose of the mapping	*don't assume that if something is marked on the map it shouldn't be changed
*do collect secondary data, such as maps and aerial photographs, if available	*don't dominate proceedings; let the people do it first
*do try to ensure that a reasonable mix of rural people are participating	*don't put too much information in the maps
*For maps on paper, do carry these with you whilst walking in the village or catchment, and keep asking informants to check & change if necessary. These maps may be drawn from secondary maps first, and then amended during analysis.	
*For maps on paper, do bring very large sheets of paper and pens	
*For maps in the ground, allow the villagers to draw the map according to the way they perceive things. Use sticks on earth, or chalk on concrete,	

or powders or either

*For social maps do ask the names of household heads for each house or farm marked - this gives a complete list appropriate for wealth ranking or other forms of sampling

*do allow for progressive screening- change & adapt the map in the light of new knowledge

*do facilitate the exercise when necessary yourself

*do verify features on the map with the real ones in the village/ catchment

*do copy maps from the ground quickly - animals are no respecters of maps and it will soon disappear

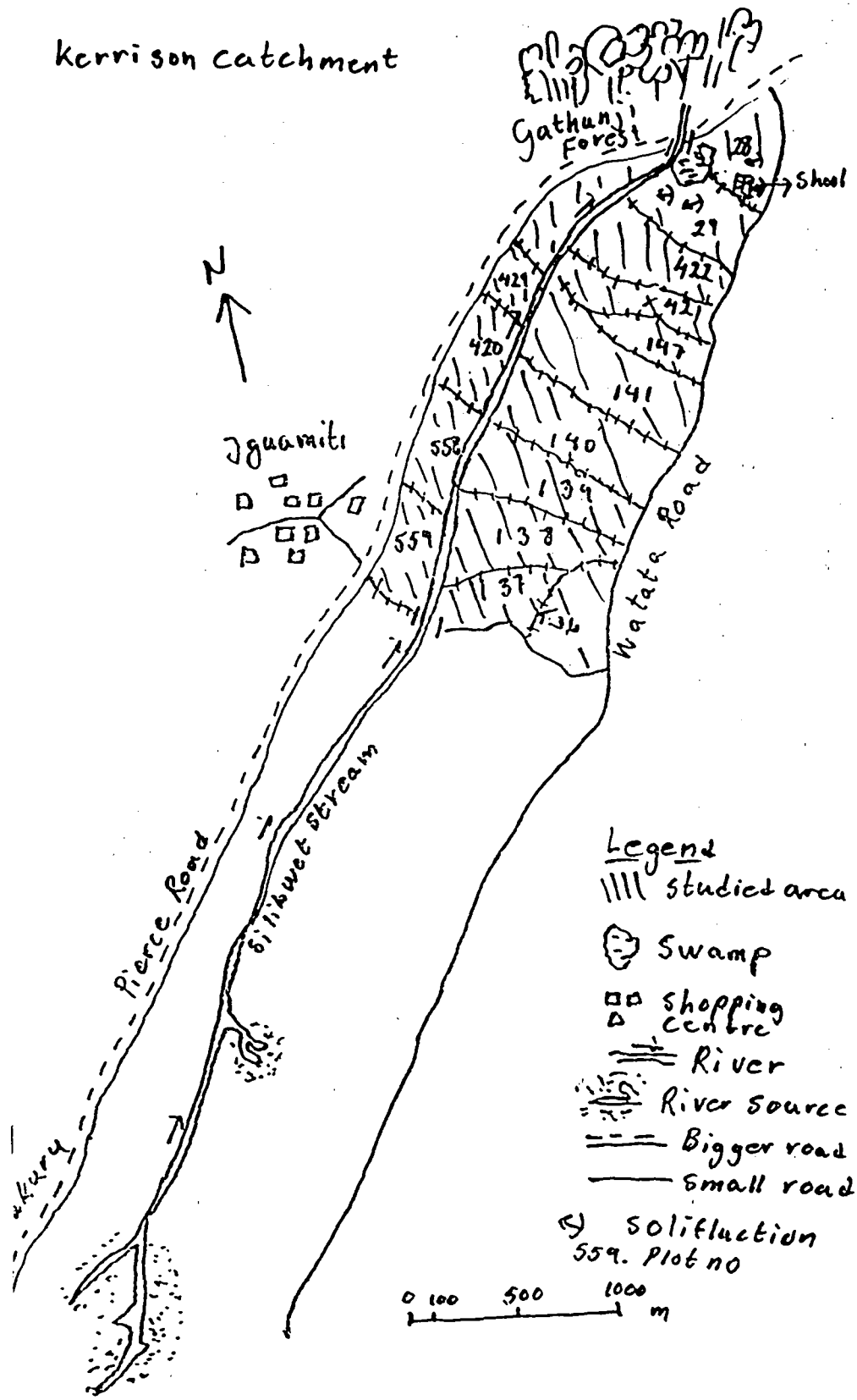


Figure A1. Map of Kerrison catchment, Nyandarua District. (Segerros et al, 1990)

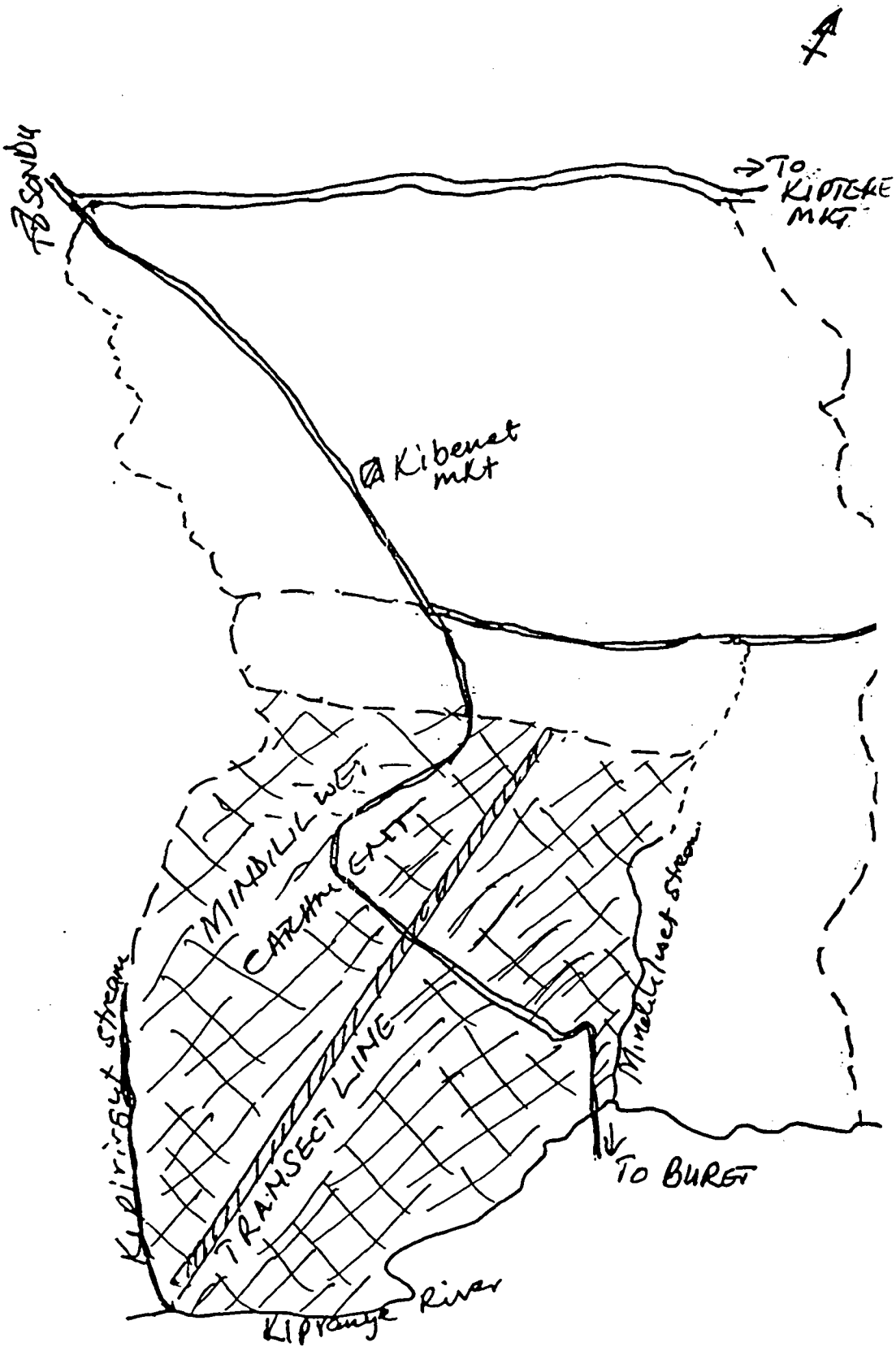
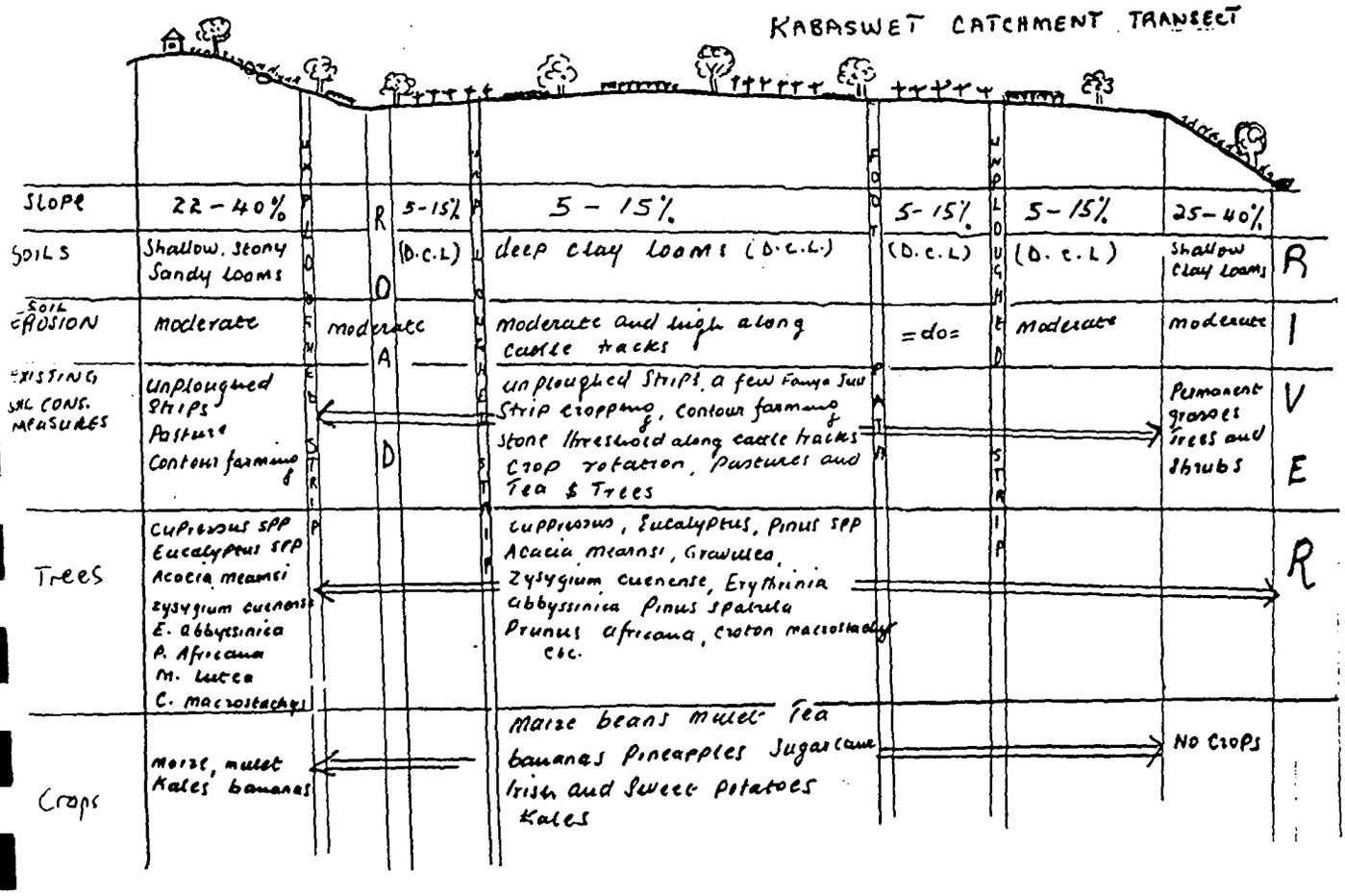


Figure A2. Sketch map of Mindililwet catchment, Kericho District, Kenya

3. A USERS' NOTE: TRANSECT WALKS

The transect walk is a simple technique used to ensure that the team explores to the full the spatial differences in the area under study. This might be a region, catchment, village, field; or even a large building. The team walks to the periphery, exploring differences in land-use, vegetation, soils, cultural practices, infrastructure, trees, livestock, water availability and so on. The transect diagram produced is a stylised representation of a single or several walks by the team.

DO	DON'T
*do be stubborn and walk to the periphery, even if it takes a long time. If it is difficult to get there, if you can be sure that few outsiders have made the effort	*don't walk only in a satraight line - transact walks can be circular, zig-zag or curve
*do talk to people met whilst walking, make sketches and	*don't walk too quickly - you will miss the more subtle differences between areas. The unexpected will not reveal itself to those in a hurry
*do encourage willing farmers or villagers to accompany the team, for they can help describe conditions when there are no local people to ask	*don't lecture, don't rush *don't over-rely on diagram -it is a useful record of the differences between zones, but may not be useful for presentation to local people
*do look carefully and listen; do observe and record; do question everything you see by using what, when, where, who, why, how	*don't be restricted to just a rural use. The transect wall is equally useful for exploring buildings or bureaucracies
*do use 'contrast comparisons' to cross-check and triangulate- in location A ask someone how things differ from location B, then when you get to location B, ask how things differ from location A	*don't always follow contours, paths or ridges



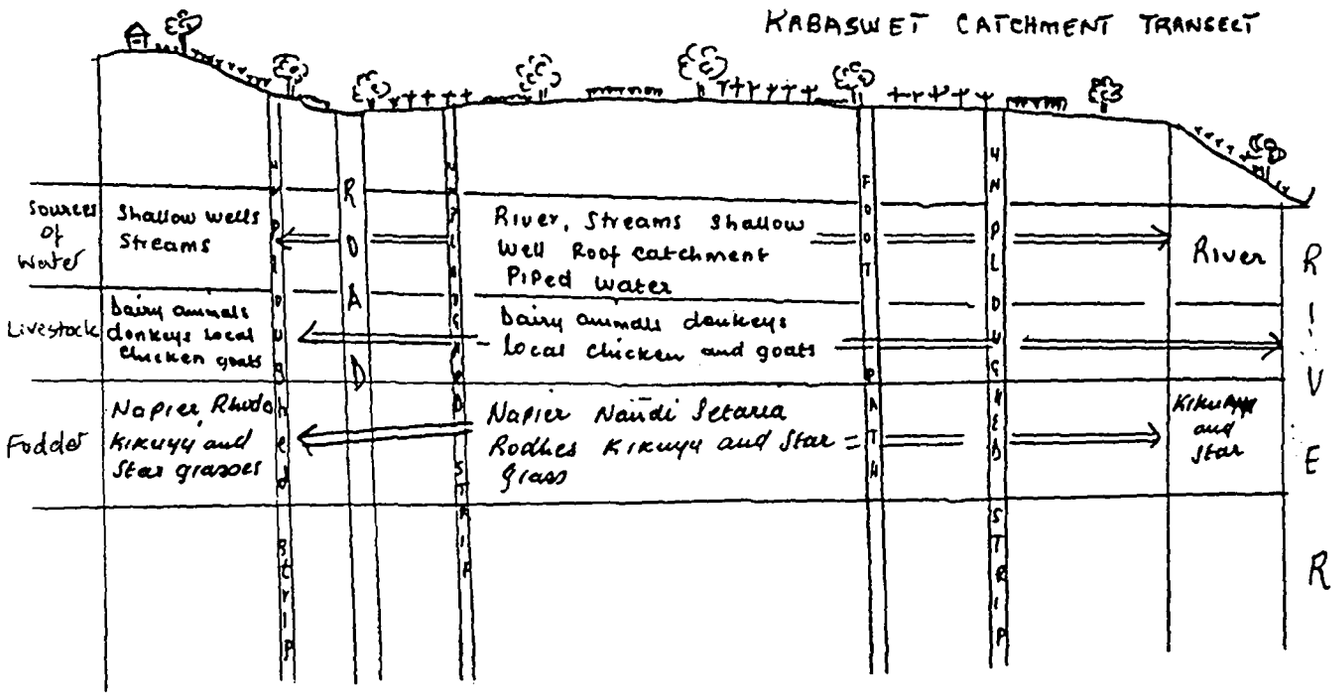


Figure A3. Transect of Kabaswet catchment, Kericho District

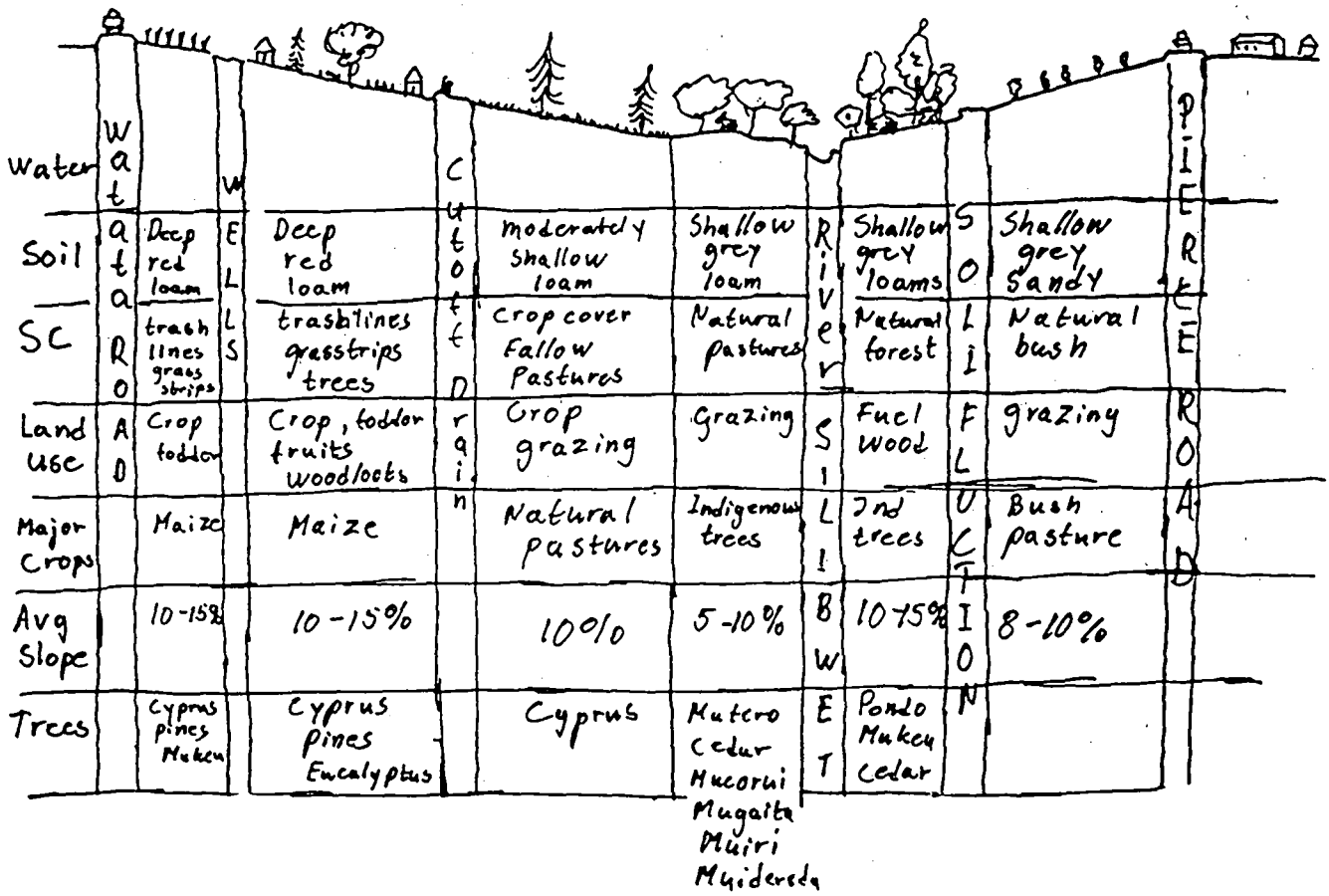
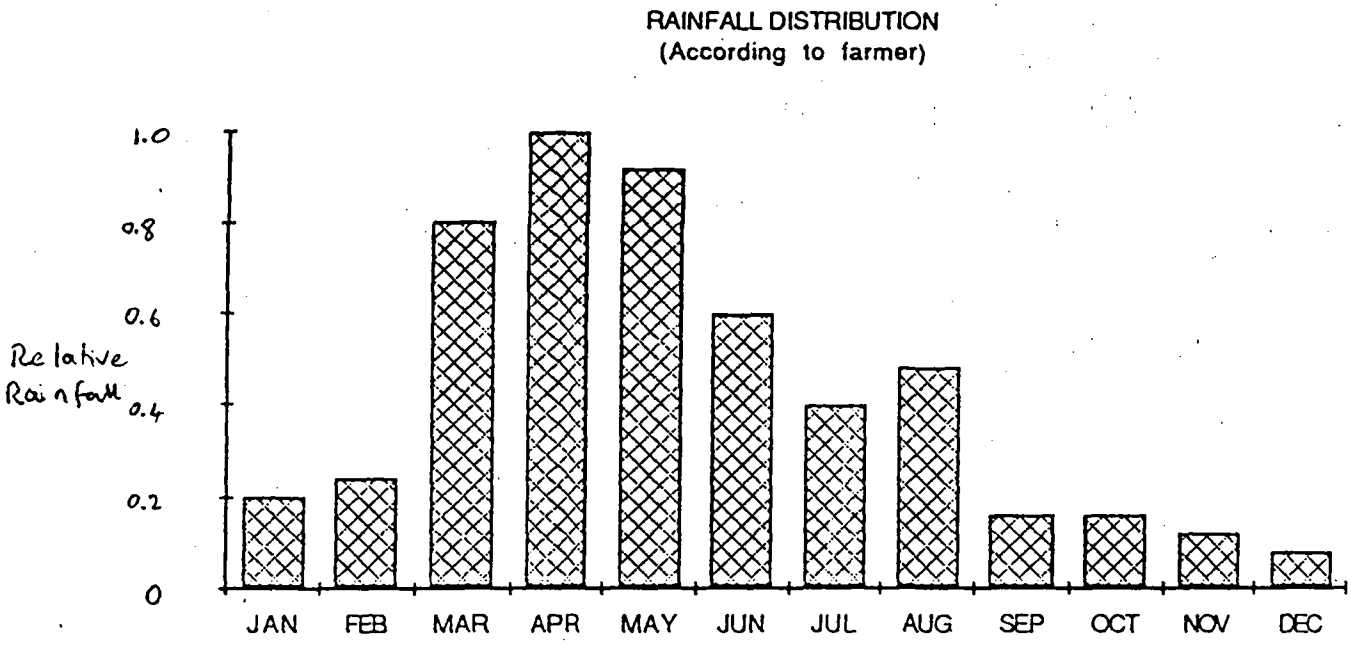


Figure A4. Transect of Kerrison catchment, Nyandarua, Kenya (Segeros et al, 1990)

4. A USERS' NOTE: SEASONAL CALENDARS

Seasonal calendars are drawn to foster understanding of local livelihood systems. They show the patterns month by month of rainfall, crop sequences, water use, livestock fodder, income, debt, migration, wild harvests, labour demand, labour availability, health, diseases, soil and water conservation activities, pests and diseases, prices and so on. For soil and water conservation seasonal calendars are used to explore how SWC fits into 'farming households'.

DO	DON'T
*do use the information from several interviews and combine on one diagram	*don't assume that information gained from one interview represents the situation for all farming households
*do use an 18 month scale - years beginning Jan and end Dec are arbitrary	*don't assume that the patterns show what it is like in unusual years
*do look for connections between different patterns	
*For participatory seasonal calendars do use: -drawings on the ground -drawings on paper -histograms or local materials to indicate quantities for each month, eg. stones, seeds, berries, goat droppings, straw	
*do look for key problems and opportunities that only occur at certain times of the year	
*do compare seasonal calendars produced by different groups in a community eg. women's vs. men's labour demand, or crop calendars of poor vs. wealthy farmers	



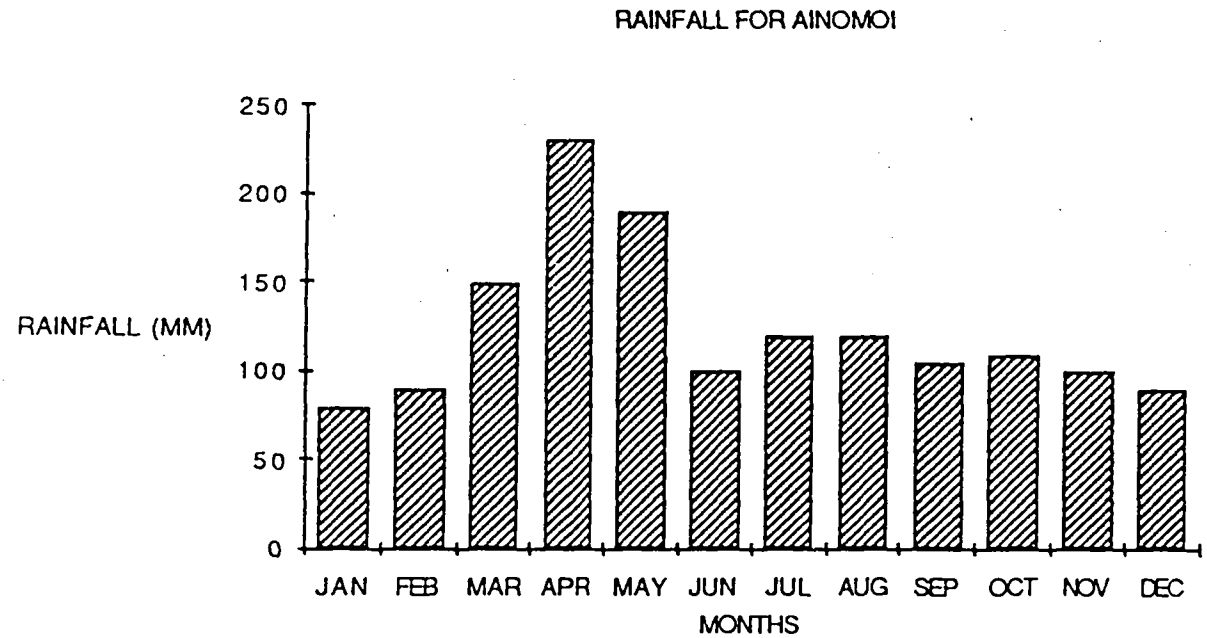
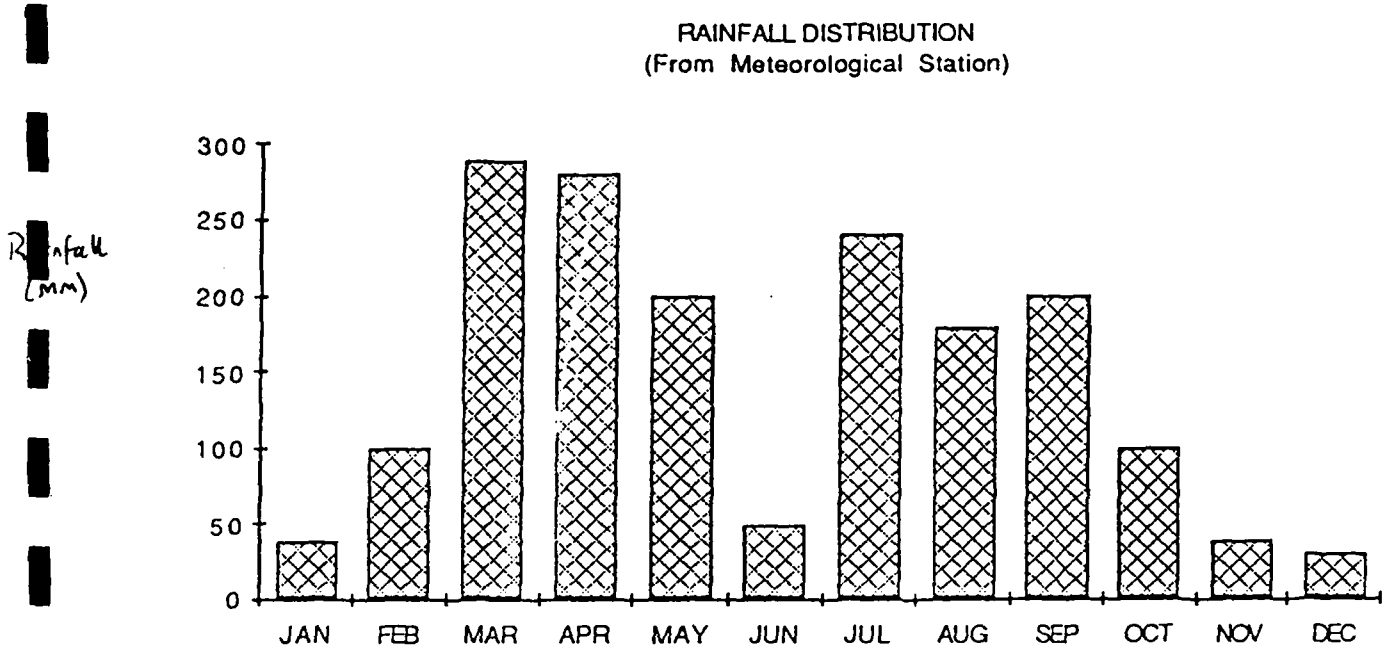


Figure A 5. Rainfall distribution in Cheplanget catchment compared with rainfall recorded from Ainamoi meteorological station in the catchment.



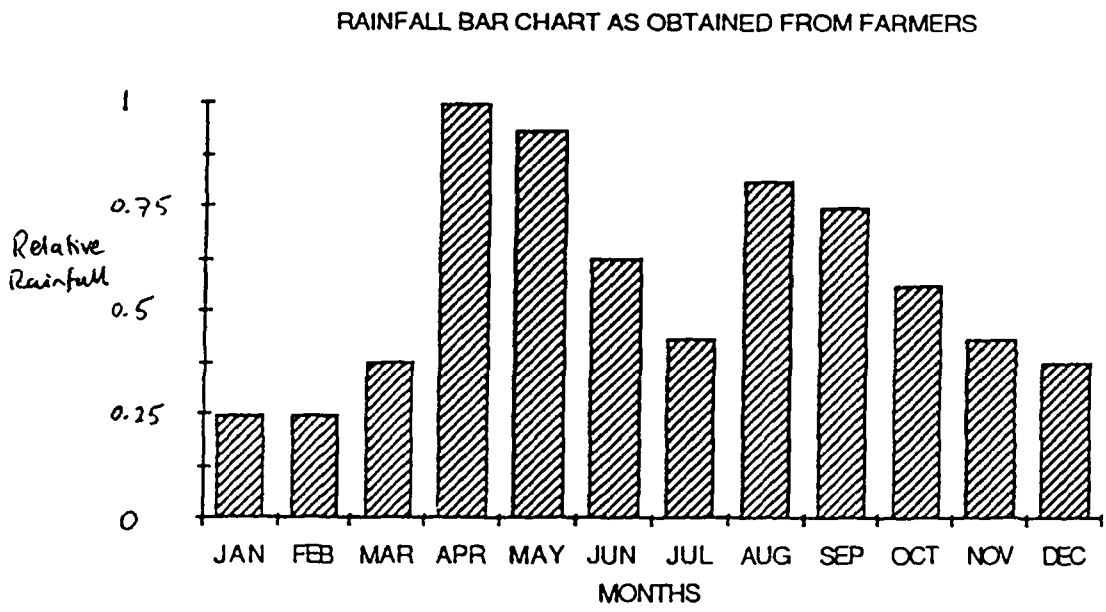


Figure A 6 . Rainfall distribution in Kabarwet catchment compared with rainfall recorded from meteorological station.

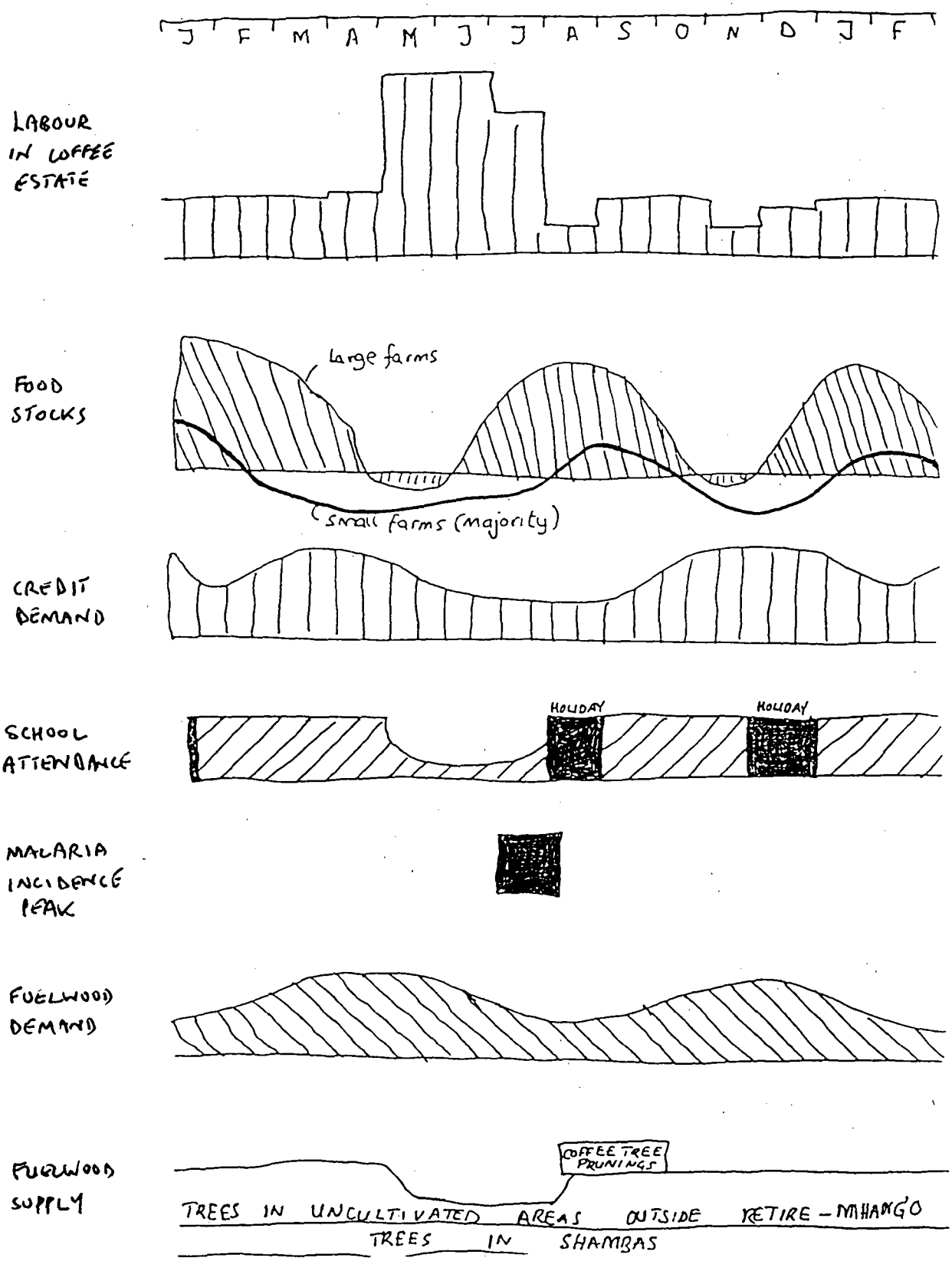


Figure A7. Welfare calendar for Mihang'o - Ketire catchment, Murang'a District (Kiara et al, 1990)

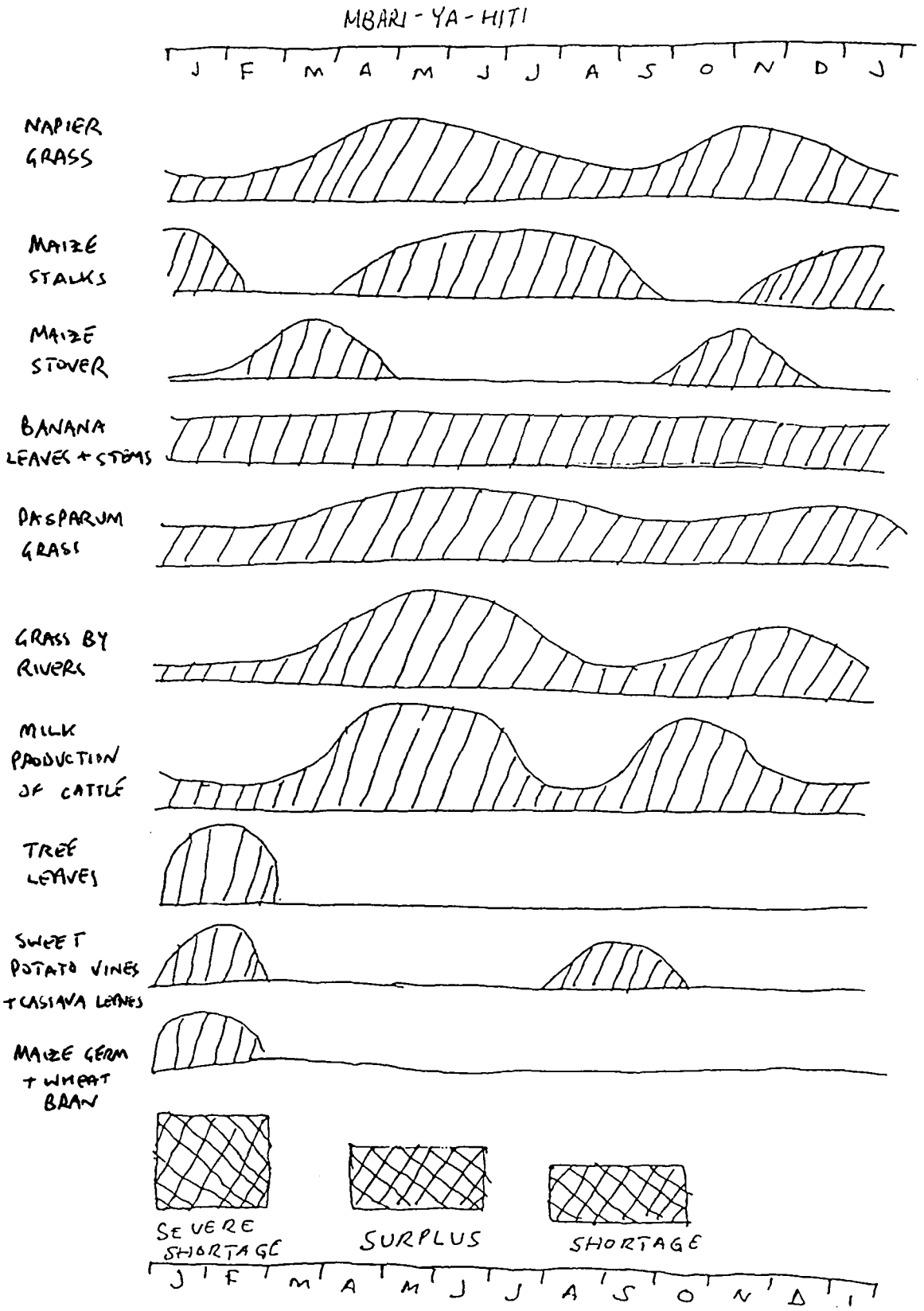


Figure A8. Seasonal calendar for livestock fodder, Mbari-ya-Hiti catchment, Murang'a District (Kiara et al, 1990)

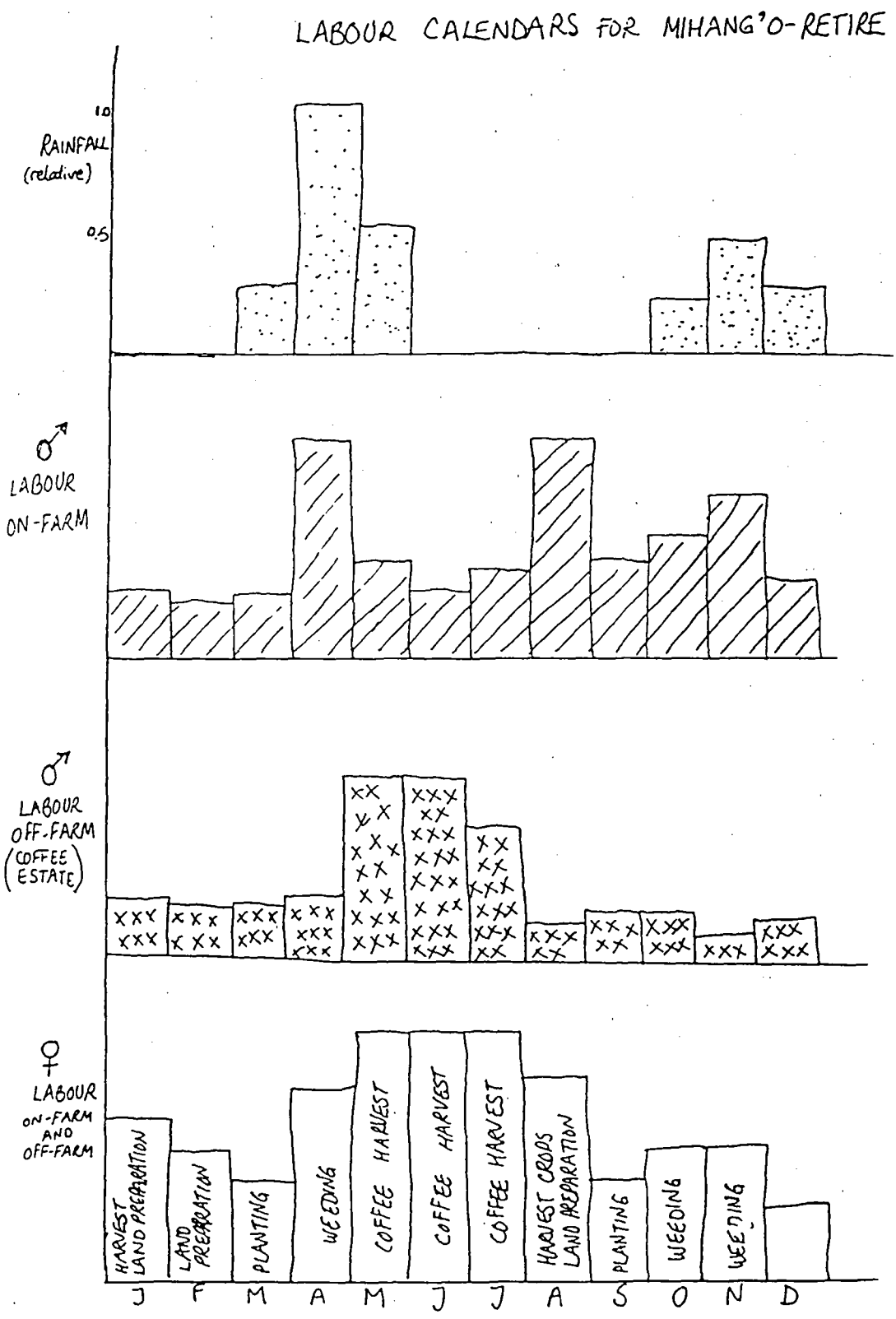


Figure A9 . Seasonal calendar for labour demand, Mihang'o-Retire catchment, Murang'a District (Kiara et al, 1990)

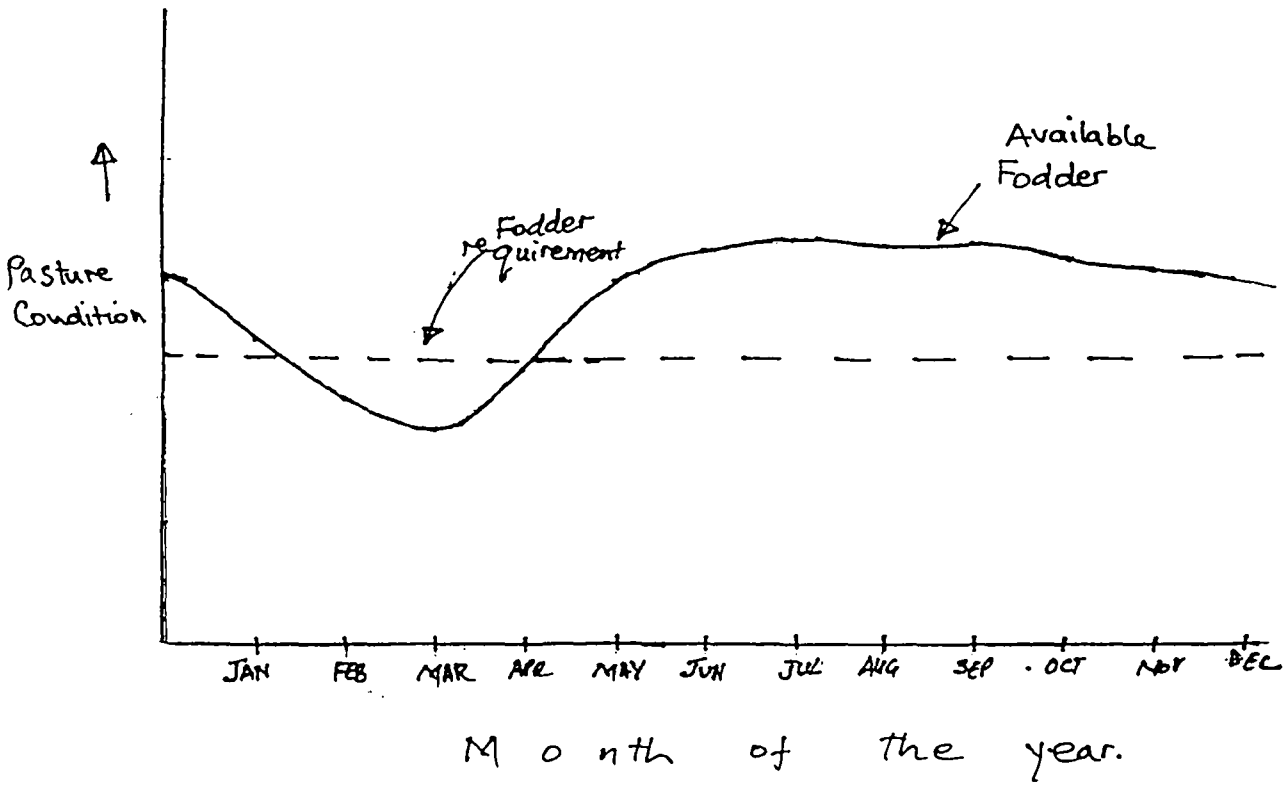


Figure A10. Fodder availability in Koiwaledach catchment, Kericho District, Kenya

5: A USERS' NOTE: HISTORICAL PROFILES, TIME TRENDS AND FUTURE HORIZONS

These techniques are used to help understand key changes between years of land use, erosion, rainfall, population, tree cover, income opportunities, common property resources and so on. They clarify key historical constraints and opportunities, and help in planning future activities.

DO	DON'T
*do ask older informants in the community to describe changes since they were young. Try to identify informants with special knowledge	*don't ask about specific years, but are important events to trigger the memory eg. a drought, independence, insurrection
*do consult secondary data and records to give comparative information	*don't impose your views on the informants
*ask about future horizons- how do you think that hillside will look in 10 years time; how would you like it to look	
*For participatory profiles and trends use -chalk on concrete -drawings on the ground -drawings on paper Describe the scales and ask informants to complete the graph	
*do use maps and models to help explore historical change	

Table A1. Historical Profile of Koiwalelach Sub-catchment

1900's	-	Immigration and settlement
	-	Clearing of bush
	-	Indigenous trees (Tebeswet, Nubit Tedioit Kaldit, Musezt Zeet, Chepkurbet, Chepkomonio)
	-	Communal grazing
	-	Millet, sorghum, bananas
	-	No soil conservation
1040's	-	Land demarcation
	-	Locust infestation
	-	Average farm size of 8 acres
	-	No soil conservation structures
1950's	-	Introduction of coffee
	-	Introduction of pineapples
	-	Planting Cypress trees
	-	Planting Eucalyptus species
	-	Introduction of napier grass
1960's	-	Famine due to prolonged rains
	-	Introduction of improved beeds of cattle
	-	Army worm infestation
	-	Coffee disappearance
	-	Increased acreage of maize
1970's	-	Introduction of Agriculture extension
	-	Introduction of napier grass
	-	Increased acreage of tea
	-	Increased acreage of maize
1980's	-	Formation of Soil Conservation Committee

6: A USERS' NOTE : VENN DIAGRAMS

Venn diagrams are drawn to help understand the current formal and informal institutions in the area under study and the extent of overlap of decision-making and cooperation. They highlight gaps between institutions, opportunities for better communication and cooperation conflicts, and sometimes the need for a new institution. In particular they identify the locally perceived role outside agencies play in the village or catchment.

DO	DON'T
*do use circles of differing size drawn on paper or cut out, each representing a different institution, and overlapping to the extent that they do so in the real situation	*don't assume too much from the diagram. It is a simplified portrayal of complex and dynamic interactions
*do interview with care to discover all the institutions and their linkages. Ask about -traditional institutions -cooperatives -formal and informal -outside government agencies and NGOs	*don't impose your thinking on the situation *don't allow perceptions of your institution (a circle outside the village or catchment, but currently overlapping) to bias the proceedings
*For participatory venn diagramming, do cut circles of different size from paper or card; ask informants to choose large circles for the most important institutions (to them), small for the least, and ask them to arrange a pattern of overlapping or subsurred circles	
*do ask how things have changed over the last 10-20 years	
*do ask how informants would like the situation to be ideally	

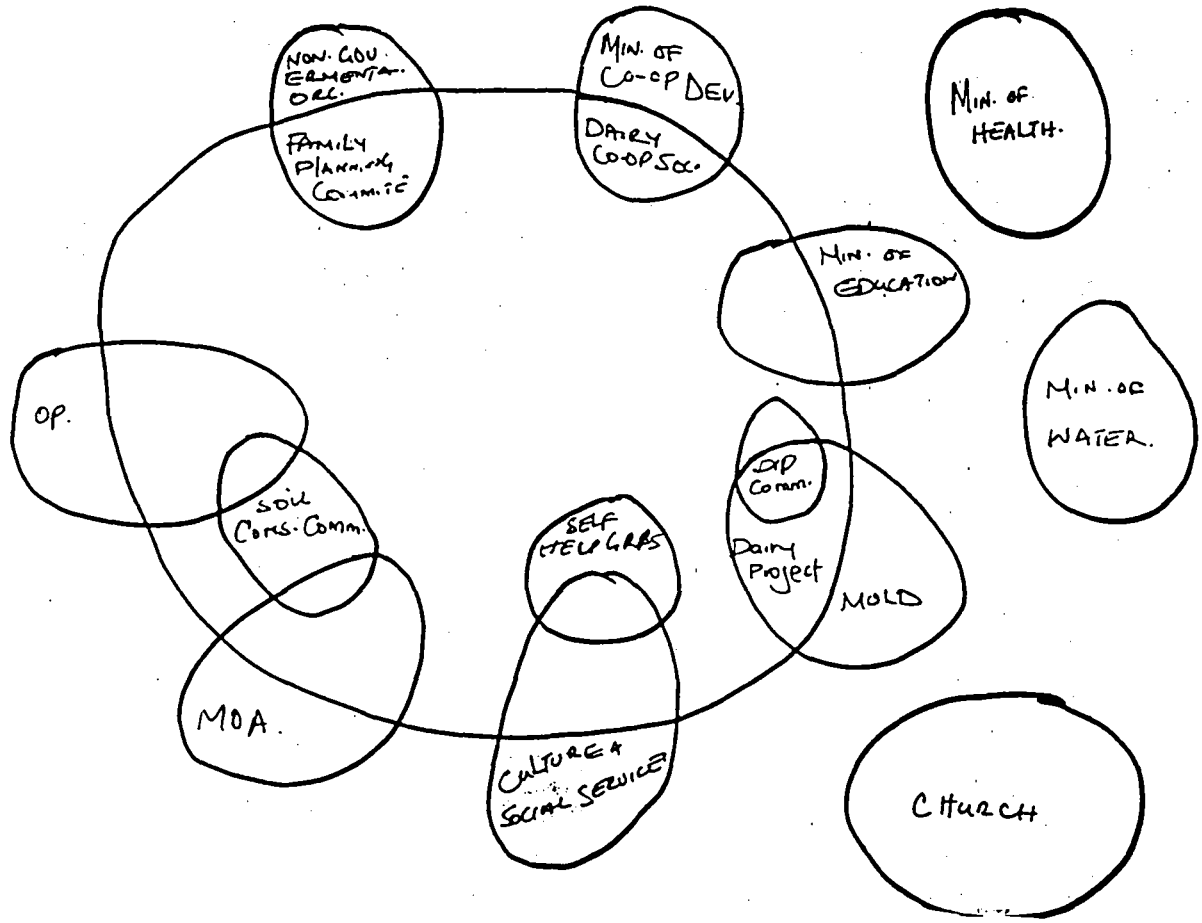


Figure A II. Institutional relationships in Koiwalelach catchment, Kericho District, Kenya.

7: A USERS' NOTE : INTRIGUING PRACTICES, BELIEFS AND QUOTES

These are focussed on before and during the RRA to make explicit that rural people have much to say to outside investigators. Farmer and rural people have their own indigenous practices that do not necessarily fit into conventional scientific tuning. There may be no explanation, but it is nevertheless important to record them.

DO	DON'T
*do record the practices, beliefs and quotes in the final report. They help to bring it to life.	*don't express disbelief at something that strikes you as -unlikely -impossible -backward,
*do record who said what. Give the quote credence by giving it a source	*it could be an innovation to change the world
*do ask about the record local terminologies for soil types, trees etc.	
*use other techniques, such as rankings, to explore perceptions about uses and value of resources, eg. trees	

Table A2. Traditional Practices and beliefs in Chemorir Catchment

The RRA team discovered a number of traditional practices beliefs. These are listed below:

1. The roots of the Chebendorwet herb are used to treat young calves to stop scouring.

2. Eythrina abyssinica tree encourages lightning. It is also used for settling disputes, must never be cut for fuelwood and helps heal mumps.

3. The roots of the Dovyalis abyssinica are ground up and taken to treat liver complaints.

4. Senior men in families do not allocate land to sons until their death. This delay means that sons are unwilling to invest in activities that are site-specific, such as tin roofs for housing, napier grass for fodder, zero-grazing units until their portion of the farm is confirmed.

5. Sheep and goats are primarily kept as bride prices - they are donated at marriage to the father of the bride.

6. Farmers used to drive their animals to a salt source some 10 km. distant in the plains. Now they no longer take them to the salt lick because that land has been allocatd. They now buy commercial salt.

7. Where finger millet is grown the clods are turned, piled up and then burnt. Then the millet is sown. It will not do well unless the burning is complete.

8. Consumption of goat intestines are very good for controlling malaria.

9. If you consume both milk and meat on the same day, then this causes mastitis in cows.

10. Soil told the humans, make the best use of me when you are alive, or else when I get hold of you I will never let you free.

Table A3. Ranking of trees in Cheronget Catchment

1.	Cypress	- good for wood, fuelwood and rafters and grows fast - but bad in crops
2.	Croton macrostachys	- good for shade and for fuelwood
3.	Pinus patula	- good for wood and grows in rocky areas - unsuitable as fuelwood
4.	Eucalyptus spp	- grows very fast, good for fence posts and good for fuel - but takes a lot of water and is bad in crops

Table A4. Attitudes towards soil conservation in Mindililwet catchment

Negative

1. Belief that their land is flat and not affected by erosion.
2. Lack of adequate tree seedlings.
3. Lack of adequate extension workers.
4. No adequate awareness of soil erosion in the area.
5. Very few grade animals to benefit from fodder grass strips.
6. Conservation measures reduces available land for agriculture.
7. Limitations that tree planting and construction of conservation structures is a man's job.

Positive Attitudes

1. Evidence of a few on-farm individual nurseries.
2. Evidence of a few conservation structures and practices.
   - Unploughed strips
   - Contour farming practices
   - Live hedges and padlocking for controlled grazing
3. Awareness of grass strips as a source of fodder.
4. Community aware of social and economic value of trees.
5. Aware of land exhaustion due to sheet erosion and thus nutrient removal.
6. Community aware of declining rainfall and soil fertility.
7. Community aware of irregular river flow.
8. Evidence of gully formation along foot paths and cattle tracks.
9. Aware of decreasing farm size due to subdivisions and thus need for proper land management for sustained production.

Table A5. Medicinal Trees and Shrubs: Koiwelalach Catchment

Most of the trees and shrubs were given in the local language. The community has high regard of plant or shrubs that are used in treatment especially of livestock.

Ngutumiat	Root boiled and the product can be taken orally and cure malaria in humans.
Cheroriet	Leaves squeezed and juice can cure malaria in humans when taken orally.
Set	Bark boiled taken orally can cure malaria.
Veegetetik	Root boiled and taken to cure coughing in humans.
Ngechep chat	Leaves squeezed and juice used to cure human teeth.
Menenesial	Leaves juices used for curing ECF in cattle.
Tebeswet	Leaves juice used for curing bloat in cattle if applied.
Arrowroot	Juices from the leaves used to reverse the condition of retained placenta.

Table A6. The Baboons Story From Chemorir Catchment

According to Arap Koech there uses to be heavy natural forests along the river and the surrounding areas. There used to be many wild animals, such as zebras, leopards, hyenas, foxes, baboons, snakes and buffaloes. "Hyenas used to attack cattle even at 5 O'clock" says Arap Koech.

The most notable story is how the baboons used to control the leopards and pythons. No leopard or python could live in the area inhabited by baboons. The baboons could kill them. The baboons could kill a python, hang it on a tree in order to attract ants which the baboons could shake off. Once the ants fell on to the ground the baboon babies could then feed on them. If a baby rushed to eat the ants before all others come, it would be thoroughly beaten. "Whereas the baboons helped to drive away leopards and pythons from our area, they were a nuisance to us too", says Arap Koech.

Whenever the baboons used to come across finger millet spread out in the mat to dry, they would rush to the river, douse itself in water and then come back and roll itself on the finger millet. By so doing the baboon would pick the grain with its hair and then walk away veryslowly to the nearest rock. The baboon then sits on the rock todryup. Upon drying up it gently shakes off the grain and then call the babies to come and eat.

8. A USERS' NOTE : MATRIX RANKING

Matrix ranking and scoring is used to discover local attitudes to and perceptions of a topic of interest. This may be soil and water conservation measures, varieties of a cereal, types of fertiliser, trees, fruits, vegetables, wood, income-earning opportunities and so on. The technique helps to understand better the key constraints and opportunities for targetting publicity about innovations. It also helps to discover the different perceptions of different groups of villagers or farmers.

Begin by listing the SWC measures (or trees, or fruits etc.) about which you want to learn; elicit local criteria by asking what is good about each until there are no further replies, then ask what is bad; put all the criteria into a single list, and turn all negative criteria into positive (eg. from susceptible to pest attack to resistance to pest attack); add your own criteria to the list if you wish, but mark with an asterisk to show there are not the farmers' criteria; construct a matrix with the measures (or trees or fruits) along the top and criteria down the side; then conduct the ranking by asking which item is best for next best, worst, next worst etc. for each criterion, then move to the next criterion.

DO	DON'T
*do be patient in producing the initial list of crieteria. Consider using the technique of pair-wise comparisons to produce the list. Once the list is produced it can be used for many informants	*don't mix your criteria with those of the informants *don't just stick to ranking; try scoring as an alternative - allocate a maximum number (eg. 10, 15 or 20) for each criterion and let informants put as many in each box as they wish
*do sample people from different classes, groups, tribes to discover their perceptions and criteria. Do they differ? If so, why?	
*do be very careful about adding up scores to produce an overall ranking - this assumes all criteria are weighted equally	
*do look for items/measures that score well regularly	
*do look for unusual scores eg.	

one item or measure may score very poorly on all but one criterion, for which it is best

*For participatory matrix ranking construct a large matrix on the ground, and give people seeds, stones or other proxies to put on each box.

9: A USERS' NOTE : FARM PROFILES AND SKETCHES

These are drawn to publicise different types of farms and farm livelihoods, and can show a mix, for example, of well conserved, poorly conserved, typical and atypical farms. Farm sketches also record well-conserved farms for future farmer-to-farmer extension activities.

DO	DON'T
*do draw carefully all visible featurs of the farm	*assume that what you see is how it always is. This year conditions may be unusual
*do draw attention to key features in the written summary	*assume you can see everything. Ask a farmer to describe what they see too.
*do ask how the farm has changed over time. What did it look like last year, 10 years ago? etc.	

MRS TABITHA NJERI'S FARM — 6 ACRES
MBARI-YA-HITI CATCHMENT — 2.8 HECTARES

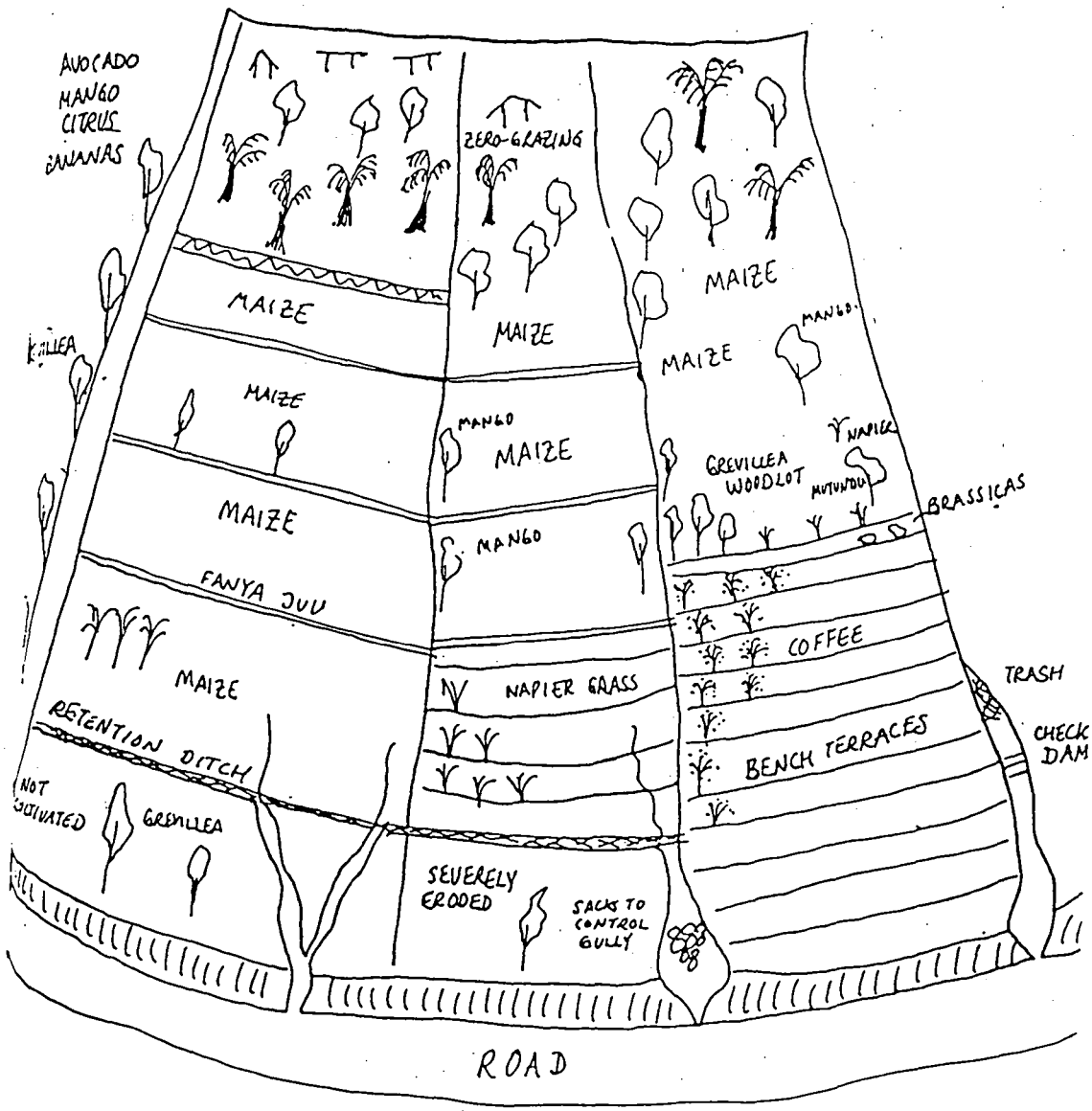


Figure A 12. Farm profile of Mrs Tabitha Njeri's farm, Mbari-ya-Hiti catchment, Murang'a District (Kiara et al, 1990)

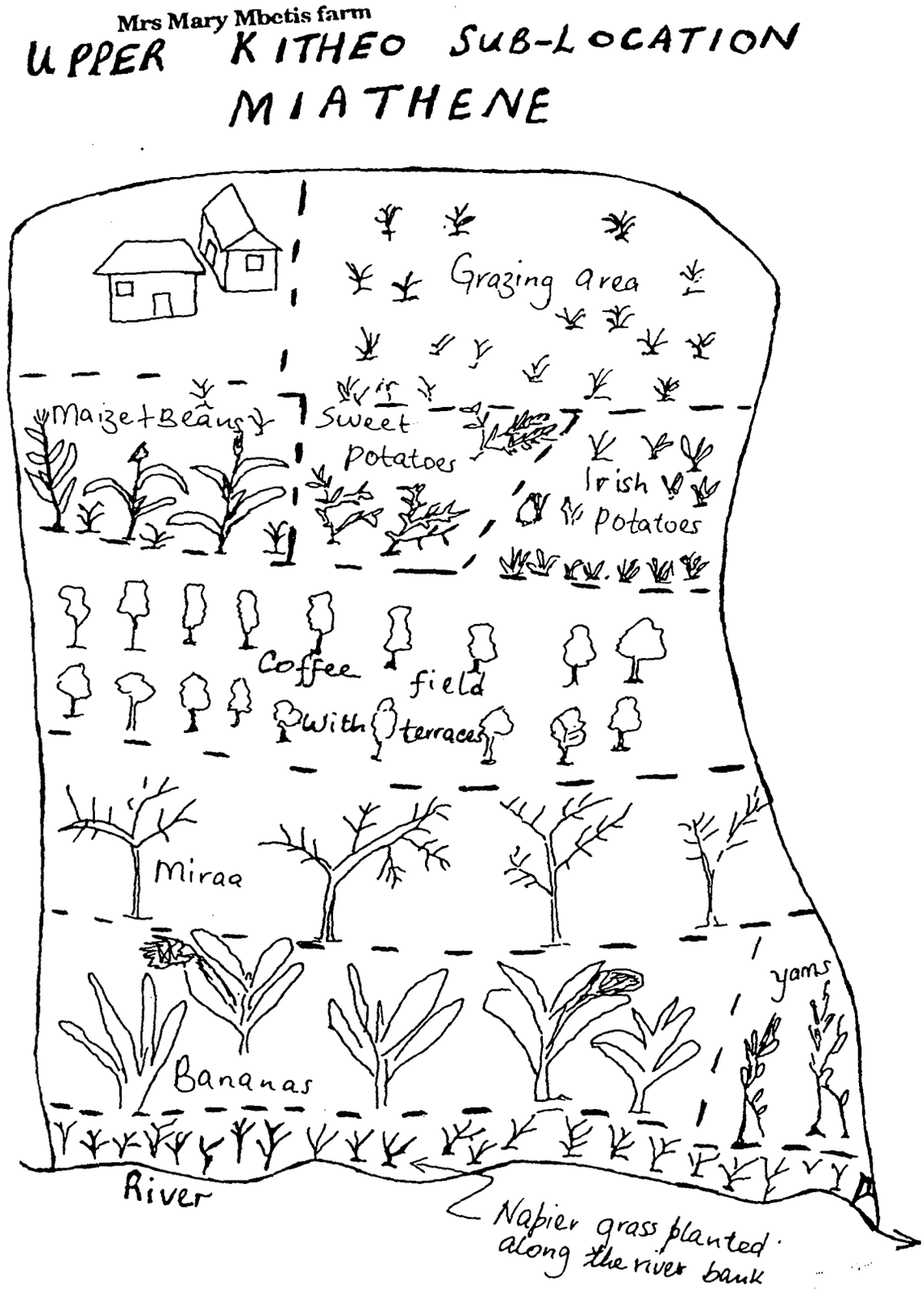


Figure A 13. Farm profile of Mrs. Mary Mbeti's farm, Miathene catchment, Embu District. (Mwenda et al, 1990)

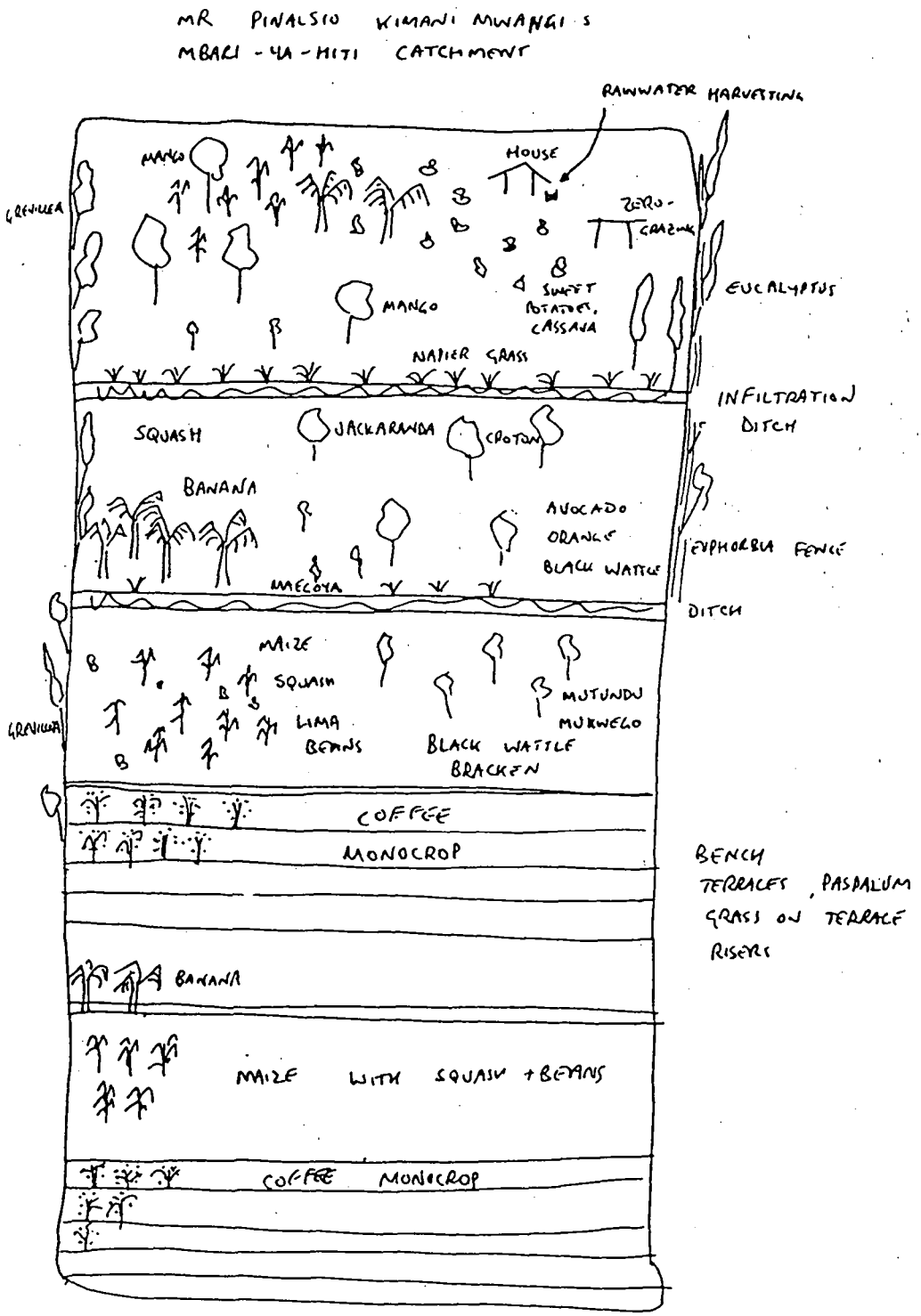


Figure A 14. Farm profile of Mr. Pinalsio Kimanimwangi's farm, Mbari-ya-Hiti catchment, Murang'a District (Kiara et al, 1990)

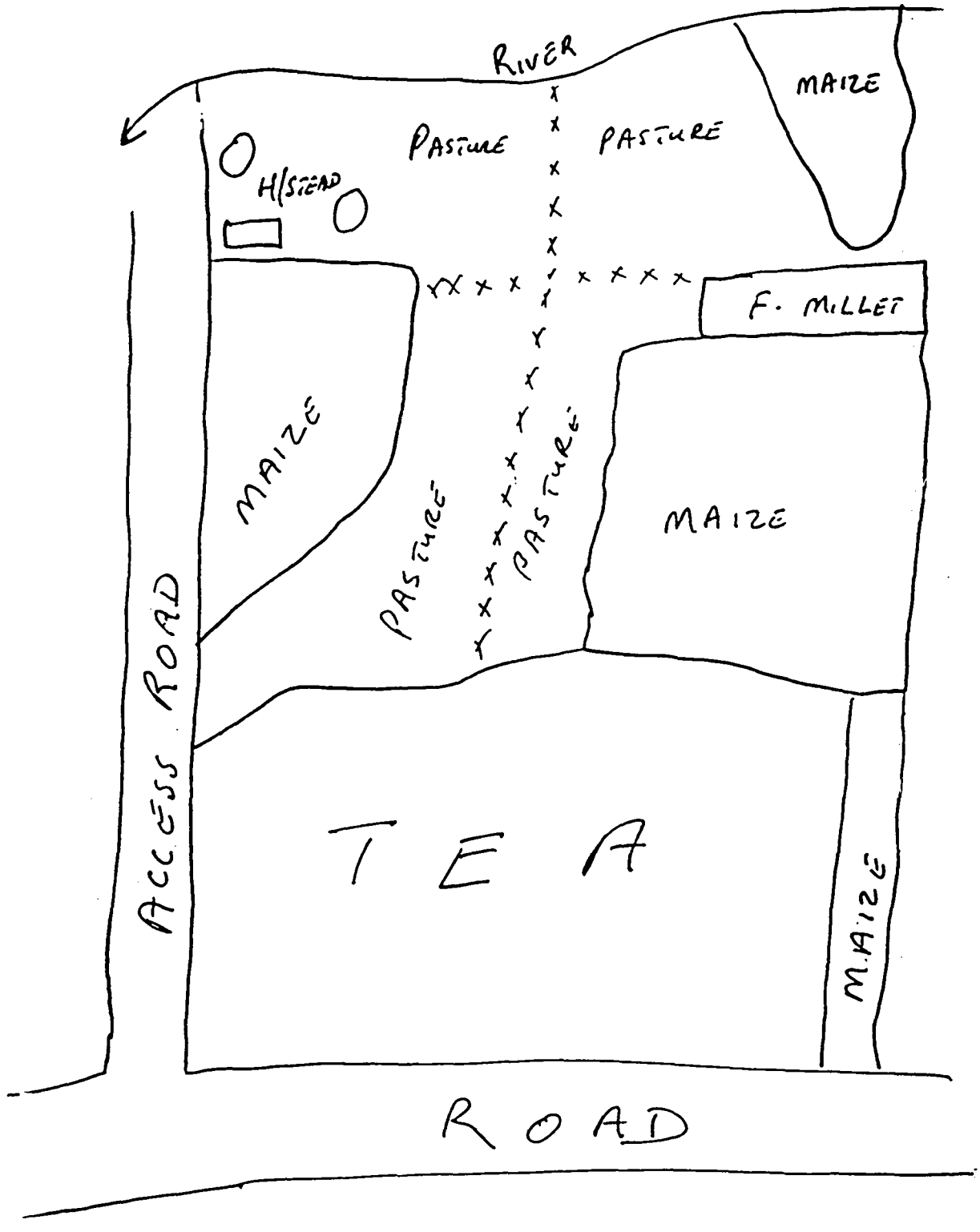


Figure A15. Sketch of Mrs. Priscilla Chepkwony's farm of 6 acres, Mindililwet catchment, Kericho District, Kenya

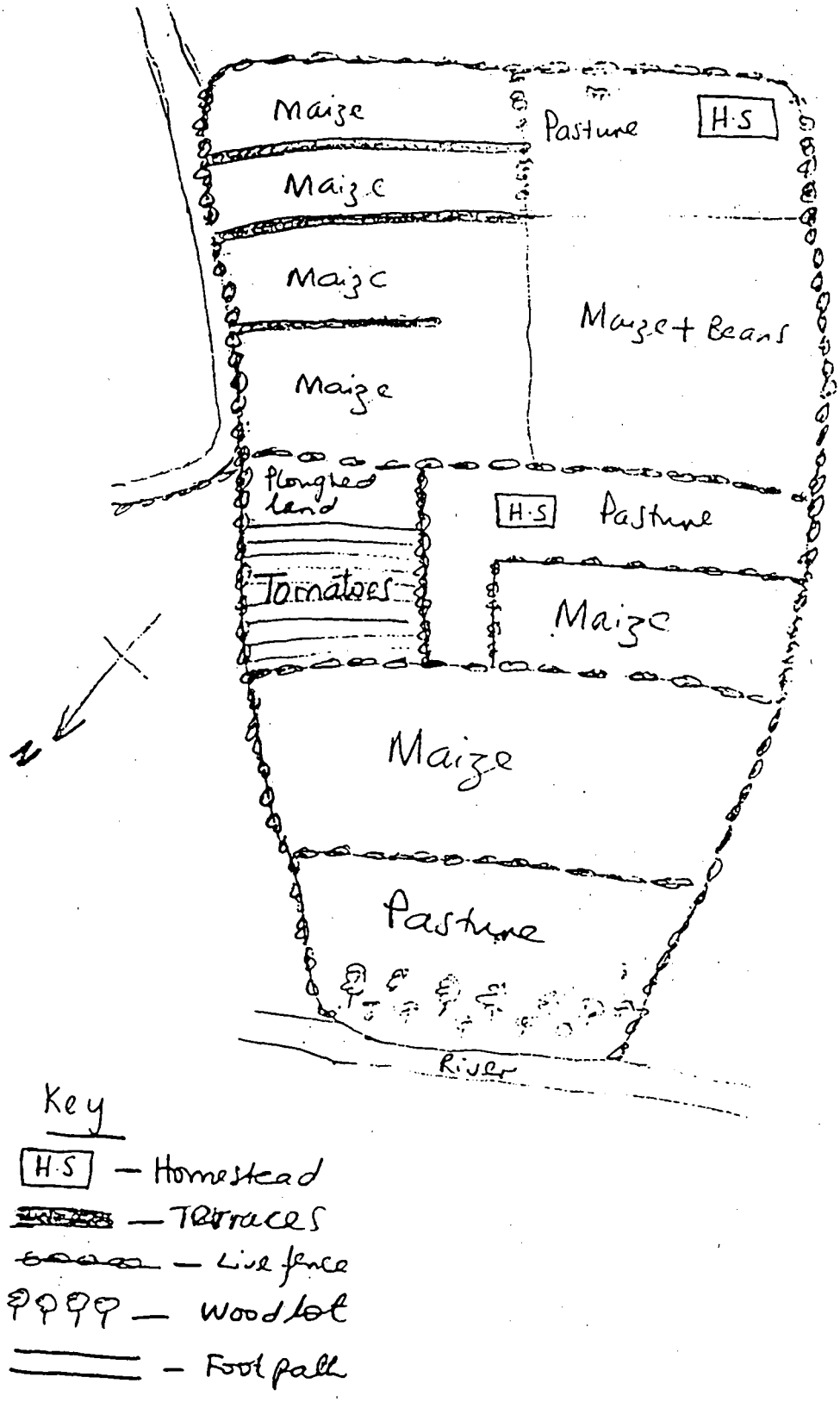


Figure A 16. Farm profile of William arap Tengeih's farm, Chemorir catchment, Kericho District.

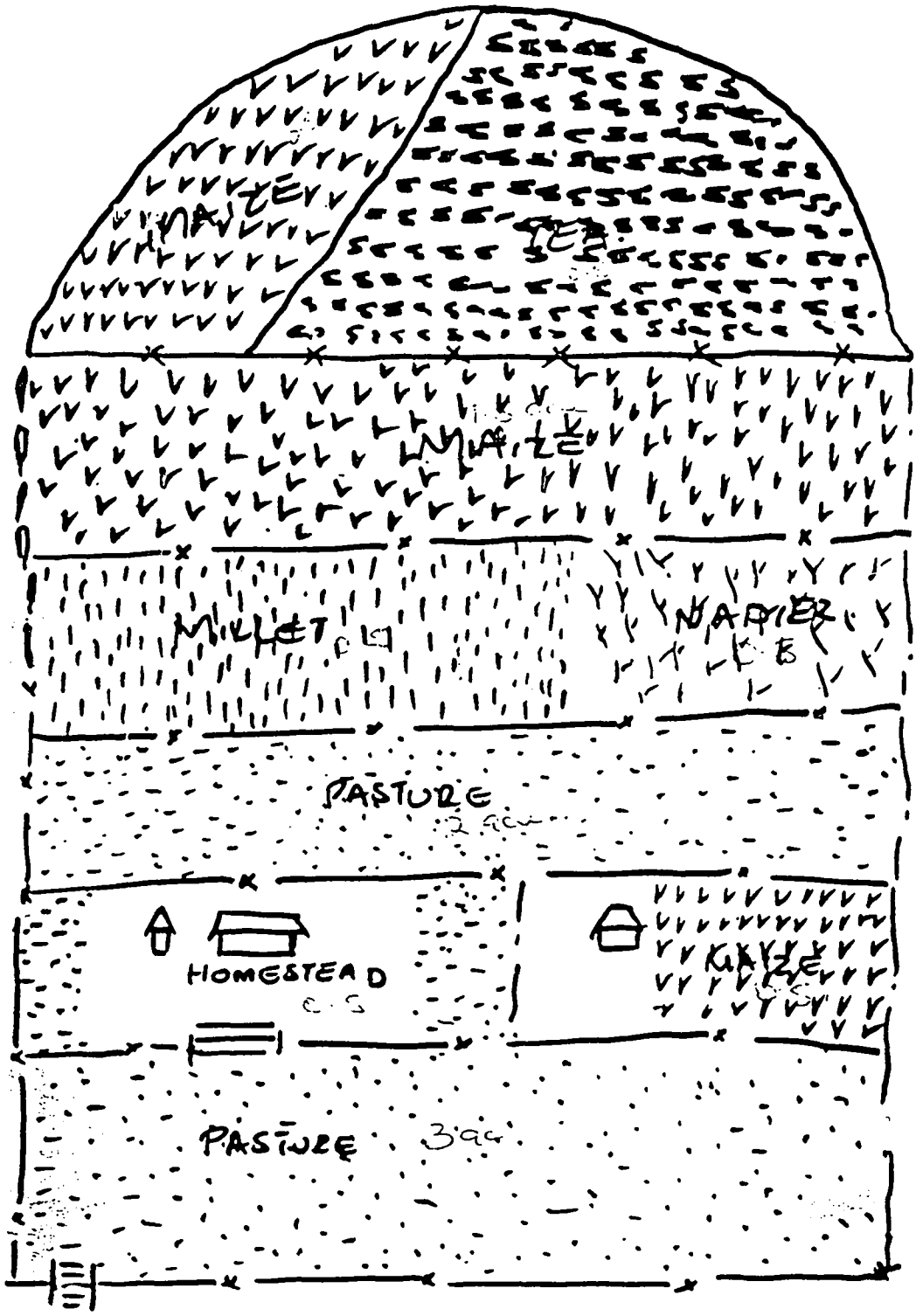


Figure A 17. Farm profile of Mr. Sila Mibei's 10 acre farm, Koiwalelach catchment, Kericho District.

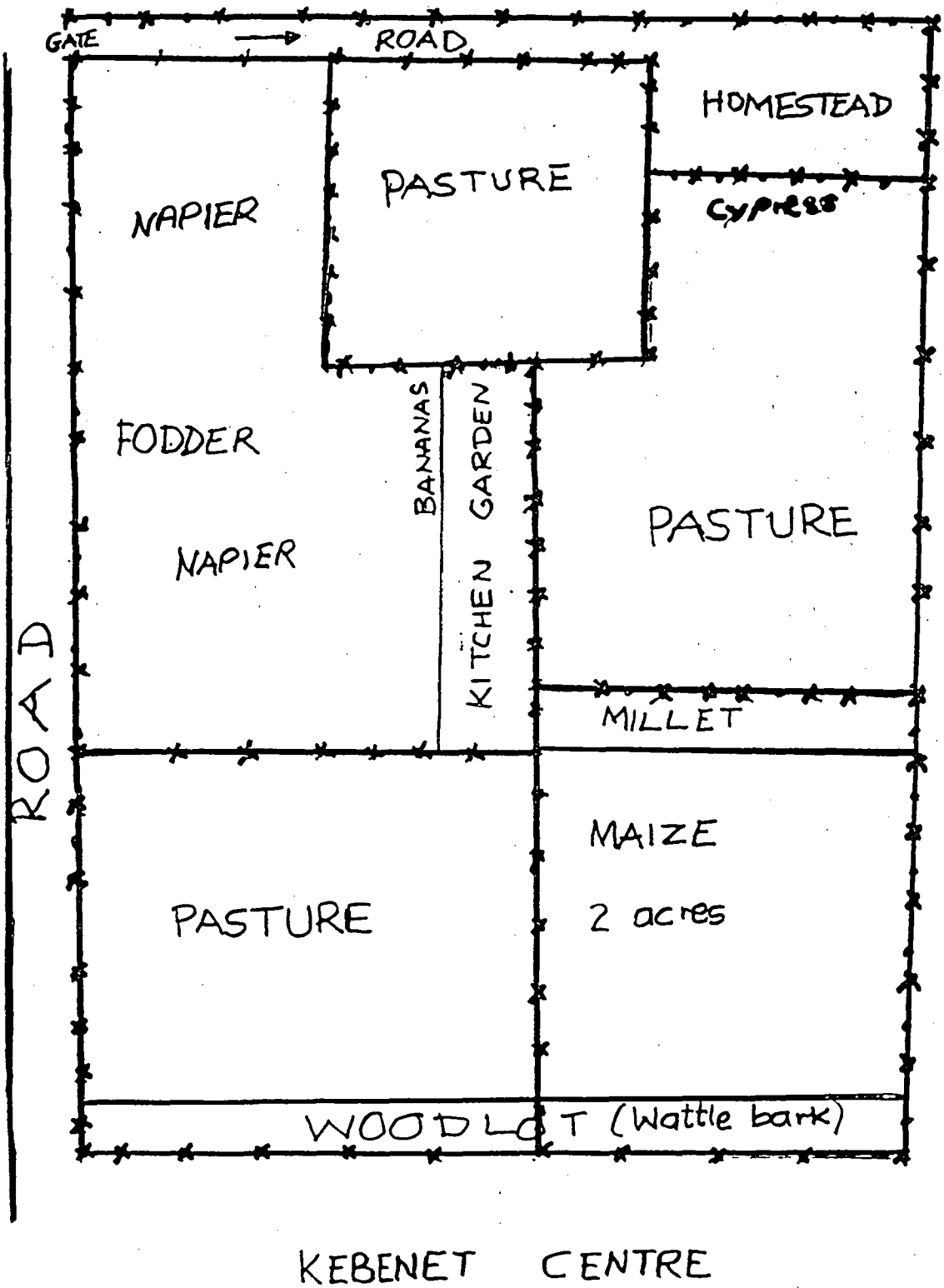


Figure A 18 . Farm profile of Mr. Andrew Kemei's farm , Kabaswet catchment , Kericho District

PAUL KOSKEI's FARM PROFILE
(3 Acres)

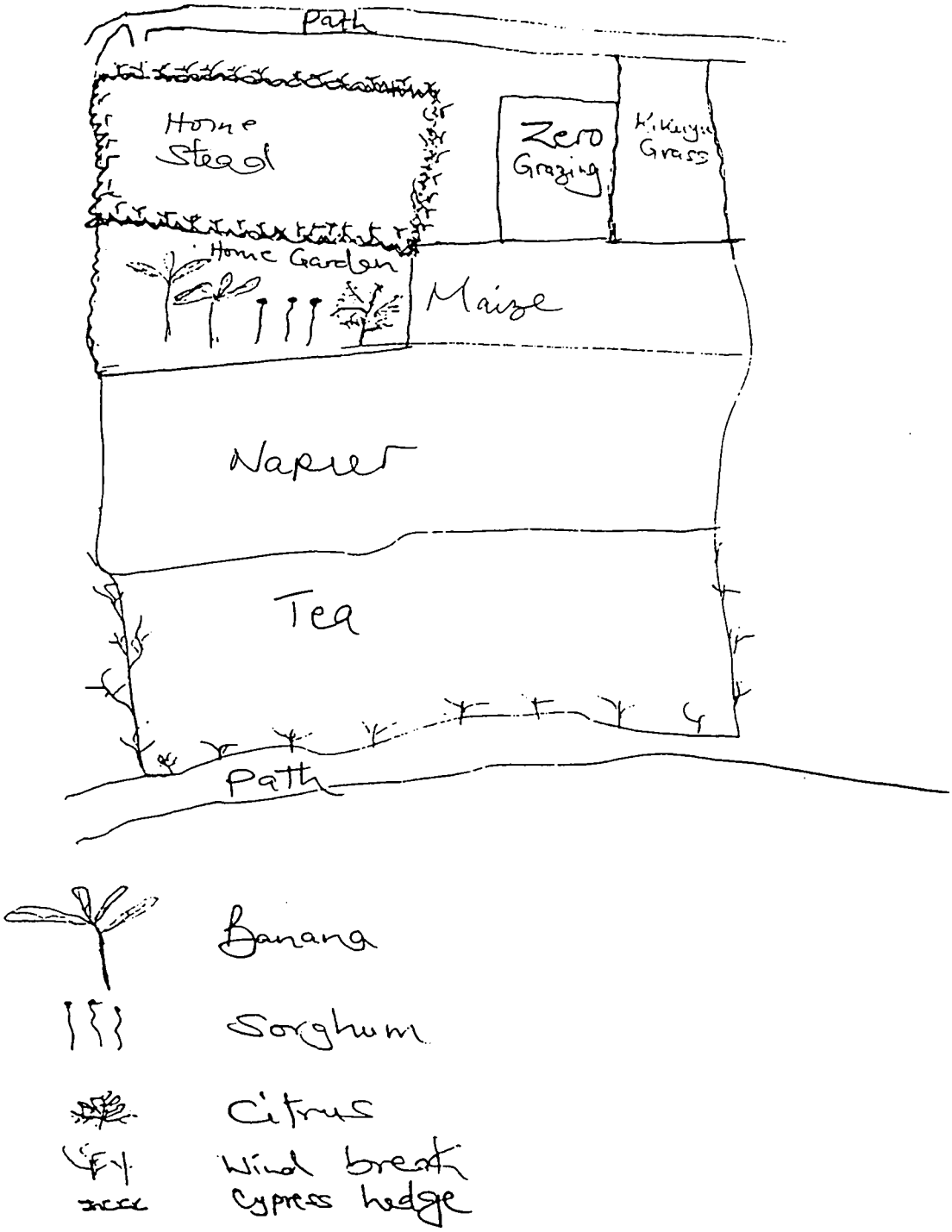


Figure A 19. Farm sketch of Mr. Paul Koskei's farm, Chemosir catchment, Kericho District.

Appendix B: Participants at Kericho Workshop

Soil and Water Conservation Branch, MoA

1.	M. Mbegera	SCO-HQ, Box 30028, Nairobi
2.	E. Mwenda	SCO-HQ, Box 30028, Nairobi
3.	M. Segerros	SCO-HQ, Box 30028, Nairobi
4.	J.K. Kiara	PSCO Rift Valley, Box 530, Nakuru
5.	J.I. Maina	PSCO Kakamega, Box 27, Kakamega
6.	S.M. Maiko	PSCO Nyanza, Box 1700, Kisumu
7.	A.M. Kinampiu	PSCO Eastern, Box 34, Garissa
8.	J.M. Ndirangu	PSCO Central, Box 29, Nyeri
9.	J.A. Njeka	PSCO Coast, Box 90290, Mombasa
10.	J.C.T. Muchoki	PSCO Eastern, Box 4, Embu
11.	I.O. Okeyo	DSCO Kericho, Box 50, Kericho
12.	J.A.M. Ling'ang'a	DSCO Nyandarua, Box 70, Nyakururu
13.	A.S. Omushieni	DSCO Baringo, Box 4, Kabarnet
14.	W. Kimani	DSCO Bungoma, Box 33, Bungoma
15.	J. Imbira	DSCO West Pokot, Box 17, Kapenguria
16.	P.N. Koyi	DSCO Taita/Nzoia, Box 1781, Kitale
17.	Z. Mugonyi	DSCO Nandi, Box 60, Kapsabet
18.	R.L. Maina	DSCO Kisii, Box 52, Kisii
19.	J.G. Njuki	DSCO Nyeri, Box 899, Nyeri
20.	M.A. Mwakileo	DSCO Lamu, Box 40, Lamu
21.	G.G. Runyora	DivSCO, Box 70, Nyakururu
22.	P.M. Gitundu	DivSCO, Box 32, Embu
23.	J.N.N. Mungere	DivSCO, Box 1035, Wundanyi

Ministry of Livestock Development

24.	M. Njuru	DAPO, Box 728, Kiambu
25.	E.M. Lumbi	DLEO, Box 69, Kathiari, Machakos
26.	P.N. Gaithuma	DRO (Livestock), Box 44, Nakuru
27.	M. Nyagali	RO-P, Machakos, Box 555, Machakos

Farm Management, MoA

28.	A.W. Kangethe	DFMO Samburu, Box 4, Maralal

Crops, MoA

29.	J.G. Mucangi	DCO, Box 27, Kakamega
30.	T.S.T. Kipkoech	DCO, Box 50, Kericho
31.	P.K. Mwangi	DCO, Box 12, Meru
32.	F.W. Mwangi	DCO, Box 16, Kiteri

Extension Coordinators

33.	B.O. Onyango	EC/DRO (Livestock), Box 656, Homa Bay

Training Officers

34.	G.M. Mucai	PTO Central, Box 29, Nyeri

Rural Youth, Ministry of Agriculture

35.	G. Agile	RYO, Box 30028, Nairobi

IIED, London

36.	Jules N. Pretty	Associate Director, Sustainable Agriculture Programme, IIED, 3 Endsleigh St, London WC1H 0DD

Appendix C: Participants' Expectations for RCA Training Workshop

* want to learn more of the catchment approach to SWC
* learn more about RRA
* appreciate what other people are doing with RRA
* identify multidisciplinary approaches useful to the work of livestock extension
* learn how catchment approach works, with particular emphasis on organisation and management skills required
* learn how to realise SWC in semi-arid and range areas
* take back recommendations to pass to other extension depts.
* develop better monitoring systems for technical inputs to agriculture and livestock development
* work out a model for effective planning of SWC with greater participation of farmers
* learn how to involve more farmers and extension workers in my area
* learn better ways of cross-sectoral working, eg between youth, leaders, provincial level
* learn how youth can be involved in SWC
* want to be enlightened and made aware of the policies of MoA, in particular soil conservation, so that SWC is not just the responsibility of MoA, but everyone
* learn how to involve other administrations in SWC, particularly in rangeland areas
* learn how SWC practices can help in the interests of food production
* acquire more systematic and sustainable efforts for use in the field
* learn about technologies to solve the multiplicity of problems in my catchment
* learn of practical techniques to improve the rate of implementation of the catchment approach
* want to be better equipped for skills in planning; in the past too much down to trial and error

* want to help test RRA further in the field, to see the type of model to be developed

* want to be a better community worker

* expecting to meet old friends and meet many new ones

* want to learn about RRA so that I can try it in one catchment of my district

Appendix D: Summary of participants' guidelines for interviewing

CATCHMENT A

Do's	Don'ts
1. Appreciate the farmers' (interviewee) efforts & be complimentary	
2. Make an informal introduction - Creation of commonness - What you are doing and why	
3. Time your interviews - Market day - Lunch time	
4. Respect culture & traditions - Seat - Tea	

CATCHMENT B

Do's	Don'ts
1. Be informal - eg sit on grass	1. Show lack of interest
2. Understand the culture of the respondent	2. Let seating arrangement be disorganised
3. Select site well	3. Let one respondent be left out of the discussion
	4. Show lack of respect

CATCHMENT C

Do's	Don'ts
1. Encourage active participation by the respondent(s)	1. Be too official and technical
2. Encourage informal group discussions and participation	2. Allow sub-group discussions within the main group
3. Conduct if possible the interviews in relevant areas/ sites - possibly on the ground	
4. Encourage interpersonal relations/communication before the actual interview is conducted, so reducing the tension of the respondent	

CATCHMENT D

Do's	Don'ts
1. Keep the attention of the farmer(s)	1. Create social distance
2. Permit only one person to talk at a time	2. Start interviewing before before an introduction
3. Introduce yourself (interviewer) and the purpose of interview to make the situation relaxed	3. Make assumptions on interviewee's knowledge of the subject
4. Ensure all the interviewers are be involved	4. Ask leading questions
5. Use the language the interviewee understands best	
6. Avoid outside interference	

CATCHMENT E

Do's	Don'ts
1. Keep audience attention	1. Conduct large group interviews
2. Avoid communication barriers	2. Allow distracting elements
3. Ensure that respondents are comfortable during interview	- children, dogs etc.
4. Be informal as much as possible	3. Let the interview interfere directly with their work
5. Ensure timeliness and relevance to the topic	
6. Keep in view of the respondents	
7. Record results	
8. Ensure the group is representative	

CATCHMENT F

Do's	Don'ts
1. Establish rapport	1. Avoid going straight into the subject
2. Introduce the subject	2. Avoid standing over the respondent

3. Ask open-ended questions	3. Avoid interrupting the answers
4. Ensure physical comfort of the venue	4. Avoid leading questions
5. Use a simple language	5. Ask questions simultaneously
6. Constantly check the non-verbal communication eg signs	6. Be too official
7. Show appreciation of the answers	7. Take too long with a particular interviewee
8. Give the interviewee a chance to ask questions	8. Make promises
9. Sitting arrangements should be semi-circular to ensure full attention	9. Interview a large group at a go

Appendix E: Matrix Ranking Workshop Exercise on Soil and Water Conservation Measures

There follows the results of the six matrix rankings conducted in the workshop by the participants. A total of 21 different criteria were collectively produced.

This exercise has 4 particular values:

1. It illustrates which measure is best to worst for each criteria.

2. It gives a general picture of which measure scores best to worst for the range of given criteria - assuming each criterion has an equal weighting.

3. But as weighting is not of course equal for any given farming household, extension officers are able to select a measure according to their particular constraints and needs. For example, if labour is the major constraint for establishment, then an unploughed strip would be the best to suggest.

4. Lastly if extension workers believe that a particular measure is the best for a given location, but that it has scored poorly on most criteria, then they should select that measure for which it scored best, and publicise it primarily on this basis. See unploughed strip ranked by group F - generally poorly ranking, but best for cost of establishment; and grass strip by group D - generally poor, but best for fodder production.

MATRIX RANKING RESULTS

	Fanya Juu	Fanya Chini	Grass Strip	Trash Line	Stone Line	Strip Crop	Un-ploughed Strip	Contour Ridge
GROUP A								
Speed of development of bench terrace	1	8	3	4	2	6	5	7
Fodder production	3	4	2	6	8	1	5	7
Low labour costs	8	6	5	4	7	3	1	2
Least land demand	3	4	6	5	7	2	8	1
Least response time	1	2	6	3	4	7	5	8
Better water conservation	6	7	3	2	8	5	4	1
Least technical knowledge by farmers	6	7	3	4	1	5	2	8
Least demand on maintenance	6	7	3	4	1	5	2	8
GROUP B								
Least labour	8	7	3	2	6	4	1	5
Water holding	2	4	7	8	3	5	6	1
Benching	1	7	2	5	3	8	4	6
Reduces soil loss	1	8	2	4	3	7	5	6
Reduces slope	1	7	2	5	3	8	4	6
No pests or diseases	2	2	5	7	4	6	8	1
Source of fodder	4	5	1	7	8	2	3	6
Low maintenance	6	8	3	5	4	2	1	7
RANKING (assuming equal weighting for all criteria	1	8	1	7	4	6	3	5

	Fanya Juu	Fanya Chini	Grass Strip	Trash Line	Stone Line	Strip Crop	Un-ploughed Strip	Contour Ridge
GROUP C								
Good for water conservation	1	8	4	3	2	7	5	6
Less effort in establishment	8	6	4	3	7	2	1	5
Less maintenance	8	7	2	5	3	4	1	6
Good for fodder production	2	8	1	6	7	4	3	5
Good on steep slopes	1	8	3	4	2	7	5	6
Good on shallow soils	8	7	5	6	1	3	2	4
Improves soil fertility	5	7	4	1	8	2	3	6
Applicability to farm size	6	5	7	3	4	2	8	1
Good for drainage	3	1	4	8	7	5	6	2
Availability of materials	3	3	6	8	7	5	1	2
RANKING (assuming equal weighting criteria	5	8	2	6	7	3	1	4

GROUP F

Effectiveness of soil, water, nutrient conservation	1	8	3	7	4	6	5	2
Maximisation of land utilisation	3	5	2	7	8	1	6	4
Cost of establishment	8	7	4	3	6	2	1	5
Least adverse effect on crops	5	5	6	7	4	1	8	5
Degree of permanence	2	3	5	7	1	8	6	4
Applicability on shallow soils	7	8	5	2	1	3	4	6
RANKING	4	8	3	7	2	1	6	4

	Fanya Juu	Fanya Chini	Grass Strip	Trash Line	Stone Line	Strip Crop	Un-ploughed Strip	Contour Ridge
GROUP D								
Labour intensity	8	7	4	3	6	2	1	5
Infiltration of run-off	2	1	8	5	4	7	6	3
Stability of embankment	1	3	6	7	2	8	5	4
Ease of bench formation	1	7	6	5	2	8	4	3
Harbouring of pests and rodents	1	1	6	7	4	3	5	2
Fodder production	2	2	1	7	6	5	4	3
Slope limitation	1	4	7	5	2	8	6	4
Agroecological zone limitation	1	2	7	5	3	8	6	4
Susceptible to pests, rodents & termites	1	1	5	7	3	4	6	2
RANKING	1	2	6	6	4	8	5	3

GROUP E	Fanya Juu	Fanya Chini	Grass Strip	Trash Line	Stone Line	Strip Crop	Un-ploughed Strip	Contour Ridge
Effectiveness of reducing slope	1	3	4	6	2	7	5	5
Water conservation	1	8	4	6	5	7	3	2
Labour requirements	8	7	6	3	4	1	5	2
Competition for arable land	8	7	6	3	4	1	5	2
Multiple functions, soil fertility, fodder	6	6	1	2	4	3	5	7
Negative side effects	4	3	5	7	8	1	6	2
Skill requirement	6	6	4	2	5	2	1	3
Requirement for special tools	6	5	4	1	3	1	2	4
RANKING	7	8	5	3	6	1	2	3

Appendix F: List of Interactions, Incentives & Disincentives for SWC produced by participants

Soil fertility/conservation measures
Food production
Research agendas of NGOs/government
Education, schools, children
Women's groups
Literary rates
Religious organisations
Sources of tools
Artisans
Livestock, fodder needs
Farm income
Nutrition, health services
Water roof catchments
Trees, nurseries
NGOs
Roads, maintenance, road drainage
Population density/land scarcity
Labour market
Prov administration role
Competition for resources
Compatability of measures with other functions
Awareness of SWC/attitudes
Fuelwood
Timber, fruits
Publicity/role extension
Government policy
Attitudes to supply of tools/money for SWC
Communal use of land
Lack of transport
Lack of captial
Livestock: stocking rates
Yields - declining?
Climate/rainfall
Colonial practices: punishment
Competition for labour on-farm
Absent landlords
Labour Requirement
Land Tenure
Farm size
Costs
Publicity
Land pressure
Community groups
Prov. tools
Government subsidies
Interaction
Land productivity
Local politics
Public relations of govt depts

Appendix G: Exercise on Facilitation Techniques in Training

Most development efforts share one thing in common: working with groups. This is true of soil and water conservation activities in Kenya. The groups may be catchment committees, committees of farmers, or multi-sectoral groups of professionals from various ministries and agencies. For one afternoon 18 of the participants in the RRA course spent three hours producing guidelines for the preparation, conduct and evaluation of training exercises. In particular they considered the following topics:

1. Preparations for a workshop

2. Ways to build an open, participatory atmosphere

3. The workings of groups

4. The different approaches and styles for trainers

The resources required for this exercise were a preprepared video plus questions. The guidelines produced by the 4 groups follow.

GROUP 1

Members: E. Mwenda
I.O. Okeyo
T.S.T. Kipkoech
Grace Agile

1. **What are the essential preparations for a workshop?**

a. The programme schedules
   - time of arrival
   - venue
   - activities
   - adequate transport arrangement

b. Expected Number of participants
   - gender distribution
   - food preferences
   - religion
   - level of training & past experiences

c. Adequate equipment & material
   - equipment to be tested in advance
   - familiarity with the use of the equipment

d. Food and lodging
   - wide choice of food
   - comfortable lodging
   - quiet
   - availability of entertainment

e. Resources people should be coordinated
   - given programme schedules in advance
   - confirm their participation
   - kinds of teaching aids required

3. What can be done to facilitate an appropriate workshop atmosphere?

a. Exhaustive introduction of participants
   - name
   - experience
   - education background
   - job
   - social background

b. Assess expectations from the participants

c. Seating arrangement
   - avoid classroom set up
   - semi-circular seating arrangement

d. Encourage informal interactions
   - organize social evenings

e. Short breaks between sessions
   - exchange views

3. What do groups need to achieve their tasks?

a. They should define their objectives and goals
b. Methods to achieve their goals and objectives
c. They need to take stock of available facilities
d. Group leadership and role definition
e. Effective participation by all group members

4. What do groups need to work well together?

a. Participatory leadership
b. Group strategy
c. Free expression of opinions

5. **What motivates groups?**

a. Effective leadership
b. Interesting topics that focus on their needs
c. Common needs and expectations
d. Ambition of group members to achieve their goals

6. **How do we bring out the best in resource people as well as groups?**

a. Defining needs and expectations of group

b. Resource person should be aware of the group level of knowledge of the topic

c. Resource person should simplify the technical words

d. Use of visual aids by resource person

e. Comfortable seating place and environment

f. Both should be able to communicate through participation

g. The resource person should be stopped if the topic is out of tune

7. **What have you learned about training styles today?**

a. Participatory

b. Focusses on needs and goals of participants

c. It meets expectations of the participants

d. Considers participants' past experiences
   - use of familiar words
   - use of visual aids
   - thorough briefing from the course organisor
   - interventionj when resource person is out of tune

8. **What strengths and weaknesses do you see in the styles of training?**

a. <u>Laissez-Faire</u>

<u>Weaknesses</u>	<u>Strengths</u>
- participants not motivated	- brainstorming
- lacks leadership	- intervention by resource person
- minimum participation	- group cohesion
- poor results	- find their own priorities
- longer decision-making time	

b. Directive

Weaknesses	Strengths
- no participation by participants - no skill improvement - bored and disoriented - not meet groups needs and expectations	- save time - cover a wider area of topic - stick to your programme

c. Participatory

Weaknesses	Strengths
- focus on needs and goals - losts of visual aids - past experiences - intervention when resource person is out of tune	- take longer time to make decisions compared to Laizer-faire

GROUP 2

Members M. Mbegera
E.M. Lumbi
A.M. Kinampiu
J.A.M. Ling'ang'a
J.G. Njuki

1. **What are the essential preparations for a workshop?**

a. Logistics of arrival
- invite participants in good time (finances, clothing, date, venue, programme)
- follow up invitations by telephone
- know the number of participants for budgetting
- organise transport for use during workshop
- visit the venue to make necessary arrangement
  - accommodation
  - food arrangement
  - conference room
  - sites for practicals
  - sites for visiting
  - contacts with other institutions who will be involved
- mix participants of various disciplines and gender

a. Proper venue
- suitability
  - capacity
  - security
  - accessibility
  - recreational facility
  - suitability for teaching aids
  - reputation
  - communication facilities

c. Food and lodging
- capacity
- food quality and quantity
- standard of cleanliness for lodign
- laundry facility
- entertainment

d. Equipment and supplied
- stationery
- audiovisual aids
- vehicles
- maps and charts
- working tools

e. Co-ordination of resource persons
- invitation letters in good time
  - specify topics to cover

- date, venue and time
- transport arrangement
- accommodation
- finance

- follow up by telephone and further consultation

2. What can be done to facilitate an appropriate workshop atmosphere?

- maintain punctuality
- advance and suitable seating arrangement
- distribution of stationery and other necessary materials
- introduction of participants and the workshop in a participatory manner
- encourage the participants to be as open minded and informal as possible - relaxed mood
- avoid matters that may lead to arguments
- share responsibilities among the co-ordinators and participants
- encourage the participants to learn from and associate with each other

3. What do groups need to achieve their tasks?

- common language
- well defined tasks
- equipment and supplies
- leadership
- finances
- free dialogue

4. What do groups need to work well together?

- tasks related to the felt needs and goals
- diversified composition
- good leadership
- sharing tasks and responsibilities

5. **What motivates groups?**
   - common objectives
   - ambition for achievement
   - flexibility in decision making
   - looking into the welfare of each other
   - informal interaction

6. **How do we bring out the best in resource people as well as groups?**
   - advance briefing
     - topics
     - groups composition
     - level
     - groups needs and expectations
   - invite resource persons in good time
   - informal interactions among the organiser, the resource persons and the group
   - follow-up and evaluation
   - do's and don'ts of the group

7. **What have you learnt about training styles today?**
   - learn the groups needs and expectations to determine the training style required
   - participatory training style encourages involvement of the participants
   - participatory training styles helps in prioritisation

8. **What strengths and weaknesses do you see in the styles of training?**

   a. <u>Laissez-Faire</u>

<u>Weaknesses</u>	<u>Strengths</u>
Allows view of the out-spoken few	Allows for free expression

It is not decisive

Encourage conflicts

Inbuilt problems and solutions

GROUP 3

Members: J.K. Kiara
P. Gaithuma
J. Imbira
P.N. Koyi

1. **What are the essential preparations for a workshop?**

a. Logistics of arrival
- advance notice on arrival date and time
- means of transport to venue organised
- direction to venue by description/sketch
- reception to be well organised

b. Proper venue
- enough space to accommodate all participants and allow required arrangement
- free of noise
- well lit and well ventilated
- easily accessible and centrally located
- clean and comfortable venue

c. Food and lodging
- hygenic kitchen condition
- diversified to meet requirement of all participants
- enough food
- packed meals to be well prepared and balanced and organised in time
- services to be fast and good and timely
- clean bedding
- well ventilated rooms

d. Equipment and supplies
- be arranged in time before participants
- be relevant and sufficient

e. Coordination of resource persons
- must be invited a month before and must confirm their participation
- topic should be chosen and time given
- their material required should be arranged and provided in time
- they should be told the nature of trainees and objectives of workshop

2. **What can be done to facilitate an appropriate workshop atmosphere?**

- organiser to be at the workshop venue in time
- orderly seating arrangement
- all the equipment and materials to be used should be ready
- issue materials to participants in time
- introduction of participants in a manner that creates alertness and ease
- state the objectives of the workshop
- programme should be comprehensive and in line with workshop objectives
- programme discussion and review

3. **What do groups need to achieve their tasks?**
   - good leadership
   - clearly defined tasks/objectives
   - enough resources

4. **What do groups need to work well together?**
   - understand one another
   - good guidance
   - participation by all to facilitate the results

5. **What motivates groups?**
   - recurring honesty, flexibility among members
   - availability of resources to achieve the tasks
   - clearly defined terms of responsibilities

6. **How do we bring out the best in resource people as well as groups?**
   - understand the groups needs
   - work in cooperation
   - inform them in advance

7. **What have you learned about training styles today?**
   - is part and parcel of the dvelopment process
   - creates awareness of how to address the problems and seek durable solutions
   - charts out opportunities which can be exploited for further development

- training involves the recipients depending on the local situations
- intervene to assist on the required priorities

GROUP 4

Members: M. Segerros
J.N.N. Mungere
A.S. Omushieni
B.O. Onyango
J.A. Njeka

1. **What are the essential preparations for a workshop?**

   a. Logistics of arrival
      - invitation letters should be early
      - letter to include date of arrival and programme attached
      - who to invite and why (target group)
      - arrival date and time, venue (location) map and what to carry. Mode of transport - provided or refunded for transport costs
      - organiser to be there ealier to organise and receive participants

   b. Venue
      - easy to reach, comfortable and conducive for learning
      - recreation facilities

   c. Food and lodging
      - wide variety of popular dishes with flexibility and timely quick service
      - lodging presentable with good sanitary conditions, comfortable and proper bedding - proper pairing in case of doubles, flexibility in case of bath (hot and cold)

   d. Equipment
      - require materials and equipment on site earlier and tested
      - should also have alternatives in case of any irregularities

   e.
      - Timely invitation and briefing and confirmation.
      - Alternative resource people in case of any failure to turn up

2. **What can be done to facilitate an appropriate workshop atmosphere?**
   - participants should not be subjected to tension creating questions
   - guiding rules to the workshop should be agreed on by consensus
   - methods of expression should be such that they ease tension from the participants
   - participants should be made aware of their past contribution and expectation in the workshop

- all participants should be allowed full participation in workshop
- participants should be allowed to express their expectations
- there should be activities that encourage free informal interaction

3. **What do groups need to achieve their tasks?**
   - objectives and orientation
   - methods and style to achieve the objectives

4. **What do groups need to work well together?**
   - leadership within the group
   - diversified experiences within the group
   - honesty
   - proper communication and agency participation

5. **What motivates groups?**
   - set goals - what you want to achieve
   - rewards
   - achievements
   - sharing of experiences

6. **How do we bring out the best in resource people as well as groups?**
   - inform them about the training needs of the groups
   - give the group's background knowledge and experiences on the topic
   - proper institutions to bring out the groups needs and requirements
   - inform them about the method/style to use in instruction
   - inform them about the groups age, gender composition
   - the organiser should be in control of the situation any time

7. **What have you learned about training styles today?**
   - adapt training style to level of participants
   - make the style as practical/participatory as possible without eroding the message
   - train what is relevant and applicable to participants understanding and situation
   - make a follow up on the training

8. **What strengths and weaknesses do you see in the styles of training?**

   a. Laissez-faire

<u>weaknesses</u>	<u>strengths</u>

can ignore level of understanding among participants
people don't get involved

b. Participatory

Weaknesses	Strengths
takes time	stimulates people
decisions take longer time	everybody given chance to be heard
	in long run learned things will remain important

c. Instruction

Weaknesses	Strengths
assumes other people don't know	good if people have agreed on topic before
assumes that whatever is taught is what the participants require	

APPENDIX H: Preliminary Proposals for Each of the Six Planned Catchments

Kabaswet

1. Improve existing water
2. Intensify livestock education and extension
3. Organise marketing cooperative societies
4. Improve road infrastructure
5. Improve agroforestry extension
6. Increase and diversify food crops
7. Intensify soil conservation extension and training
8. Encourage soil conservation on cattle tracks

Cheronget

1. Increase fodder production
2. Improved cattle breeds
3. Establish tree nurseries
4. Energy-saving stoves (Jikos)
5. Roof-catchments
6. VIP latrines
7. Involve schools and rural youth in agricultural activities
8. Mobilise community to maintain roads
9. Improve extension services
10. Formalisation of land transfers within families

Chemorir

1. Establish local tree nursery
2. Organise local groups for agriculture and development activities - women's groups, 4K club and young farmer clubs
3. Promote agroforestry and woodlots
4. Increase use of farmyard manure on crops
5. Expansion of roof catchments harvesting for drinking water for humans and cattle
6. Expansion of napier grass cultivation
7. Formation of dairy co-operative society
8. Expand zero-grazing of cattle
9. Diversification of small livestock - rabbits, poultry, bees, sheep and goats
10. Improvement of access roads on a communal basis
11. Diversified fruit growing
12. Formation of catchment committee

Cheplanget

1. Improved dip management
2. Diversified fruits and vegetables
3. Improved fodder production
4. Improved access roads

5. Improved water availability
6. Milk-marketing cooperative
7. Improved public health and sanitation
8. Agroforestry extension
9. Improved institutional interactions
10. Adult education

Mindililwet

1. Formation of soil conservation committee
2. Introduction and popularisation of soil conservation activities
3. Intensity tree planting
4. Cash crops
5. Inprove livestock husbandry
6. Increase in fruit and vegetable production
7. Water harvesting from roof catchments
8. Improve access roads
9. Demonstration plots from agriculture
10. Marketing cooperative

Koiwelalach

1. Water harvesting from roof catchment
2. Improved animal fodder and feed
3. Introduction A.I. services
4. Marketing cooperative
5. Improved soil conservation extension
6. Improved access to credit
7. Expansion of cash crops

APPENDIX I: Summary of Methodology used by Each Catchment Team

Cheplanget Catchment (Group A)

Day 0

Brainstorming for checklist
Allocation of duties and responsibilities within team
Production catchment map
Secondary data review, including interview of DAEO, DivSCO, SDCO

Day 1

Met and briefed TA at catchment
Reconnaisance survey walking through catchment
Drove to highest point for view of catchment
Collected secondary data on rainfall
Profile and transect through a farm
Analysis of checklist, brainstorming for next day

Day 2

Split into 2 groups, started at different points and aimed to meet
Random interviews on transect walk
Met in chief's office for analysis and review
Arranged baraza, invited livestock and health officers

Day 3

2 groups, various interviews
Analysis in workshop, formulation of problem and opportunities lists
Drawing up baraza programme

Day 4

Collected materials for baraza
Baraza 10.45 - 13.15
Committee elected - chief selected representatives from parts of catchment not present

Day 5

Report writing

Mindililwet Catchment (Group B)

Day 0

As for Cheplanget

Day 1

Whole team introduced to community
Preliminary study of catchment

Day 2 & 3

Two groups conducted and drew transect walk, farm sketches, seasonal calendars, time trends, livestock problems
Each group given specific tasks
Brainstorming meetings

Day 4

Attended field day demonstration
Baraza held jointly with neighbouring group
Joined by veterinary officer and forestry officer
Catchment committee not elected because not representative of whole catchment

Day 5

Report writing including construction of action plan

Koiwalalach Catchment (Group C)

Day 0

As for Cheplanget

Day 1

Two sub-groups, each with 4 farmers, one with TA
4 hour transect walks N-S then E-W
Reviewed checklist

Day 2

Two sub-groups conducted detailed interviews
Interviewed sub-chief - arranged baraza
2 further transects
Appointment with primary school teacher arranged
Group interviews in market place
Visited AFC and KGGCU on way home
Developed new checklist
Achievements, problems and opportunities produced

Day 3

Analysis of data in workshop in morning
Interviews in afternoon

Day 4

Baraza 150 farmers
Livestock officer attended with 6 team members
Catchment committee elected

Day 5

Report writing

Chemorir Catchment (Group D)

Day 0

As for Cheplanget

Day 1

Transect walk by whole group, joined by village elder, farmer and TA; 5 km in 5 hours
Interviews and farm sketches
Total interviews - 4
Review meeting in evening

Day 2

2 sub-groups
Sampling northern end of catchment
Protocol meeting with Assistant Chief
15 interviews conducted in fields, in homes, in schools
Lunchtime review of checklist

Day 3

2 sub-groups
Sampling southern end of catchment
10 interviews in fields and in homes
Lunchtime review
Review meeting and preparation for baraza

Day 4

Baraza 60 farmers, 1230-1515

Day 5

Report writing

Cheronget Catchment (Group E)

Day 0

As for Cheplanget

Day 1

DivSCO collected
Went to high point of catchment
Tea with leaders
Farmer interviews and primary school
Review meeting in Kericho

Day 2

Transport problem, groups left late
Picked up LEO to join team; whole team together in field
Labour profiles, tree ranking
Drew transect, did not walk
Reviewed checklists

Day 3

As whole group interviewing and publicising baraza

Day 4

Collected posters and booklets for DAO's office
Collected seedlings from central nursery
Baraza 60 farmers, 11.30 to 16.10
Problems and opportunities ranked

Day 5

Report writing

Kabaswet Catchment (Group F)

Day 0

As for Cheplanget

Day 1

Introduced to area by DAEO and staff
Transect walks as group
SSIs in 2 sub-groups
Review meeting in workshop

Day 2

Completion of transect walk
SSIs in groups, joined by TAs
Met Assistant Chief to arrange baraza
Review meeting

Day 3

Random interviews and key informants
Review and baraza preparation

Day 4

Preparations for baraza
Stopped on way to baraza at Sondhu market to cross-check marketing
Baraza 15.00 - 18.00 - combined with Group B

APPENDIX J: Participants' Comments on the Kericho RCA Exercise

Relating to Advantages of RCA

"If you just remain in the office, it is not easy for you to understand the farmers' problems"

"When you are observing in the field, that is when you remember most."

"RCA accommodates farmers' views, enchances the interaction between farmers and extension workers, and motivates farmers."

"Within 5 days, everything!"

"RCA involves the local people"

"RCA gives whole farm approach to farm problems"

"Encourages local participation and the use of local materials"

"Eliminates biases"

"Enhances fast development"

"It is a quick method of revealing essential information that is usually hidden"

"RCA makes the community aware of their own problems"

"RCA broadens the mind"

"RCA addresses many issues at the same time"

Relating to Difficulties that Require Solving

"It is time consuming"

"It involves other departments over which we (the MoA-SWCB) have no control"

"It is highly involving and requires a high resource input"

"Patience is required by all members of the team"

"Raises expectations of the community, which may not be fulfilled"

"Team may require an interpreter"

"Requires community participation"

"Not all information will be discovered, even though an impression of complete coverage is given"

"Does not necessarily identify the causes of problems, but does pinpoint them"

"Information collected can be conflicting"

"Needs the involvement of other departments"

The Sustainable Agriculture Programme

The Sustainable Agriculture Programme aims to promote agricultural development that is ecologically, economically and socially sustainable.

Research for Policy

The Programme conducts research to explore key issues in the fields of research, planning and extension. Projects are generally in collaboration with co-researchers in Third World institutions.

Advocacy and Information

The Programme advocates these findings through publications, lectures and seminars. It publishes three series: the Gatekeeper Series of briefing papers aimed at policy makers; the RRA Notes series aimed at practitioners of Rapid Rural Appraisal; and the Issues Series of more detailed discussion papers.

Training and Methodological Development

The Programme conducts field-based and workshop-based training courses in RRA throughout the world.

Institution Building

Central to all the Programme's activities is the support to building of local capacity through networking, publications, training and collaborative research.

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