RGS
012

REPORT OF DIAGNOSTIC SURVEY

Using rapid rural appraisal techniques

OF

GAHO PEASANTS ASSOCIATION

IN KONSO WEREDA

CCRDA

Based on the work of participants in an RRA training course organised by FARM Africa

June 1993

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PREFACE

This is the report of a training course in Rapid Rural Appraisal held at Arba Minch 23 November - 5 December 1992.

The training course in Rapid Rural Appraisal (RRA) was organised by FARM Africa's Farmers Research Project and was taught by FARM's senior professionals. This report is the product of 14 day's intensive work and was written collectively by all the participants.

The course had two objectives:

- To teach Rapid/ Participatory Rural Appraisal (RRA) techniques in the workshop, and

- To exercise RRA techniques in a field setting:- to carry out case studies in two peasant associations (PAs) with the application of RRA techniques acquired in a classroom situation.

The course had several phases, with classroom teaching, field work, analysis workshops, and report writing spread over several sessions.

Workshop I - 2 1/2 days

- Teaching and practical exercise in a classroom setting.

Introduction to farming systems analysis
Introduction to previous rural development approaches
Introduction to RRA Techniques.

Field work I - 3 days

- Introduction in PA
- Transect and participatory mapping exercises
- Calendars, interviews and time lines
- Write up of diagrams and observations

Workshop II - 1 1/2 days

- Review of field work I
- Teaching and classroom exercise on identification of problems and constraints, causal chain analysis, and identification of solutions.

Field work II - 2 days

- Focused interviews
- Gap-filling exercise

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Workshop III - 2 1/2 days

- Analysis of results and report writing
- Group presentation and discussions of problems and constraints identified

The classroom teaching and practical exercises were held in Arba Minch town and the field work was carried out in Konso Awraja (southern end of North Omo Region) middle altitude and lower altitude peasant associations.

The two peasant associations, namely, Gaho in the middle altitude and Duraite in the lower altitude were selected by the MOA staff in Konso office. Field work in each site was assisted by interpreters recruited by elders of the respective PAs. In Duraite PA attention was focus on Gersale village.

This report, which focus on Gaho. provides a summary of the information collected and analysed in about 7 1/2 days of field work, data analysis and report writing. This report is not strictly an outcome of diagnostic survey (such as FARM did in the past) but it gives an idea of the potential application of a range of RRA techniques in different situations.

The diagrams were produced and the report was written up by all participants during the workshop sessions, and at the end of the course.

The trainees were divided up into two groups of lowland(Gersale) and middle altitude (Gaho) survey groups. Their division was mainly based upon the educational background and work experiences to form a multidisciplinary team.

The Gaho PA field work and report writing was based on the efforts the following trainees.

Aberra Melese, Addis Belay, Alemayehu Konde, Berhanu Kidane, Betemariam Kitaw, Girmaye Emun, Guja Bayou, Seifu Yeshaw, Simon Adebo, Dr. Seyoum Sholo, Wolde Demisse, Wondale Sentayehu, Wondimu Lakew, and Dr. Wudinesh Hailu.

Prior to the field visits, the group had a brainstorming session to generate a checklist of themes for discussion with farmers. The group was further sub-divided into smaller working groups to discuss topics for the field work. The groups then discussed RRA methods which would be appropriate to investigate the issues included in the checklist.

The following were the checklist and the principal investigators of the issue in the field.

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Topics	Contributors
I. Household analysis - Housing designs - Food habits - Division of labour - Family health status - Human population - Cultures	1. Dr. Wudinesh Hailu 2. Wondimu Lakew 3. Berhanu Kidane
II. Crop production - Seasons - Types - Pests and disease - Farm implements - Storages - Farm inputs - Rainfall pattern - Land use types	1. Addis Belay 2. Wondale Sintayehu 3. Guja Bayou
III. Socio economic infrastructures - Markets and prices - Health - Education - Transportation - Roads - Settlement patterns - Traditional ruling systems	1. Girmay Emun 2. Betamariam Kitaw 3. Wolde Demisse
IV. Livestock production - Feed - Diseases - Production - Species and sizes	1. Dr. Seyoum Sholo 2. Aberra Melesse
V. Natural resources - Conservation works - Forestry - Water resources - Soil types - Land utilisation types	1. Alemayehu Konde 2. Seifu Yeshaw

Field work: All group members visited Gaho PA for 5 days and interviewed large numbers of men and women, young and old at the village. The group mainly focused on interviewing specialist groups and key informants. Some interested farmers joined more than two times during different topics of discussion.

During field exercises, the group convened evening discussions on the RRA tools and techniques applied during the day and about the interesting findings in the day's field work.

The group also discussed in the mornings about the topics and the techniques to be used during the day, in small groups. This was a sort of mini preparatory session before going into the field.

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Data analysis and report writing took place in Arba Minch at the end of the field work in Konso. While writing the final reports in the big room, the small groups exchanged information relevant to respective groups' subjects of analysis. Major findings of the farming systems, and the main production and livelihood constraints of the people were presented in a winding up workshop for further discussion.

Most of the diagrams appearing in this report are those copied from the farmers' works on the ground during group discussions and focused interviews.

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CHAPTER 1. INTRODUCTION

1.1. General description of the Gaho PA

Gaho peasant association is located in the hills about 12 km away from Bekawle town. Unlike other associations, its area does not extend into the adjacent lowlands . It covers the smallest area and unique location in relation to other PAs in the Awraja.

The PA area features several patterns of undulating lands, gentle slopes and narrow valley bottoms with small streams running down the hills throughout the rainy seasons. Within a 3 kms transect walk, the group observed 5 hills and 4 valley bottom lands which were fully covered with vegetation.

Traditional old villages are situated on the relatively flat top part of the hills. They are highly congested and poor in sanitation. Individual premises in the village are guarded by strong fences and usually have very narrow gates. They are fenced with stone walls, fodder tree species and logs of wood. The whole village is protected by a stone walled fence and has four entrances.

The main cash and food crops are grown on the bench terraces established along the side slopes, and tied ridges are built in the valley bottoms. The main crops grown along the side slopes include sorghum, pigeon pea, haricot beans, coffee trees, wheat, barley and potatoes. The valley bottoms grow crops like cassava, haricot beans, potatoes, coffee, pigeon pea, sugar cane, chat, taro root and sun flower. A few trees are also preserved on them.

Different soil types are distributed on different sites of the PA area. The hills are covered with shallow soils of red fertile soils, brown sandy soils, grey sandy soils, and red sandy soils. The soils in the valleys are relatively fertile and consist of grey sandy soils, brown sandy soils and red sandy soils.

Livestock and their owners are few and mainly skewed towards small ruminants. There are only small barren grazing land for the whole village. The farmers mainly use a cut-and-carry system to feed their animals at home. Weeds and tree leaves are the major sources of feed.

The farmers interviewed described Gaho PA area "as an island of problems". The household production systems seems to be constrained by all sorts of physical, social and economic problems.

Rainfall in the area is highly erratic in its on-set and distribution across the rainfall months. Soils are dry for most of the year. Decisions about crop cultivation are based upon drought tolerance rather than increased productivity of crops and inputs.

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Farm implements are the most primitive and unproductive in nature. Livestock feed is scarce and no area of land exists for hay production and day- time grazing.

The people are malnourished and poorly dressed. The main food sources include sorghum, vegetable cabbage tree leaves, and a diversity of root crops.

The village setting is highly congested and dwelling units are built very close to each other. Household refuse is collected and kept in front of every house for long periods of time, for the purpose of crop manure. This has led to a grave sanitation problem in the village.

Women contribute the major part of the agricultural labour of the family. They participate in all stages of agricultural operations of each crop. Therefore, women's work load is unbearably high. They also work hard in the house i.e. preparing food, collecting water and firewood.

There is no health clinic, market place, school, flour mill and any other modern socio-economic infrastructure in the PA. The people have to travel all the way to Bekawle town and to other market places out of their PA area.

The people get their means of living from crop cultivation, petty trade and weaving clothes. Surprisingly, all clothes, for men, women and children, are woven and sewn by the people themselves in the village.

The details of the physical, social and economic characteristics of the Gaho farming system and production constraints are discussed at greater length in the following chapters.

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1.2. Map of the PA

Figure 1.1, Konso Awraja PAs map, indicates the relative location of Gaho PA. The PA is completely surrounded by other associations and is very small in size.

Figure 1.2 shows a map of the PA, which was drawn on the ground by a group of farmers from the village. About 15 farmers contributed to define and sketch out the final shape of the PA area. The first attempt was shown on the ground by a middle-aged man of 45 years. Then the other on-lookers, the young and the old, educated and non-educated plus the ex-soldiers contributed to locate several features on the sketch map. An old man of 75 years made the final approval of the boundary and specific features depicted on the map by other members.

The farmers used red soil, sand, tree leaves and pods, ashes and sticks to sketch their PA map. The younger members of the community collected materials used for mapping.

The farmers started drawing the map showing the main road running from Fasha to Bekawle town. They indicated streams running between two PAs, ponds, springs, big trees and trees with beehives to demarcate their PA boundary.

The farmers map included the following features

- Main road
- Foot paths
- 'Mora' cultural and recreation field
- Springs
- Ponds
- Streams
- Trees
- Trees with beehives
- Village settings
- Grazing land
- Church
- etc.

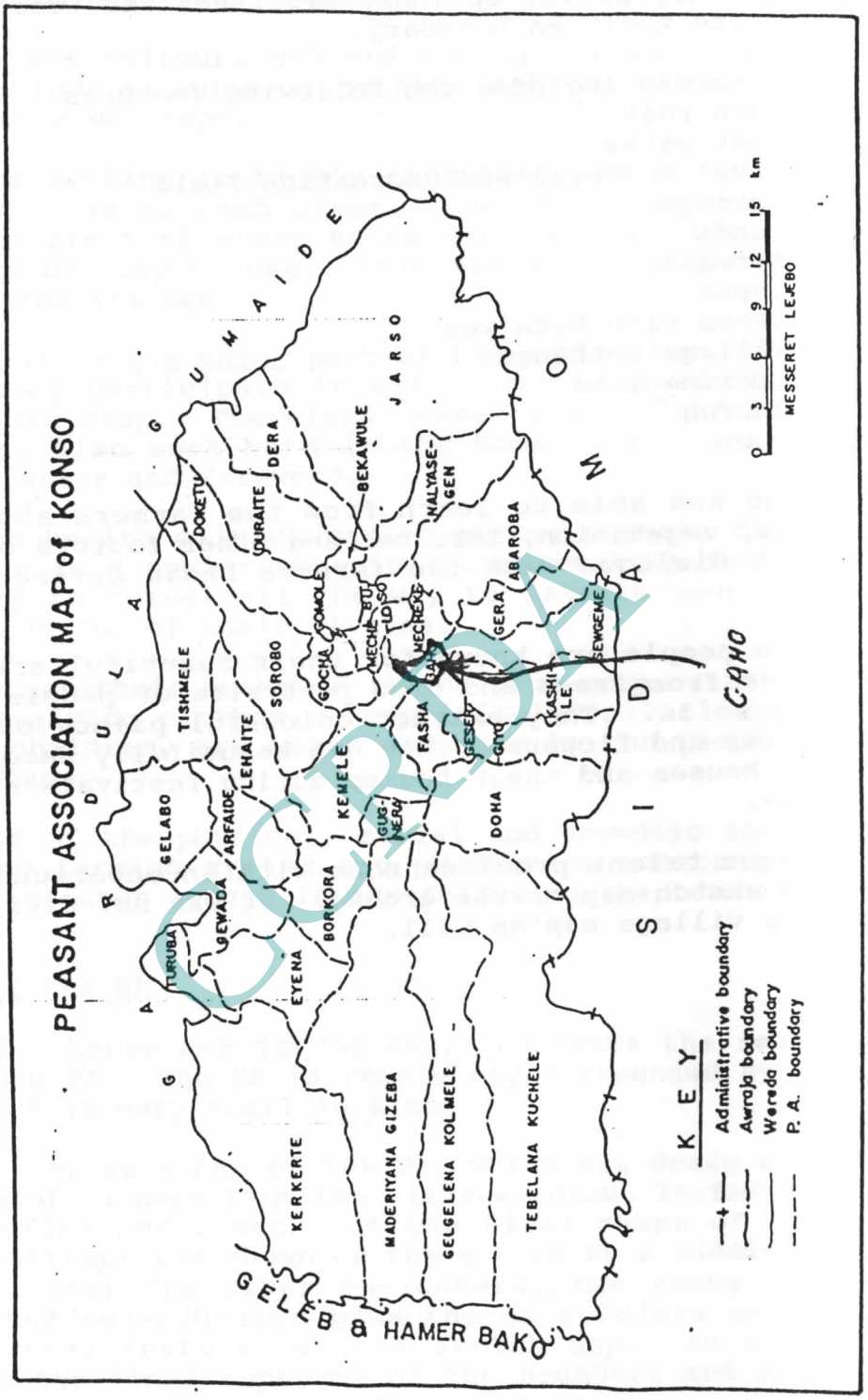
The group was able to learn from the farmers about the soils, land uses, vegetation, terraces and other factors of the PA area. The first dialogue with the farmers began during mapping exercise.

The Konso people are known for their beautiful art. They carve sculptures from trees and draw portraits of people with coloured sand and soils. They extract colourful paints out of roots of tree leaves and flowers. They can beautifully decorate the walls of their houses and their bodies during festivals and ritual performances.

This unique talent provides them with an opportunity to draw an accurate sketch map on the ground. It was not difficult for them to draw a village map as well.

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FIGURE 1.1 PEASANT ASSOCIATION MAP OF KONSO



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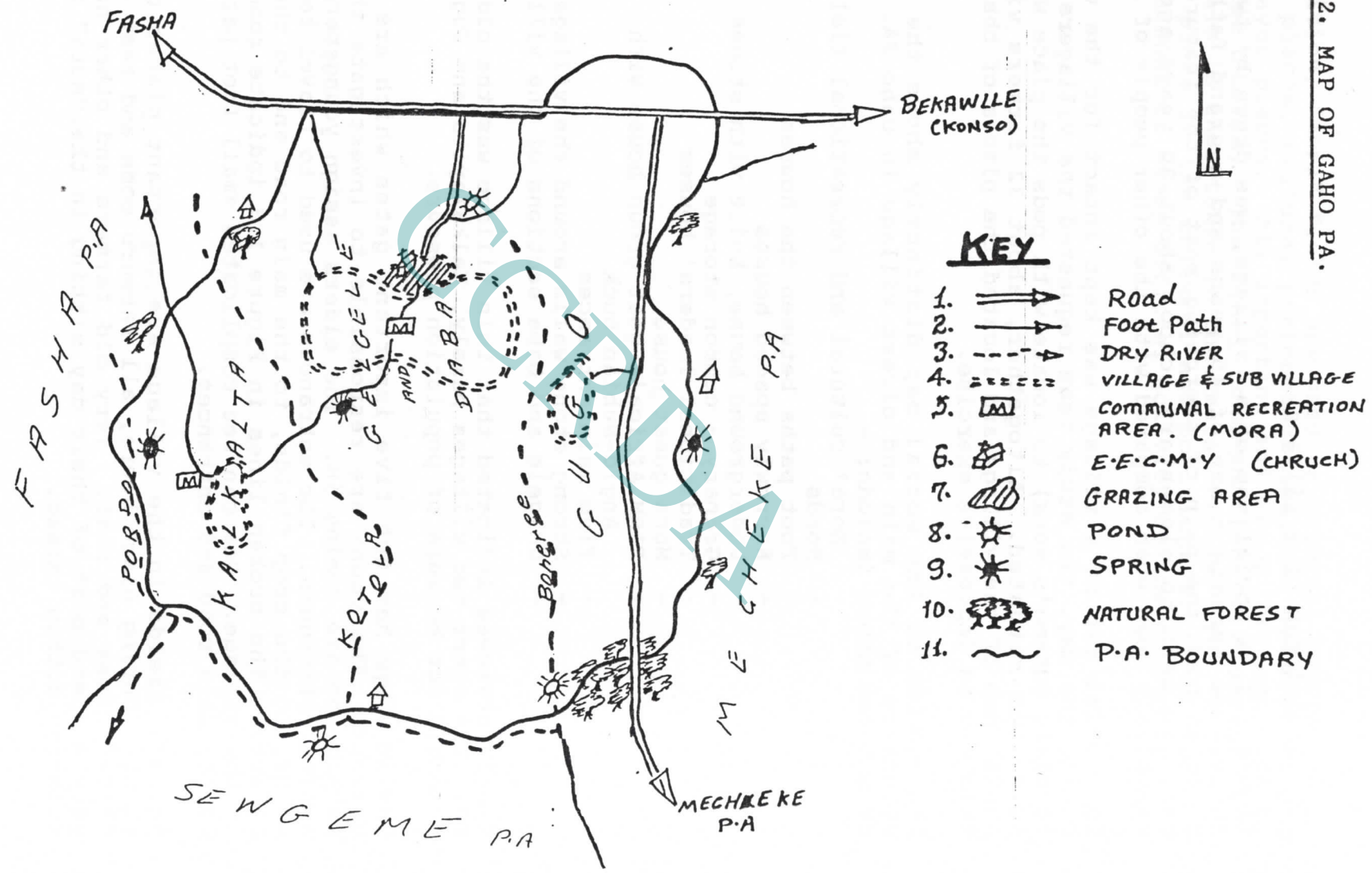


FIGURE 1.2. MAP OF GAHO PA.

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1.3. Social map of a village

Figure 1.3, a social map of a village, was drawn by two farmers. Ato Gutema Kurshte a man of 45 years and a grand father of two children took the pain of sketching most of the features of this map. He went to elementary school about 30 years ago. He was relatively open when compared with the other people of his age.

The social map of a village was kept intact for the whole day. During the day, the study team requested the villagers (who came to visit Gutema's work) to locate with pods the place where their house was situated. Altogether, about 32 farmers visited the social map of the village and located the places of their houses. This was an impressive exercise.

The sketch of the social map distinctly shows the shape and structure of the main and oldest village in Gaho PA. The main structures shown include: -

- 'Mora' cultural and recreational field
- Roads
- Foot paths between the houses
- Narrowly spaced houses
- Underground house, built with stones
- Granary - common storage
- Traditional leaders' houses
- Mora guest house
- FARM Africa's goat group house with Anglo-Nubian buck
- Five main entrances
- Strong stone walls around the village
- Gelgele and Daba sections of the village

The interviewee indicated that this village was the oldest in the PA. The other two villages namely, Kalkalayita and Gugo recently branched out because of population pressure.

The village has got five important gates which are regularly guarded. The young are responsible to investigate the type of people who are coming in. The elders assign youngsters to guard against strangers. The entrances are used to travel to fetch for water, to the crop fields, to the main road and to the adjacent PA area. The broken lines in Figure 1.3 indicate road networks in the village. One can see complicated small foot paths leading to the main road and entrances.

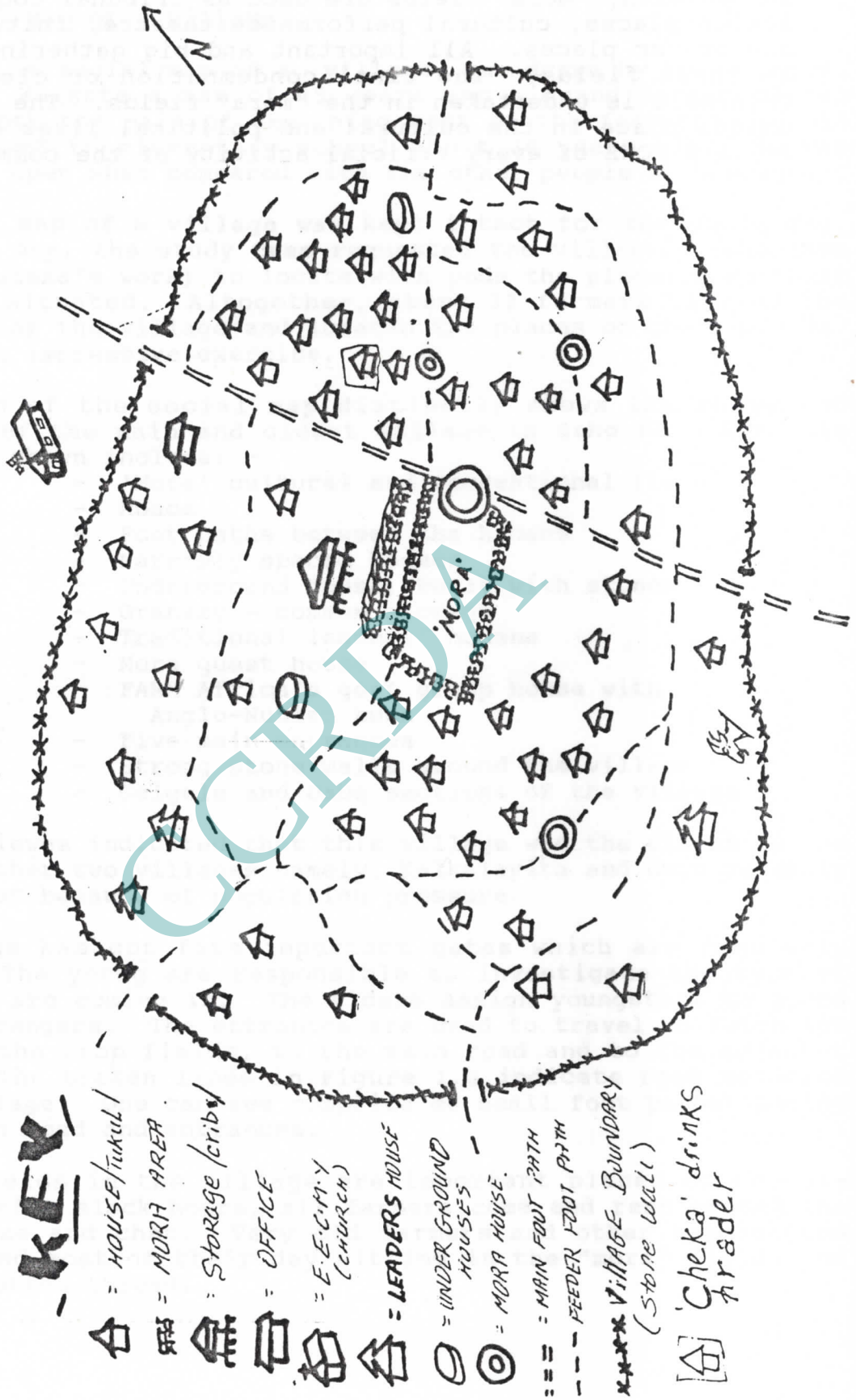
"Mora" fields in the village are important places of recreation,. During slack hours, all farmers come and rest around the "Mora" house and chat. Very old farmers and other handicapped people spend most of their day sitting in the "mora" fields and spinning cotton thread.

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In addition, "mora" fields are used as tribunal courts, reconciliation places, cultural performance theatre, initiation centre, and prayer places. All important and big gatherings take places in these fields, The final condemnation or cleansing of any criminals is undertaken in the "mora" fields. The "moras" have a unique place in the cultural and political lives of the people. It is a HOME of every official activity of the community !

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FIGURE 1.3. A VILLAGE IN GAHO PA.



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1.4. Transect of Gaho PA

Physical, social and economic features of the PA are listed in Figure 1.4, which represents a cross section of the PA (west to east).

To have a preliminary bird's eye view of the PA, the study team members walked a transect line of the PA. Two farmers selected by the community leaders and an interpreter walked across a transect line to observe current physical features of the PA. The group walked back to its original place through the eastern side of the hills covering a complete circle of the PA area.

The farmer selected by the elders walked in front of the team, till the end of the exercise,. He was rather restricted to answer some of the questions. The first one Km. he guided the team through the PA boundary, which was actually a boundary between two clans, which had a boundary conflict in the past.

The team was composed of members from different disciplines, organisations and experiences. While walking across the transect, each member observed features which were in relation to his field of experiences.

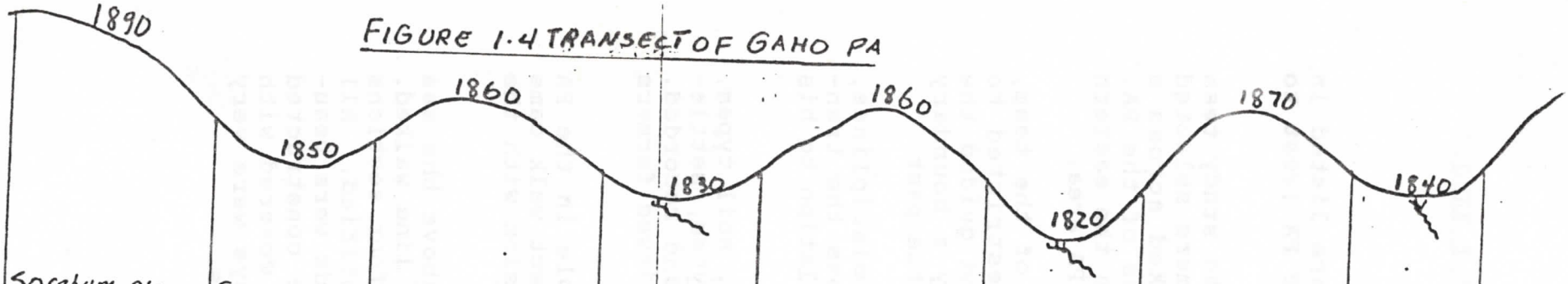
As indicated in Figure 1.4, most of the crops grown, soil types, tree species, livestock species, land cultivation types, settlement patterns, water resources etc. were observed and recorded. At times, the team members paused walking and interviewed farmers in the fields and at their homes.

The study team also introduced itself to some people in the PA during transect walk. The farmers met during transect walk came over to the main village centre for further discussion with the team.

The team used an altimeter to measure elevation above the sea level and to differentiate sections of the transect line walked. Accordingly, five sections consisting of hills and four sections consisting of narrow valley bottom lands were identified. All hill tops, gentle side slopes and valley bottom lands were beautifully established with bench terraces, which are constructed from stone walls. The hills and side slopes were covered with small stones and intensively utilised. The valleys were very fertile and drained with streams during rainy seasons.

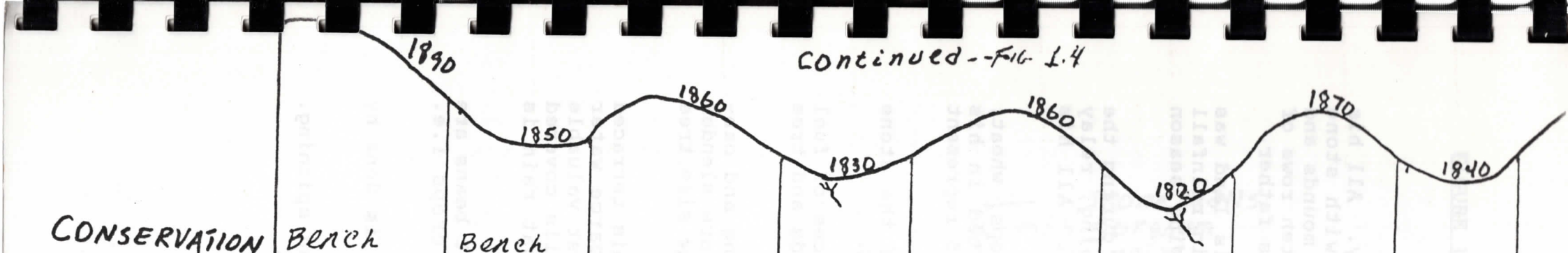
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FIGURE 1.4 TRANSECT OF GAHO PA



CROPS	Sorghum, Pigeon Pea, haricot bean, Coffee, Potato, Wheat, barley	Sorghum, Pigeon Pea, haricot bean, Potato, barley, coffee, Wheat Cassava	Sorghum, Pigeon Pea, haricot bean, Potato, Coffee, Wheat, barley, Cassava	Sorghum, Pigeon pea, haricot bean Potato, coffee, wheat, barley Cassava, sun flower	Sorghum, Pigeon Pea, haricot bean, Potato, Coffee, Wheat, barley, cassava, sun flower, Onion	Sorghum, Pigeon Pea, haricot bean, Potato Coffee, Wheat, barley Cassava, sun flower, Onion, taro, banana, sugar cane	Sorghum, cassava, haricot bean, Onion, tomato, coffee, Chat,	Sorghum, cassava, haricot bean, Onion, tomato, Coffee, chat.
LIVESTOCK	Cattle, Sheep, goat, Chicken.	—	cattle, sheep, goat, Chicken	Bees	cattle, sheep, goat, chicken.	Bees	cattle, sheep, goat, chicken	—
Water	—	—	—	Stream, spring	—	Stream spring	—	stream, spring
Soil	'Kalkalayta' (red fertile)	'Mashlaida' (grey sandy)	'Borbora' (brown sandy)	'Borbora' (brown s.)	"Amada" (mostly grey sandy)	'Amada' (grey+ brown)	'Oguma' (Red sandy soil)	'Borbora' (brown s.)
TREES	Juniperous P. Terminalia B. Eucalyptus C. Cordia Africana Acacia Euphorbia moringa	Vicus Vasta Others are the same as sec. I.	The same as section I.					

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CONSERVATION STRUCTURES	Bench terraces, tie ridges, mulching, grass strips	Bench terraces, tie ridges, mulching Bunds	← the same structures as section 1. →					
SETTLEMENT	Village	–	Hamlets	–	Hamlets	–	Village	–
COTTAGE INDUSTRY	Weaving, Spinning, carving	–	Weaving, Spinning thread.	–	Pottery, spinning thread.	–	Pottery, Weaving, carving	–
WEEDS	Cyprus fotunda, Digeteria.	–	'Dendisha'	–	–	Taggets	–	–
LIVESTOCK DISEASES	Tryps, foot rot, Salmonela	–	Tryps, foot rot, Salmonela	–	the same	–	the same	
SOCIAL INSTITUTIONS	Church, 'Mora' house	–	'Mora'	–	'Mora'	–	'Mora'	

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1.5. Farm map of Ato Gaysile

Figure 1.5 shows the farm map of Ato Gaysile's family. All his field is conserved with bench terraces and built with stone walls, and has a plot of tie ridges built from soil mounds and mulched with sorghum stalk. He said that he has got ten rows of such terraces for his family. He inherited it from his father.

Ato Gaysile could not trace back to the time when his land was terraced. He rebuilds his stone walls after the main rainfall season or during land preparation for the next cropping season (once a year).

Ato Gaysile's family uses different cropping methods during the year. The most familiar being intensive intercropping, relay cropping and successive harvesting of the produce. All his fields are properly manured before planting dates.

Crops like sorghum, maize, different types of root crops, wheat, millet, coffee, taro and haricot beans are cultivated in his field. The signs with different shapes on Figure 1.5 represent a mixture of different crops grown in the same field.

The family collects livestock feed from the edges of the stone walls and weeds grown in between the cropped terraces.

Dead branches of pigeon pea and fodder trees are sources of fuel wood for the family. There are no separate grass lands and tree lots for fuel wood production.

Ato Gaysile's family produces trees for house building and cabbage tree /moringa/ on its own farm land. The trees are slender in size and tall in its height. He did not plant large size tree in his fields.

Ato Gaysile does not let his animals wander around his terraced fields. He did not plant trees that compete for scarce water resources. Because, "moisture in the soil is the most valuable 'dear' resource to lose ". Therefore, he keeps soils covered with vegetation and undisturbed until he senses that rain is coming for his next cropping season.

Some of the intercropped crops like wheat and haricot beans are planted during weeding of the previously planted crops i.e. sorghum, maize.

He does not use oxen for traction power. Everything is done by hand and hoe and the family labour.

Ato Gaysile earns additional income from cotton thread spinning. He weaves materials for making dresses for his family.

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FIGURE 1.5. FARM MAP OF ATO GAYSSILE

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CHAPTER 2. PHYSICAL CHARACTERISTICS

2.1. Introduction

Gaho PA has an altitude ranging between 1820 and 1890 meters above sea level. The cross section of the transect walk drawn by the team is given on Figure 1.4. As a whole, the area under study consists of hills, gentle and steep slopes and dry river basins.

Five different types of soils were identified during the transect walk. The larger portion of the hills is dominated by the red fertile soil with minor gravel ("Kalkalyta"), the brown sandy soil ("Borboru") and the greyish sandy gravel soil ("Amada"). The lower areas and dry river basins are mainly composed of red/black sandy soil ("Mashlayda") and "Borboru". Based on the soil type and slope of the land, (i.e. steep slopes, gentle slopes and river basin) several different types of crops and trees are grown in the area. Farmers in Gaho PA practice an intensive crop production system in their limited space of farm land.

To cope with the hilly and stony nature of the area, farmers have developed different types of conservation structures. i.e. they construct bench terraces, build stone and soil bands on all sloping areas. This method prevents the soil from being eroded and gives more space for crop production. They also use tie ridges on some plains and terraced areas on top of the hills and near the dry river basins.

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2.2. Land use

At Gaho PA, even though the population is high, farmers use their land for farming, grazing, forest and settlement. Because of its unsuitability to the above listed uses, some part of the land is left unusable.

2.3. Soil resource

The farmers in Gaho PA use all types of soils distributed in their farms. Natural fertiliser is largely used depending on the soil types and distribution. The farmers systematically divide the type of soils by its colour, texture, and its location, etc.

The types of soils as classified by the farmers include Kalkalayta, Mashlaida, Borboru, Amada and Oguma (Konso).

For example Mashlaida: It has a colour between red and black and has a minor gravel regarding to its texture. Since it is on

sloping lands it is easily erodable. For this soil fertility, peasants use or apply sheep and goat manure (locally named as kurubusha). Shulaida (Sorghum), Alkuka (Haricot-bean) and Beresha (finger millet) crops perform relatively well on red and grey soils.

- Crop fertilisation is carried out by all the village farmers on private farm land. Natural fertilisers like guffa (cattle manure) kurbusha (sheep and goat manure), kawda (sorghum stalk sheaths) and human waste products are utilised.

Matching of soils with these different types of natural fertilisers is the main practice carried out by Gaho farmers.

Natural fertilisers are used for different soils improvement.

The farmers regularly maintain stone bands to protect soil erosion. They level the benches of all terraces before next land preparation.

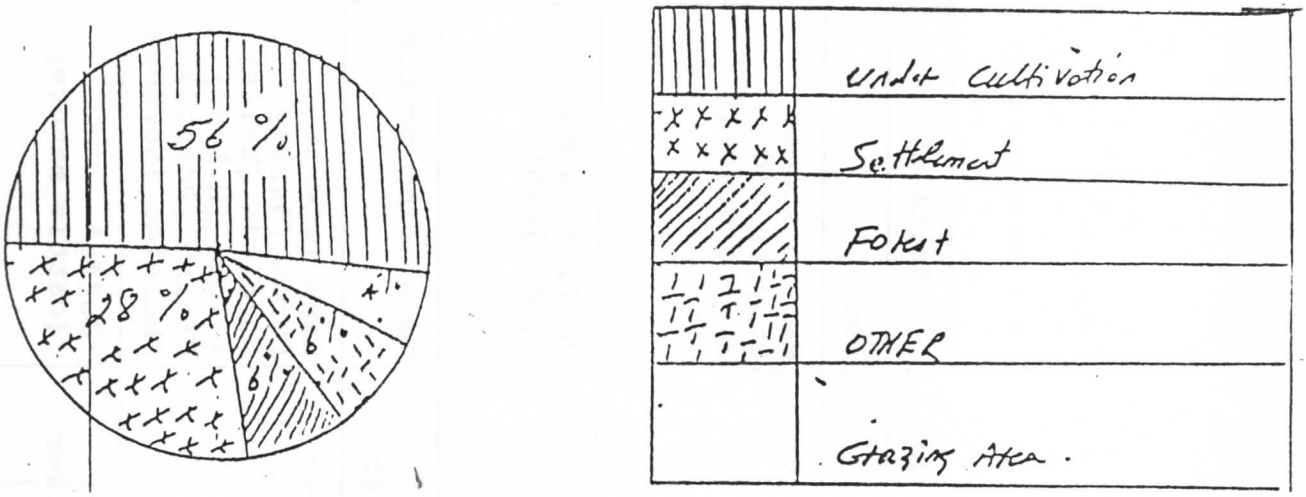
Table 2.1 (next page) indicates the soil types and their over-all ranking by 5 old farmers in Gaho village. The farmers pointed out the colour, texture, location, the extent of fertility and manure used as per soil type, and put it in the order of priority of preference based on its uses.

The farmers chose 'Kalkalayta; red soil as their priority soil and 'Amada' mixed soil as their second best soil for production.

Table 2.1 shows not only the farmers criteria about the soil types, but also some detailed information about the soils.

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FIGURE 2.1 PROPORTION OF LAND USE AT GAHO PA



Source: Farmers estimate (by proportional piling method)

Table 2.1. Soil resources

Criteria	Soil type				
	"Kalkalayta"	"Mashlaida"	"Borboru"	"Amada"	"Oguma"
Colour	Red	Red to black	Black to brown	Different colours	Red
Soil texture	Has no stones Easy to dig Has no gravel	Has minor gravel	Hard to dig in dry season Absorbs water during wet season In dry season it cracks easily	Sandy soil Has some gravel	More gravel Hard to dig
Location	On flat lands (on plain)	On slopes	On the flat area under slopes (hills	On the outer side or bank of dry rivers (i.e on slopes)	On plain lands (i.e. on top of hill
Specific character	No erosion problem	Easily erodable			Floor construction
Crop grown	Kapa (wheat) Porda (Barley) Bokoloda (Maize) Alkuka (H.bean) Dinish (Potato) Shulaida (Sorghum)	Shulaida(Sorghum) Alkuka(H.bean) Beresha(finger millet)	Shulaida (Sorghum) Mogo (Cassava)	Shulaida(Sorghum) Bokoloda (Maize) Kapa (Wheat) (If enough rain-fall but less	Not cultivated
Types of fertiliser	'Guffa' (cattle manure)	Kurubsha (Sheep & goats manure)	Rarely human waste product	Kauida (Cover of sorghum stalk)	Not used
Overall prioritisation of soils	1st	4th	3rd	2nd	5th

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2.4. Soil and water conservation strategies

For Gaho, all conservation strategies are based upon the farmers' sensitiveness to the shortage of land, water and abundance of stones. As table 2.2 indicates, two major conservation strategies have existed for years. These are locally named as "Kaweta" and "Kolba" (bench terraces/ stones band and tie ridge). As the PA is located on the hills and fragile land, the farmers had to maximise and efficiently use the farming space using these methods. In addition, they benefit from these methods by retarding the soil erosion, especially during rainy season. Regardless of soil types and texture, farmers use bench terraces on all types of soils while they apply the tie ridge method on the red, fertile soil (Kalkalaita). This is meant to give a special attention to the most fertile soil. Farmers keep the stone bands and the ridges free from weeds and take a considerable amount of time and labour in maintaining their shapes.

"Mona" and "Kansaida" being supplementary strategies are used to stabilise and strengthen the stone and soil bands. Piling sorghum stalk on top of the edges of bench terraces (mona) supplement the bench terraces by collecting / retarding water running down the hill. Soil bands are strengthened by piling grass across the steep slopes. This method, "Kansaida" is also helpful to absorb moisture. Mostly "mona" is applied in places where farmers use "kaweta (bench terraces)" as a major conservation strategy. In addition, "kansaida" is mainly used when there is shortage of stones and on steep slopes.

Farmers use each major strategy * and the supplementary methods** on specific types of soil and slopes. It is, therefore very difficult for them to prefer one to the other

Table 2.2 indicates the methods and reasons why the farmers in Gaho village use different types of conservation measures. This information was based on the knowledge of 8 farmers, of whom 3 were old and 5 were young aged.

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* Major strategy = Physical constructions
** Supplementary methods = Agronomic measures

Table 2.2. Soil and water conservation strategies

Description	MAJOR STRATEGY		SUPPLEMENTARY STRATEGY	
	"Kaweta" Bench terraces	"Kolba" Tie ridges	"Mona" Mulching	"Kansaida" Grass strips
Method	Bench terraces/ stone / soil bands	Tie ridge	Sorghum stalk on top of the edge of bench terraces	Piling a grass across steep slopes
Purposes	To keep it free of weeds, maintain the shape when necessary	To maintain the shape when necessary	To keep moisture	To strengthen soil bands
Perceived advantage	Soil protected from erosion	Soil protection Demarcate different types of soil, so that different type of crops are used	Stabilises the stone band & keeps its strength Retards / collects water	Strengthens soil band Absorbs moisture
Where to use	On all types of soils	Mostly on "Kalkalayta" (red, fertile) soil.	Whenever they use "kaweta" (bench terrace as major water conservation strategy	When there is little/no stones and on steep slopes

Weaknesses of MOA-stone band / bench terraces
(The view of farmers interviewed)

There has been an attempt to reconstruct bench terraces by the MOA under food-for-work programme. However, farmers around this area could not adopt the new construction for the following reasons

1. For longer band / terrace construction, the group of farmers earn more food aid. To this effect, most terraces were rushed and qualitatively poor (payments based on length of bands constructed (Km))

2. MOA instructs to build completely new terraces by abandoning, expanding or shrinking the old ones. This change has affected

   (a) The root crops already planted and under the soil
   (b) Boundaries between different farmers (were confused)
   (c) By mixing the highly varied soil types

3. The optimal length and width of bench terraces recommended by the MOA differ from the traditional method. This has an impact on the inheritance culture allocated by each household.

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Weaknesses of the EECMY constructed artificial ponds

One of the man-made ponds, is constructed out of the PA area. This pond couldn't be helpful in water harvesting because of the following reasons. According to the local community, the type of soil is unsuitable for pond construction. Because of high water absorbing capacity of the soil, farmers are unable to get water from that pond,even during rainy seasons.

2.5. Rainfall

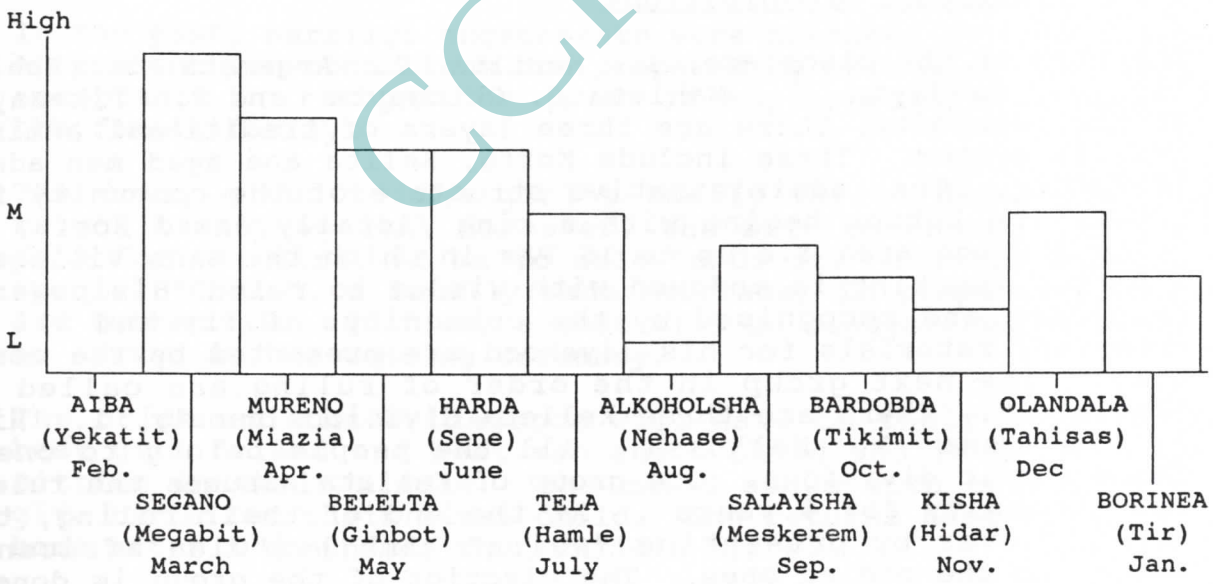
Konso area portrays the most conspicuous climatic features. The area is known for alternation of a long dry season with the unreliable short rainy seasons. According to the farmers, variability within and between rainy season is immense.

The farmers rainfall calendar Figure 2.2 indicates high rainfall concentration in Megabit, Miazia and Genbot, and low rainfall in Yekatit. The farmers normally expect their second rainfall in October and November, which supports 'Haggaida' sorghum ratoons and pigeon pea plant regeneration.

In Gaho village, where rainfall intensity is the highest in Megabit and Miazia, a serious problem of soil erosion occur. It destroys farm terraces built across the hills and causes a considerable amount of crop and soil damage.

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FIGURE 2.2. RAINFALL CALENDAR



Regarding the amount and distribution of rainfall farmers informed us that the main peak period is at Megabit and decreases thereafter. They can get relatively good amount of rain in most of the months of a year. The rest of months have low and erratic rainfall consecutively.

CHAPTER 3. SOCIAL STRUCTURES

The village was burned twice. The first burning was during tribal war between 'Welamo' and Konso tribes. This war was known as "Lusukota war". The second burning was during Italian invasion of Ethiopia. The Ethiopian patriots ("Fano" Amh.) were fighting against administration and the collection of taxes, but the community paid taxes to the invaders, which resulted in war between the villages and Fano groups. Consequently the Fano group burnt the village with all its assets and many people were killed.

This story teller was a man of 85 years who was wounded during the war.

3.1. Social organisations

Gaho PA has a total population of about 1556 people of which 493 are household heads. The farmers live in congested villages surrounded by stone walls built to prevent entry by enemies. The stone walls have entrance and exit gates. The northern gate is for entrance to the next village, the southern gate is an outlet to farming area, eastern gate for fetching for water and the western gate for exits and entrance to the main road.

Gaho is divided in to three villages, namely, Gelgela, Gelate and Gugo. In these villages seven different clans live together.

3.2. Traditional organisations

The name of the clans are, 1. Kertita 2. Argameta 3. Eshlayta 4. Sawdayta 5. Mahleta 6. Oktomayta and 7. Tikesayta. In the community, there are three layers of traditional administrative system. These include Koffa, Kellta and aged men administration. The administrative structure of the community from top to the bottom begins with a king /locally named Koffa/ who rules a large area i.e up to 15 PAs in which the Gaho village is a part. The king is endowed with wisdom to rule. His power is respected and recognised by the community. Gifts and all the necessary materials for his livehood are presented by the community. The next group in the order of ruling are called the "Kelletas". There are three kelleta divisions namely, 1. Hirba 2. Kalkussa 3. Melkussa. All the people belong to one of these ethnic divisions. One group of Kelleta assumes the rule of the community for 9 years . At the end of their ruling, they hand it over by presenting "weira" (Amh.) ("Olea africana") branch to the coming ones. The election of the group is done by Koffa (not by the people); for he is the main ruler.

Each division has its own leaders known as "sherekota" who are four in number and acquire their power through inheritance.

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These are the administrators of the community and deal with judicial activities. If a criminal case is not solved by the sherekotas, it will be seen by the 12 sherekotas representatives of the 3 divisions, and it will be the final decision.

The third administrative older age group settle day to day conflicts arising in the village and guide other social activities. Any criminal case arising between the village members is primarily seen by the old age groups. The group consist of 6 members, two people elected from the 3 clans ships. The social security and welfare of the villagers is looked after by these elderly men.

3.3. Marriage customs

The social values of the Konso people permit marriage between different clans, but not intra-marriage between members of a single clan. The people do not accept marriage within one clan. They think that a brother and a sister are married. The norms also do not permit marrying pot makers.

The process of engagement in the past was the responsibility of the family of the male. At present, the courting is done by the two sexes. When the wedding time approaches the father of the male asks her family for their willingness. If they reach an agreement they would ask to come with two elders having gifts of a "Gabi" (traditionally woven cotton-made cloth) to her father and "Butter" to her mother.

In the past, marriage engagements were arranged by both families. At present pre-conditions are prepared by both sexes and look for acceptance or recognition (even if any opposition arises) from the female family.

The dowry given to the girl's family varies depending on the male's family wealth. Moreover, the male purchases clothes and shoe for the girl, if he is able to do it. For the wedding day special "Cheka", a locally made beverage, is prepared from honey and butter. In addition, a goat will be slaughtered or meat will be served at the wedding ceremony.

The bride and the bridegroom will have on their side, bride's best girl friend and best man and a child who is bride's sister sitting in their middle. The child stays with them until they give birth for their first child. She returns back to her family home after 3 months of the child's birth.

The wedding ceremony lasts for three days where guests and friends of the bride and bridegroom eat and dance. The two types of cultural dances known as 'tanssa' in which male and female sexes jointly play and, 'lesta' dancing in pairs. Cultural songs

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are accompanied by 'kirar' or 'kohaida' musical instrument. Some of the songs say 'mote' and 'tiao', let me see my friend, in its literal meaning. The relatives of both sides present gifts in the form of money on the wedding day.

After the wedding ceremony, the honey moon period lasts for two months, where the bride stays in a confined place. During the honeymoon nothing is expected from the new wife in the house, while the bridegroom gets out and participate in different activities.

3.4. Human health status

In the community (Gaho PA) there is no governmental or private clinic. The people utilise Fasha clinic which is 4 kilometres away from the PA. If a patient is seriously sick, the clinic refers to Konso health centre or to Gidole or Arba Minch hospital, which are very far from the PA area. The major diseases which affect the farmers health are malaria ("Pinefa"), typhus ("Awda") diarrhoea ("Surada") and cough ("Aremaito").

3.4.1. Malaria (Pinefa)

Malaria infestation starts in June and declines in July. The disease affects those farmers who go to the farms located at the lower altitude. The middle aged people are mainly attacked by the malaria disease (productive people). This affects the production of crops. There is no malaria control program in the area.

3.4.2. Typhus (Awda)

Typhus occurs throughout the year and continuously affects the health of people for a month or more, and kills more people than other diseases.

3.4.3. Diarrhoea (Surada)

The disease starts at the onset of rain fall, between the months of March and April. According to the farmers, it is caused by eating too much moringa "Aleko" leaf during food shortage period. Most of the people are affected by diarrhoea during this period.

3.4.4. Pneumonia

It mostly affects children. As we have observed in the survey period, most of the children were naked and did not wear any clothes. They were exposed to winds, excessive sun's heat and cold weather.

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3.5. Education

In the PA there isn't any kind of school. The male children are only sent to learn (4 km far from the village) at Fasha village. The elementary school at Fasha started in 1962 E.C. and the other elementary school at Mecheke opened in 1974 E.C. When the students complete their elementary school, they are sent to study at Konso and Arba Minch secondary schools.

There were only 31 students in the elementary school and 2 students in a high school from Gaho PA this year. Many students are said to have left their school because of cash shortage after they completed their elementary school.

So far, only two students from the PA completed their high school and joined Teacher Training College and became teachers.

3.6. Court system

The judicial system starts with elders hearing simple cases at the "Mora" court. For complex and difficult cases, it goes up to the ruling Sherekota courts.

The kind of punishment or sentence depends upon the seriousness or lightness of the cases. Usually, sentences are passed in the form of presenting a goat or an ox or money to the community. If the punished person does not pay his due, then he will be ostracised until he asks for an excuse from the community. The last and a harsh punishment is to expel the convict and his family from the PA for ever.

3.7. Traditional ceremonies and festivals

'Fasika' (Easter) is the most popular holiday observed in the village. The villagers group themselves into about 10 to 20 person (Ikubeta) group to deposit some amount of money to buy an ox. On the Easter day all those who have contributed get together and share an ox meat. The amount of monthly contribution varies from one group to the other.

3.7.1. 'Alumela' traditional festival

About 30 to 40 people form a group and deposit some money at least for 2 years. There is no specific date for celebration. They select a time which seems convenient for them. An ox is slaughtered and shared among the members of the group. The hide of the ox is divided into pieces and given to the members. On the third day (after the ox has been slaughtered) the people come to the mora putting the pieces of the hide on their necks and dance for the whole day.

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3.7.2. 'Meskel' festival

It is a festival of youth group where they visit each house in the village and collect food grains. Once the grains are provided by the husbands from the food item, known locally as 'Toma', the recipients thank the family for the grain received and say "let you have a good harvest and peace". Then they dance and play cultural songs for the whole day.

After collection of the food grains, they make Cheka out of it and invite their fathers for the Cheka drinks.

3.8. Cottage Industries

The Konsos are known for their handicrafts and hard working. Several farmers earn their living from wood carving, pot making and cotton thread spinning. Some of the craftsmen do not own land at all.

The price of a big pot reaches up to 2.00 birr and the smallest pot costs 0.50 cents.

3.8.1. Spinning

Most of the men, women and children were found spinning throughout the day. They produce their own night and day dresses. For some farmers spinning is the guarantee of their life. They sell the threads and purchase maize from market places for food.

3.8.2. Carving

Some farmers make sculptures and sell them at Konso market. This helps the farmers to earn cash during food shortage period.

3.9. Migration

Land shortage is the main push factor for migration of many people in the PA. Land area is extremely short and fragile to support the family for the whole year. It is the eldest son who is entitled to inherit the family's land. The younger sons are forced to lead their own life, and earn their living from any activities. The easiest way to earn living costs for the minors is to sell their labour power. Thus, many of the young immigrated to Yavelo, Moyale, and even to Kenya. Some of them transport goods between Moyale border town and Konso.

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Some young people moved down to the lowlands looking for a "gift-land" from friends and relatives. Farmers with extra plots who have sympathy for the minors, freely give away their land to be used for many years. The owner does not ask for any share of the produce or exchange in any form of compensation. The product is fully appropriated by the labourer.

3.10. Income source

The agricultural production in Gaho PA's is very low. Due to shortage of crop production, farmers only sell out two types of crops i.e, wheat and barley. They sell them in small quantities and for different reasons, such as for medicine and cloth, (when it is critical for clothing).

Crops such as coffee, chat, sugar cane and 'Gesho' branches are also sold for cash income.

3.10.1. Coffee

Farmers use coffee for home consumption and for sale. They sell out both coffee beans and coffee leaves. They get more money from selling coffee leaves than beans because coffee beans do not mature regularly due to scarce rainfall.

3.10.2. Chat

Most farmers do not chew chat, rather they sell it in Konso and Fasha markets. This helps the poor farmers to get/earn money and to buy food grain.

3.11. Price of agricultural products

The prices of crops in the markets fluctuate between months and seasons. Many of the commodities sold in the major markets come from elsewhere in Konso. The prices of grain crops in the markets are determined by the amount and quality of grains brought in on that market day.

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Table 3.1. Prices observed at Fasha market 2/12/91 (ETB)

Item	Measurement	Price
Maize	100 kg	72.00
Sorghum (white)	"	85.00
Wheat	"	115.00
Barley	"	66.60
Wheat (aid wheat)	"	91.60
Pigeon pea	"	133.30
Sorghum (red)	"	66.70
Cotton	"	200.00
Unprocessed coffee bean	"	170.00
Moringa leaves	8-10 leaves (3 bundle)	0.10
Coffee leaves	5 bundles	0.10
Fire wood	Carried in wood bundles by a woman; per load	1.50

Source: Data collected between January 1991 and June 1992, by MOA office in Konso and teams' observation in the Fasha market.

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To understand crop and livestock price fluctuations in the Bekawle market, a secondary data was obtained from the Awraja MOA office.

As indicated in Table 3.2 the prices of oxen were relatively high too the whole year, and the price for small ruminants was low. However the fattened sheep and goat have got a higher price.

Table 3.3 shows the prices of crops obtained from Bekawle market place which resumes once in a week. The market is very big and provides with the necessary material inputs to the Gaho village. It is also the major exchanging point for local produce and transported commodity.

Table 3.3 shows that the price for pulses is high and the price for cereal crop is comparatively low.

The magnitude and variations of monthly prices are given in Table 3.3.

Table 3.2. Average Monthly prices of animals in 1991 (ETB per head)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Fattened bull	521	650	418	672	562	670	580	670	418	610	616	484
Oxen	376	473	394	424	451	498	472	498	397	458	497	404
Cow	342	388	211	317	326	374	321	374	246	330	365	359
Heifer	320	294	230	305	334	365	254	365	252	265	367	305
Fattened sheep	76	64	65	88	63	72	61	72	77	86	94	74
Ram	47	48	44	46	46	56	43	56	44	48	60	41
Female sheep	43	43	39	41	49	51	39	51	47	41	46	44
Fattened goat	78	62	38	79	69	66	57	66	86	88	82	70
Male kid goat	49	49	32	46	50	44	46	44	41	51	54	46
Female goat	35	44	38	39	42	45	48	45	43	49	45	43

Source: Data collected by the MOA office in Konso (unpublished data)

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Table 3.3. Average monthly prices of crops, July 1991 - June 1992 (ETB /100kg)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Teff	150	190	210	185	180	140	210	215	210	190	160	170
Peas	-	195	230	218	155	160	267	275	250	-	-	-
Sorghum	100	75	95	73	62	60	200	200	185	155	110	115
Barley	90	110	130	107	82	80	195	-	-	165	110	119
Maize	110	75	95	99	80	80	195	185	155	106	90	95
Wheat	115	130	140	-	108	125	225	210	185	170	90	97
Chick pea	-								255			
Bean	-	-	-	-	-	-	-	-	-	135	85	

Source: Data collected by MOA (not published)

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3.12. Institutions

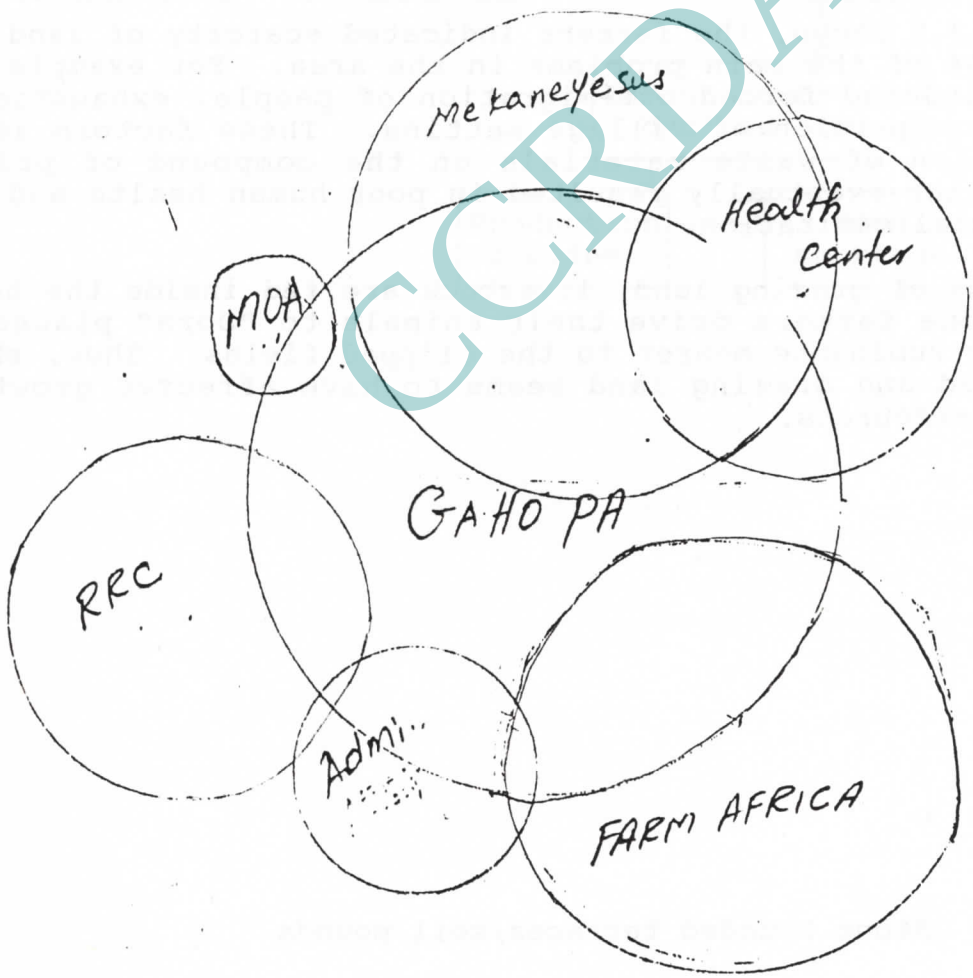
There are governmental and non governmental institution involved in economic and social development of the people in Gaho.

Non-government
Mekane Yesus church is involved in teaching Bible and construction of water ponds. When there is food scarcity in the PA, Mekane Yesus provides food aid to the people.

FARM Africa is involved to improve poor milk production and consumption. FARM AFRICA started introducing a dairy goat development programme.

Governmental institutions
Governmental institutions that influence development in the PA include health centre, RRC, MOA and public administration. These organisations are involved in different activities but MOA is the least influential organisation in the PA.

FIGURE 3.1. INSTITUTIONS INFLUENCING GAHO PA DEVELOPMENT



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3.13. Wealth ranking (based on 10 farmers interview)

Gaho PA farmers are classified according to their capital into five categories:

1. Very rich own 20 "kab"* of farming land, 2 or 3 cows, 2 or 3 goats and sheep.

2. Medium farmers own 10 "kab" of farm land and one cow, 2 goats and 2 sheep.

3. Lower medium farmers own 7 "Kab" of farm land and no cattle, goats, and sheep.

4. Poor farmers own 4 "kab" of farm lands and no animals.

5. Very poor farmers have no farm land and no other property except their labour.

3.14. Causal chain analysis

The study team attempted to interpret the causes of major problems indicated by the interviewed farmers.

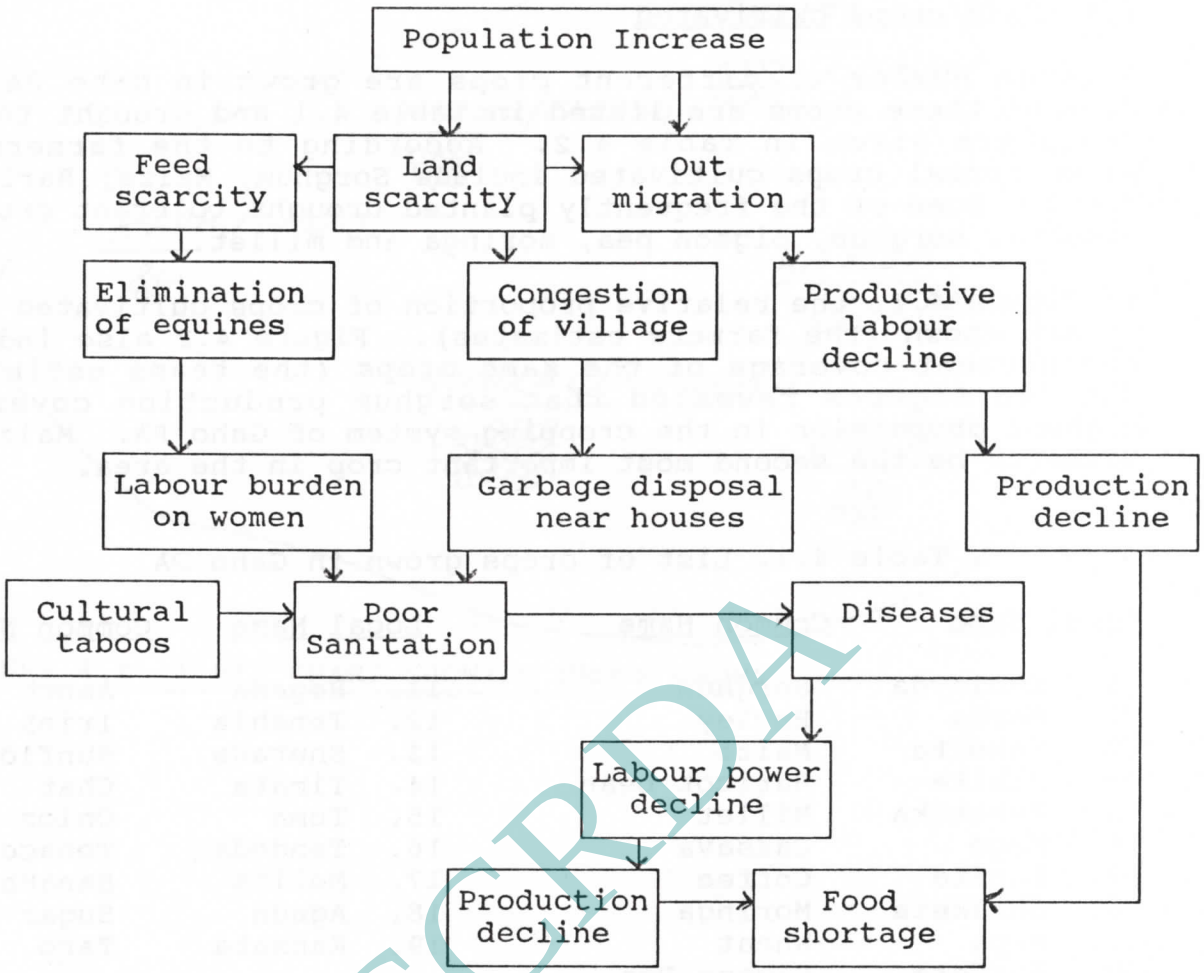
As Figure 3.2 shows, the farmers indicated scarcity of land as a major cause of the main problems in the area. For example land scarcity induced forced out-migration of people, exhaustion of land and congestion of village setting. These factors led to accumulation of waste materials on the compound of private houses, which eventually resulted in poor human health and poor environmental sanitation.

Due to lack of grazing land, livestock are fed inside the house. However some farmers drive their animals to "Dora" places and feed their ruminants nearer to the clipped fields. Thus, shortage of feed and grazing land seems to have affected growth of livestock resources.

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* "kab" = Stone bounded terraces/soil mounds

FIGURE 3.2. CAUSAL CHAIN ANALYSIS



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CHAPTER 4. CROP PRODUCTION

4.1. Main crops cultivated

A large number of different crops are grown in Gaho PA area. Some of these crops are listed in Table 4.1 and drought tolerant crops are given in Table 4.2. According to the farmers, the major cereal crops cultivated include Sorghum, Maize, Barley and Wheat. Some of the frequently planted drought tolerant crops are cassava, sorghum, pigeon pea, moringa and millet.

In Figure 4.1, the relative proportion of crops cultivated in the PA are shown (the farmers estimates). Figure 4.2 also indicates the percent coverage of the same crops (the teams estimates). The two figures revealed that sorghum production covers the highest proportion in the cropping system of Gaho PA. Maize crop seems to be the second most important crop in the area.

Table 4.1. List of crops grown in Gaho PA

Local Name	Common Name	Local Name	Common Name
1. Shulayda	Sorghum	11. Begena	Amoch in Amahric
2. Borda	Barley	12. Tenshia	Irish Potato
3. Bokolta	Maize	13. Shurada	Sunflower
4. Alkika	Haricot bean	14. Timata	Chat
5. Bersheka	Millet	15. Tuma	Onion
6. Mogo	Cassava	16. Tendoda	Tobacco
7. Bunita	Coffee	17. Mulita	Banana
8. Shelketa	Moringa	18. Agada	Sugar Cane
9. Kapa	Wheat	19. Kansata	Taro
10. Kurdeta	Pigeon Pea		

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Table 4.2. Drought resistant /tolerant/ crops

Local Name	Common Name	Local Name	Common Name
1. Mogo	Cassava	4. Shelketa	Moringa
2. Shulayda	Sorghum	5. Begena	Amoch in Amahric
3. Kurdeta	Pigeon pea	6. Bersheka	Millet

FIGURE 4.1 PROPORTIONS OF CROPS GROWN BY FARMERS

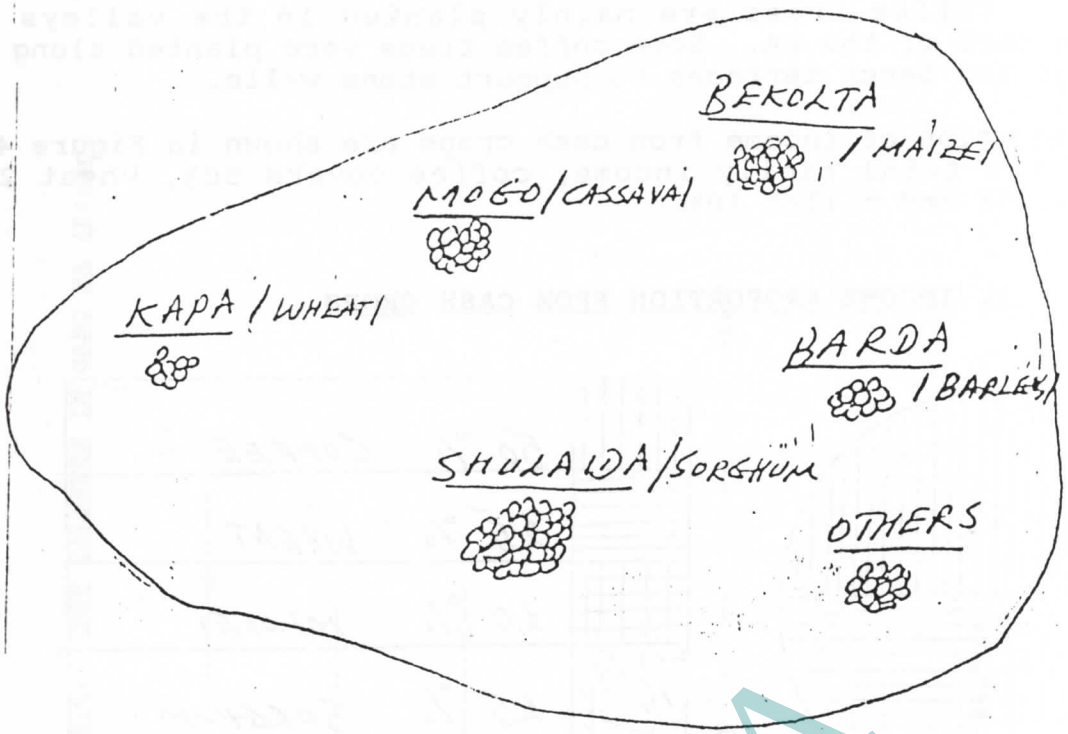
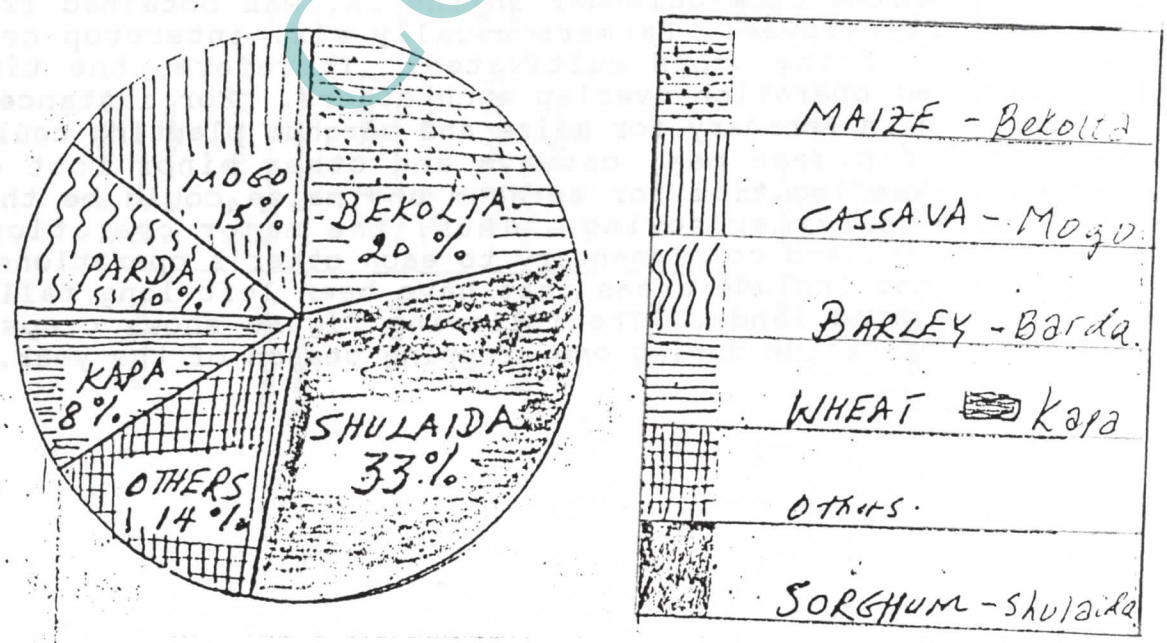


FIGURE 4.2 A PIE CHART SHOWING CROPS GROWN

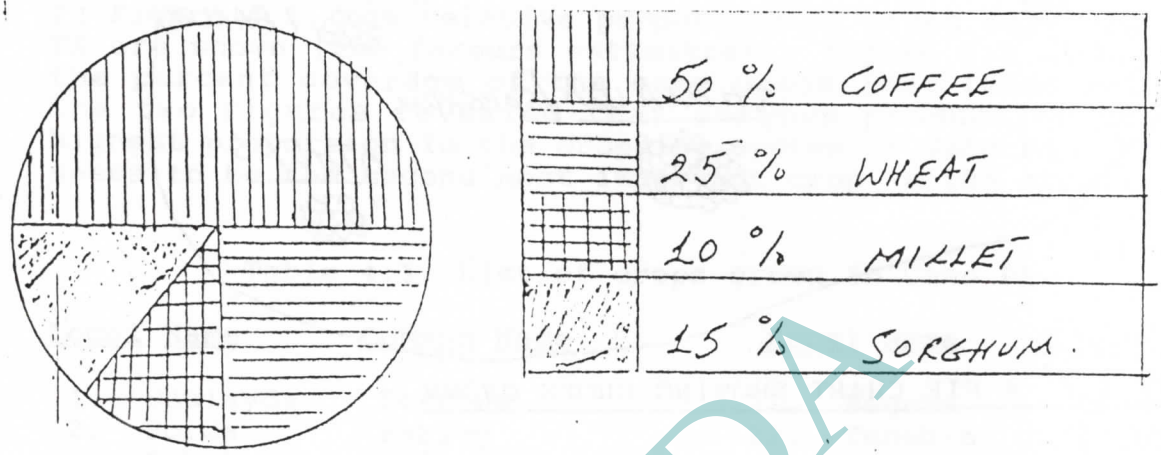


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The main cash crops cultivated include coffee, wheat, sorghum and millet. Coffee trees are mainly planted in the valleys and fertile part of the PA. Some coffee trees were planted along the edges of the bench terraces to support stone walls.

The proportion of income from cash crops are shown in Figure 4.3. Out of the total family income, coffee covers 50%, wheat 25%, sorghum 15% and millet 10%.

FIGURE 4.3. INCOME PROPORTION FROM CASH CROPS

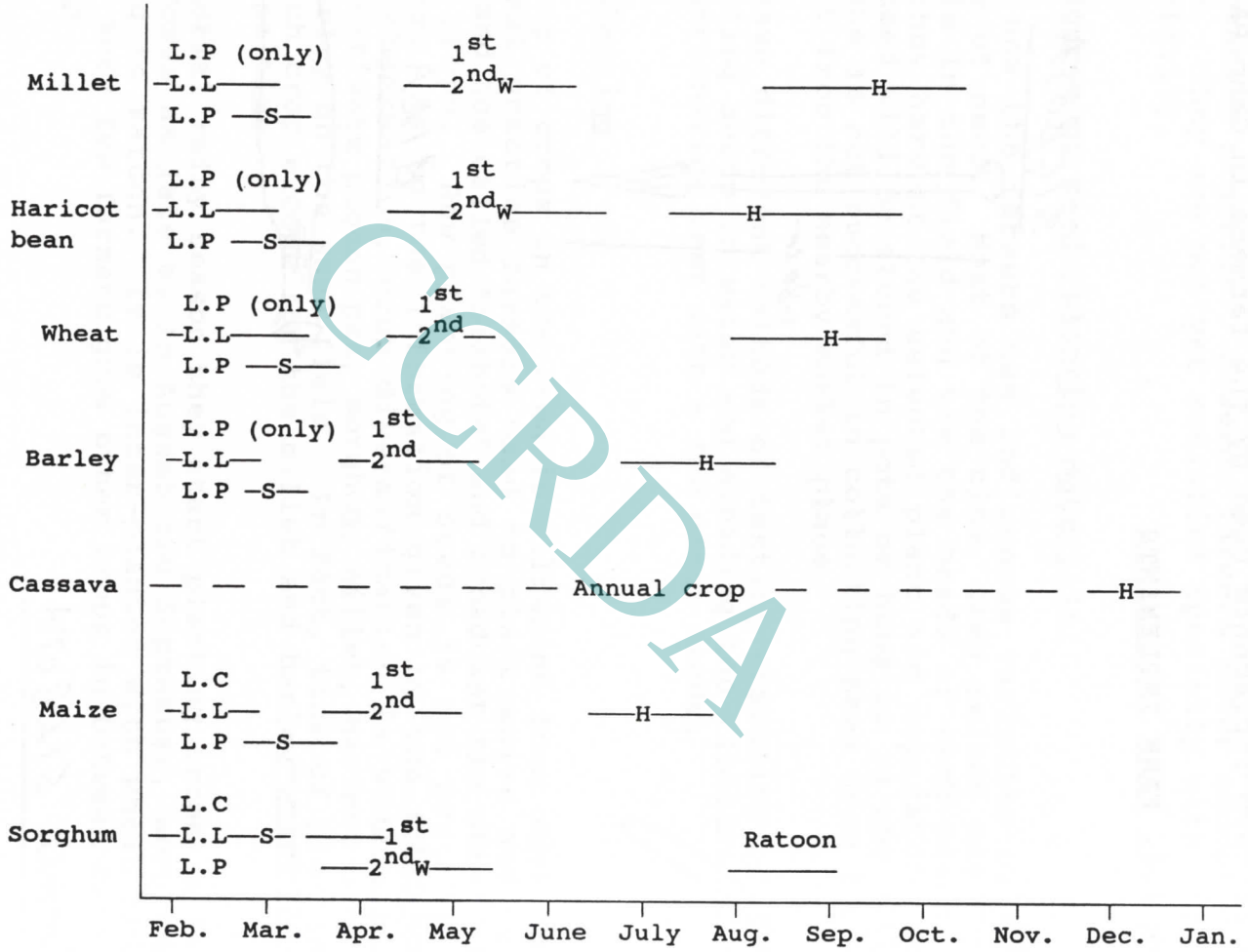


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Agricultural activities in the PA are largely based on rainfall pattern and distribution. The major activities include land clearing and preparation, sowing, weeding and harvesting.

Figure 4.4, the crop calendar in the PA, was obtained from the farmers interviewed. Farmers usually mix, intercrop or relay plant most of the crops cultivated. Therefore, the times of agricultural operation overlap each others. For instance, land preparation in February for maize and sorghum planting could mean weeding for pigeon pea, cassava and other minor root crops. Likewise, weeding time for sorghum and maize could be the time for wheat or barley sowing. Thus, the major operations are interdependent and complementary to each other's operations. But this does not include areas that have been left long fallow and newly excavated lands. The following figure shows crops grown and their operation during one cropping season of the year.

FIGURE 4.4. CROP CALENDER IN GAHO PA (Konso)



L.C = Land clearing
L.L = Land levelling/Terrace maintenance
L.P = Land preparation

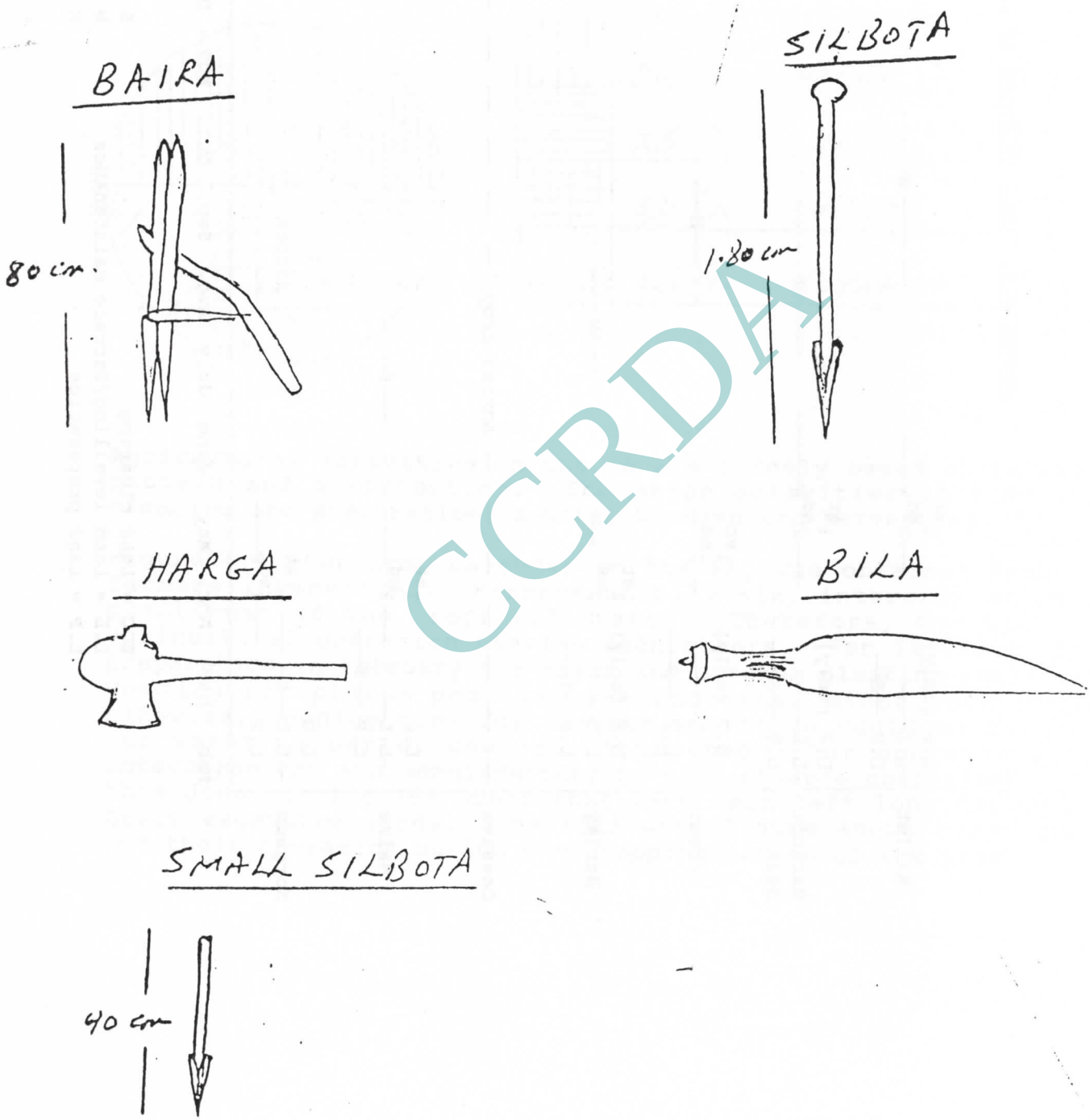
S = Sowing
W = Weeding
H = Harvesting

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4.2. Land preparation and farm implements

Plough oxen are not used to cultivate farm land in the area. Instead, hand tools are exclusively used for different activities. Some of the tools used include "BILA" used for land/bush clearing "SILBOTA" used for first preparation and "BAIRA" used for first and second land cultivation. Figure 4.5 shows the types of farm implements used by the farmers in Gaho PA.

FIGURE 4.5. FARM IMPLEMENTS



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4.3. Soil Fertility

Most of the farm land is poor in its fertility due to continuous cultivation and soil nutrients' erosion. To overcome this problem they use manure and plant residue, but remain with small production. Recently MOA tried to introduce new soil and water conservation practice. However farmers never accepted the innovation. They are not yet satisfied specially with its impact on productivity.

4.4. Source of seed /planting materials/

Until now the farmers use indigenous varieties of crops as a source of seed. Most of the time, they select seeds while the crop is in the field and tie the heads of each plant together. Then they harvest the selected plant and separately thresh it. This seed will be stored in pots or hung up in the kitchen. If some one is not successful in collecting seed from the field, he buys it from the nearby market place.

They have different methods of testing viability of seeds, such as putting seeds in water and avoiding the floaters or undertake seed germination test with a few plant seeds.

4.5. planting

Planting of crops in the area is different from other areas. As a normal practice farmers used to plant maize and sorghum by stick and hoe called "Silbota" and broadcast the other cereal and pulse crops. Row planting of seeds is not practised by the farmers. As to the information given by the farmers and the group observation, crop diversification is widely practised. They cultivate pigeon pea, sorghum, millet, haricot bean, cassava and barley on the same field. In fact, time of planting varies for each crop except for the millet and barley which are sown at the same time.

In a normal rainy season they start planting crops in March. If rain comes as late as in August and September, sorghum crop is stumped to ratoon. It is inter-planted with wheat and haricot bean. Very few farmers grow other crops in between ratoon sorghum crop.

4.5.1. Fallow land

The area have shortage of land for farming and grazing. As a result, no farmer uses fallow system. The farm land is covered by crop almost through out the year.

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4.5.2. Crop rotation system

Crops are grown with in a limited area of land. All crops are grown in the same field. So,it is difficult to use crop rotation for any year. It seems quite difficult to practice fallowing in the near future.

4.5.3. inter-cropping

Farmers in Gaho PA inter-crop their fields. But not in the normal way. Instead they mix many crops in the same field to avoid risk of rain fall failurity.

4.5.4. Relay cropping

This is practised by farmers without any outsiders intervention. For years, they sequentially planted crops in different growing periods. For example, they plant wheat and sorghum during maize's weeding. Sometimes they plant millet also. Legumes as well are planted in relay cropping system/ pattern.

4.6. Weeds

There are quite a large no of weeds in the area. Some of them are used for feeding livestock and the others are not used for any purpose. About 18 different types of weeds were listed, of which some are major problem for cereal crops, and some weeds are problem for legume crops (see Table 4.3).

Small size "SILBOTA" is used for weeding and cultivation of crops. Usually each crop is weeded twice in a cropping season.

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Table 4.3. Major weeds of different agronomic crops

Major weeds (Local name)	Major Crops					
	Sorghum	Maize	Cassava	Barley	Wheat	H.Bean
Hangolayda	3	2	-	3	-	2
Ena	-	-	-	-	2	-
Kundeta	2	3	-	4	4	3
Perdeta	-	-	-	5	3	-
Nebada Baida	4	6	-	1	-	4
Ogo Komsha	5	5	-	-	5	-
Abadabo	7	4	-	7	-	5
Dimeta	6	1	-	-	-	-
Dawa	1	-	-	-	1	1
Chata Gula	-	-	-	-	-	-
Dity Gada	-	-	-	2	-	-

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4.7. Pests and diseases

As it can be seen from Tables 4.4 and 4.5, farmers have identified the major insect pests and diseases of crops, and the extent of damage caused by them. Moreover, the occurence of disease, pests and weeds are shown on Figure 4.6.

Pests

Stalk borer, Aphids, leaf minor, Boll warm and Army worm are the major insect pests. There are also wild animals which jeopardise crop production in the PA.

Diseases

leaf streak, loose smut and Rust are the major crop diseases of the area.

Table 4.4. Major insect pests in Gaho PA

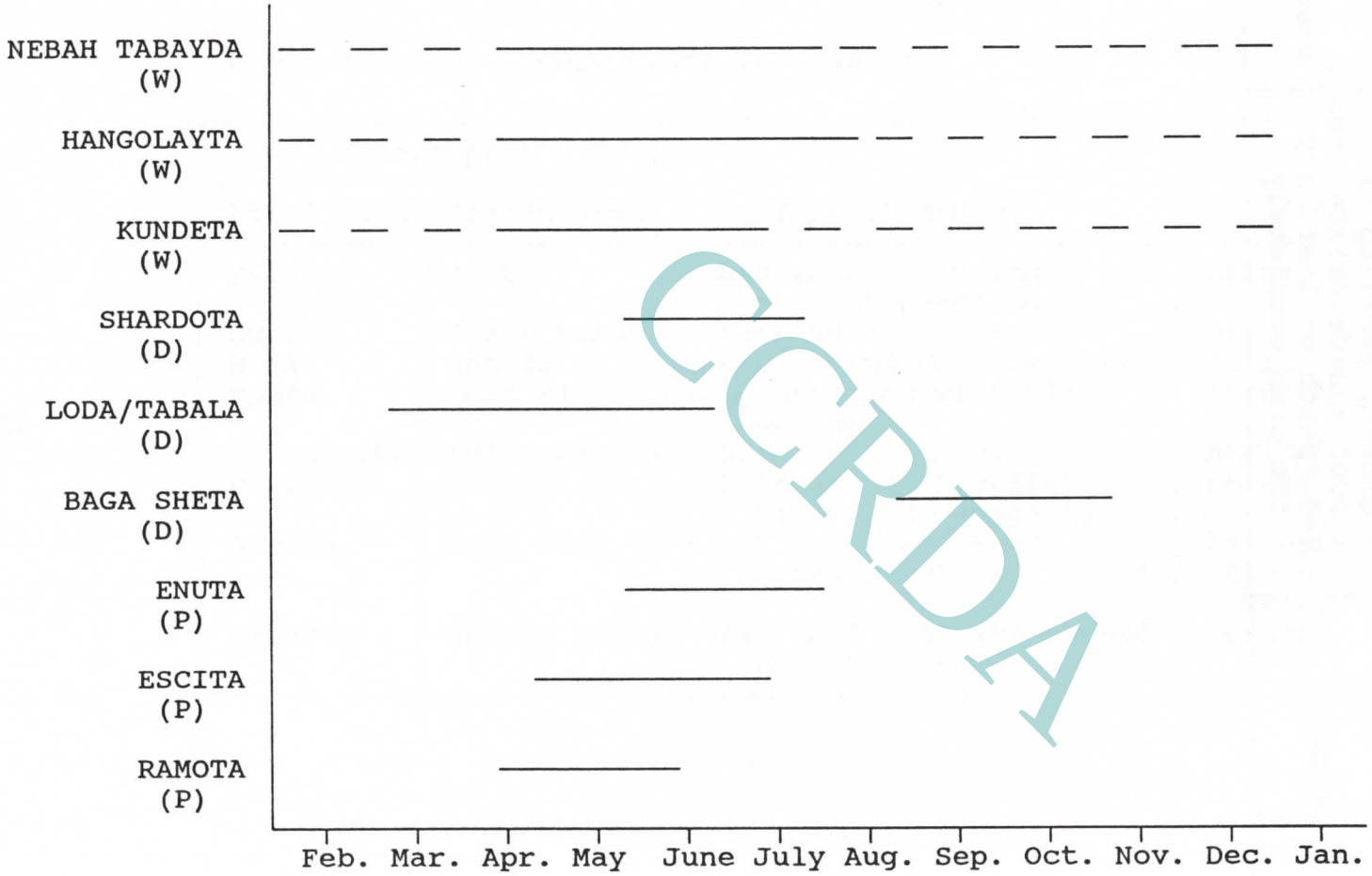
Insect pest		Type of damage	Host plant (crop)
Local Name	Common Name		
Escita	Grabe	- Damage on root and stem of seedlings	maize, sorghum
Mutia	Stalk borer	- Bore holes on stalk	maize, sorghum
Roma	Aphids	- Pierce and sock leaf wax	maize, sorghum
Enuta	Leaf Miner	- Scratch and windowing of leaf	sorghum
Carma Guko	Boll warm	- Bore in the pods	haricot beans
Dogusa	Beetle	- Bore steam of coffee plant and damage pith	coffee
Ramota	Army worm	- Eat leafs of crops (grass family)	barley wheat & other gramine family crops
Setayta	Spider mite	- Eat leaf and make thread on plant leaf	moringa

Table 4.5. Major crop diseases in Gaho PA

Crop disease		Type of damage	Crop
Local Name	Common Name		
Shardoda	Leaf streak	- Brown streak during heavy rainy season	maize
Kunata	Loose smut	- Black powder cover of sorghum and barley head	sorghum, barley
Bagasheta		- Retard apical (shoot) growth, swelling of boot and devastate crop	sorghum
Loda	Rust	- Red spatch on leaf, dry the crop completely	wheat

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FIGURE 4.6. PEST, DISEASE AND WEED CALENDAR



W = Weed
D = Disease
P = Pest

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4.8. Farm inputs

Artificial fertiliser is not used by the people. They use storage pesticide which was provided by MOA freely. Still some farmers are using it for seed treatment.

Regarding organic fertiliser they used manure and plant residue. Compost pits are dug by the farmers to store manure for fertilisation. There is no external intervention to advice on composting.

4.9. Storage

Before threshing, crops harvested (maize, sorghum) are stored on their compound for further drying up by sun light. Then they thresh and store it in different kinds of cribs bins and granary. Cribs are constructed from bamboo, Wood, grass, and plastered with mud.

The type of storage cribs and granary used by the Gaho farmers include:

"KOSA" - used to store different types of products (maize, sorghum, coffee and others) they also keep animals under its shelter. it can store more than 20 qt. of grain

"KODERA" Used only to store maize and sorghum. It can store 8 - 10 qt. of grain

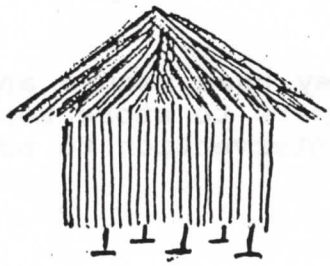
"JABA" Used to store seed or grain. It can store 1.5 - 2 qt. of grain

Figure 4.7 (next page) shows the sketch pictures of the cribs and granary.

CCRDA

FIG. 4.7. TYPES OF GRAIN STORES

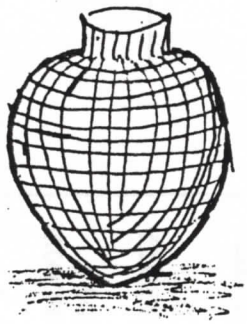
I - KOSA



II - KOBERA



III - JABA



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CHAPTER 5. LIVESTOCK PRODUCTION

5.1. Herd composition

Different types of livestock are kept in Gaho PA. Among these are cattle, sheep , goats and chickens.

Most of the livestock are kept in the barns or houses throughout the year. Unfortunately, we couldn't find the estimated livestock population from the secondary data of the awraja's MOA office.

Cows are mainly kept for milking while oxen or bulls are sold. Since the farmers of this PA do not use oxen for traction they sell them at early age. Heifers are used either for the replacement of the old stock or sold if available in number.

On the other hand, sheep and goats are mainly kept for milking and slaughtering. They can be also sold and provide the farmer an extra income.

5.2 Changes in herd composition

Generally there is a decreasing tendency regarding the size of livestock in the last two decades. The principal reasons indicated by the farmers include:

- Shortage of feed and grazing land. As the growth of the population increases the demand for crop production also in creases. Consequently, very little grazing area (land) is left for livestock production.

- Disease

5.3. Animal production and uses

The daily milk yield obtained per cow is extremely low. It is mainly used for home consumption and to feed infants. The farmers said that they sell practically no milk and milk products. On the other hand, milk from goat and sheep is used as a traditional medicament to treat various diseases, especially to treat a disease called 'Haleta". It is a common disease in the Gaho PA affecting (infecting) the majority of children and young people. Butter from sheep milk is also used to treat rheumatism in the adults.

In addition, skin and hides are important animal by-products which play an important part in the economy of the farmer. Most of the interviewed farmers have confirmed that skins and hides are used to prepare different types of house made materials.

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Hides from goat and sheep, for instance, are used to make (construct) a basket-like material called "Kakyota" to support pots while fetching and carrying water. It is also said that skins from calves can be also employed for making "Kakyota". Goat skin in particular is suitable to make a bag called "Agale" or "Selicha" which serves to pack in grains while transporting them to the market.

Some farmers in the PA who have got large livestock numbers, give either a cow, ewe, or doe to their relatives or others who are poor to rear them, on their behalf. This is called "Malota". The recipient receives a cow he can use its manure for his land while the milk and milk products are given back to the owner.

If the type of animal offered to the recipient is a young ewe or doe, the first lamb or kid will be utilised by the recipient. However, when the ewe or doe give their second birth the young will be given to the owner. The process continues in the same way until the animal stops producing.

If the recipient receives matured ewes or does which gave birth once before, the first lamb or kid born will be given to the owner and the next to the recipient. The recipient is known as 'Sigmayta'. The recipient does not have any right of possession on the animal which he initially received as a gift from the owner.

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5.4. Livestock feeds and feeding practices

Most of the interviewed farmers indicated shortage of land in the PA. The farmers do have very small private as well as communal grazing areas. During transect walk animals have been observed wandering along the road side searching for grazing places. The people keep their livestock (mainly cattle) in small barns, constructed near to the living house.

Apparently the feeding system is mainly based on cut-and-carry system, by which animals are fed where they are kept. The most common livestock feeds available in the Gaho PA are presented in Table 5.1.

During the wet season when the rainfall distribution is relatively high livestock feed is abundant. Conversely, in the dry season in which there is little rainfall the farmers face shortage of feed. Figure 5.1 shows the feed availability calender of the Gaho PA. According to the information obtained from a group of farmers feed shortage is critical from January to April. Feed is available at its maximum in July but at its minimum in January. The causal chain analysis in relation to feed availability is presented in Figure 5.4.

Table 5.1. Local names of major livestock feeds and methods of feeding

Type of feed			
Local name	Amharic/ English name	Category	Feeding system
Otayata	Wanza	Fodder tree (tree leaves)	Cut and carry
Tolekata		" "	" "
Tayeta		" "	" "
Kawreata		" "	" "
Kanda		" "	" "
Weybeta	Terminalia	" "	" "
Aleko		" "	" "
Serdo		Green grass	Both grazing and cut and carry
Elgnba		" "	"
Demeta		" "	"
Maize stalk		Plant residues	Cut and carry
Sorghum stalk		" "	"

5.5. Livestock diseases

There are many kinds of livestock diseases in the area. Local classifications and descriptions of the major disease coincide with the veterinary definitions. The main livestock disease prevalent in the Gaho PA are summarised in Table 5.2.

Among the livestock diseases indicated by the farmers trypanosomiasis, foot rot and black leg are the principal diseases which adversely affect the productivity of livestock. Moreover, the occurrence of each disease varies depending on the change of the season. Figure 5.2 shows the calender of economically important livestock diseases.

The interviewed farmers agreed upon the outbreak of tryps throughout the year and considered March, April and September as its peak period. Besides, foot rot is the disease dominant during the early rainy seasons, from March to June. Similarly, black leg is also a problem during the beginning of the rainy season, although it is observed occasionally throughout the year. Figure 5.3 shows the extent of morbidity and mortality of animals from the most economically important livestock disease.

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Table 5.2. The main livestock diseases prevalent (dominant) in the Gaho PA

Local names	Veterinary names	Possible species at risk				
		Cattle	Goat	Sheep	Chicken	Bees
Non parasitic diseases						
Gendi	Trypanosomiasis	X	-	-	-	-
Somba	CBPP	X	X	X	-	-
Harka	Black leg	X	X	X	-	-
Hoyaleta	Foot rot	X	X	X	-	-
Matita	Oestrus Ovis	-	-	X	-	-
Kosha	Mangemite	-	X	-	-	-
Kedkedeta	Goat pox	-	X	-	-	-
Balambaras	Coccidiosis	-	-	-	X	-
Kolera	Salmonellosis	-	-	-	X	-
Parasitic diseases						
Kettota	Lice	-	X	-	-	-
Phyliata	Flea	-	X	-	-	-
Moololata		-	-	X	-	-
Other diseases and pests						
Enctakata	Ants	-	-	-	-	X
Hilawata	Bird	-	-	-	-	X
Anbita	Wild beast/lizard	-	-	-	-	X
Keneta	Gebello	-	-	-	-	X

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FIGURE 5.1. FEED AVAILABILITY CALENDAR

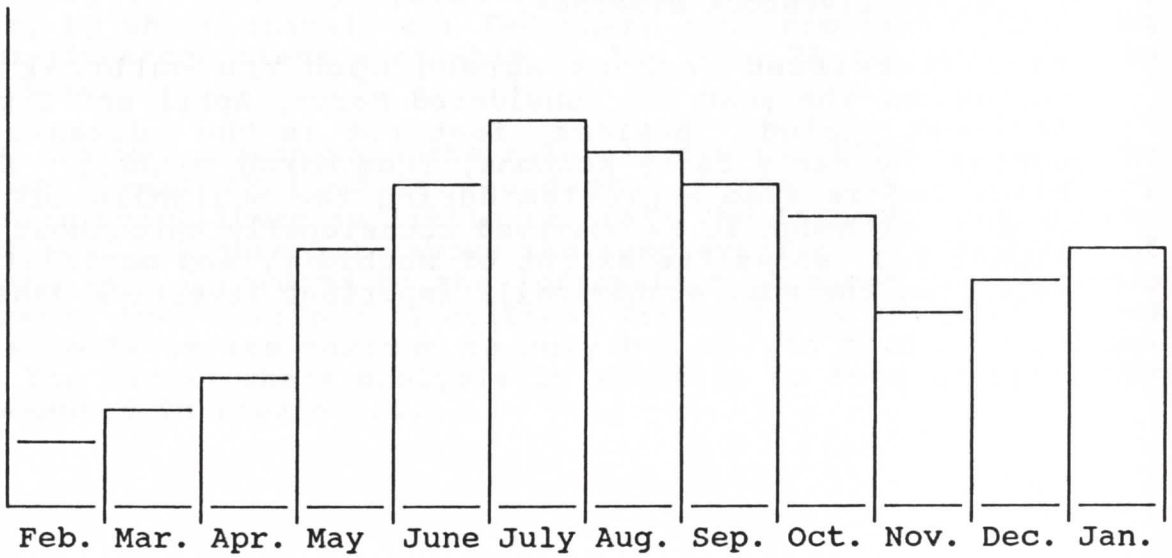


FIGURE 5.2. LIVESTOCK DISEASE CALENDAR

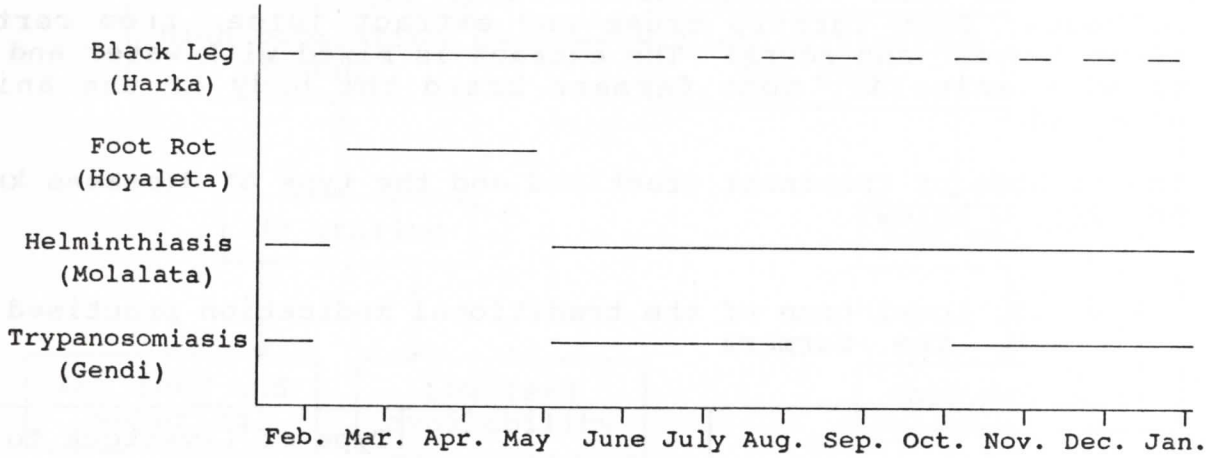


FIGURE 5.3. SCORING OF MORBIDITY AND MORTALITY

Type of disease	Animals of risk	Morbidity	Mortality	Remarks
Trypanosomiasis (Gendi)	Cattle	XXX	XXX	Since the area is semi-high land the effect of tryps is not as bad as in the lowland
Foot Rot (Hoyaleta)	Cattle Sheep Goat	XXX XXX	XX	The farmer practices quarantine methods whereby the infected animals are isolated and kept separately
Helminthiasis (Moololata)	Goat	XXXXX XXXXX XXXXX	XXX XX	Sheep are more frequently affected rather than goats
	Sheep	XXXXXXX XXXXXXX XXXXXXX	XXXX XXXX XXXX	
Black Leg (Harka)	Cattle	XXXXXXX XXXXXXX XXXXXXX	XXXXX	

KEY

XX	Very low risk
XXX	Low risk
XXXX	Medium risk
XXXXX	High risk
XXXXXXX	Very high

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5.6. Traditional livestock treatment

Farmers in Gaho village treat their livestock with cultural methods. Some farmers crush and extract juice from certain plant leaves and roots. The extract is mixed with water and fed to sick animals. Some farmers brand the body of the animal diseased.

The methods of treatment practised and the type of diseases known are listed below.

Table 5.3. Local name of the traditional medication practised by the farmers

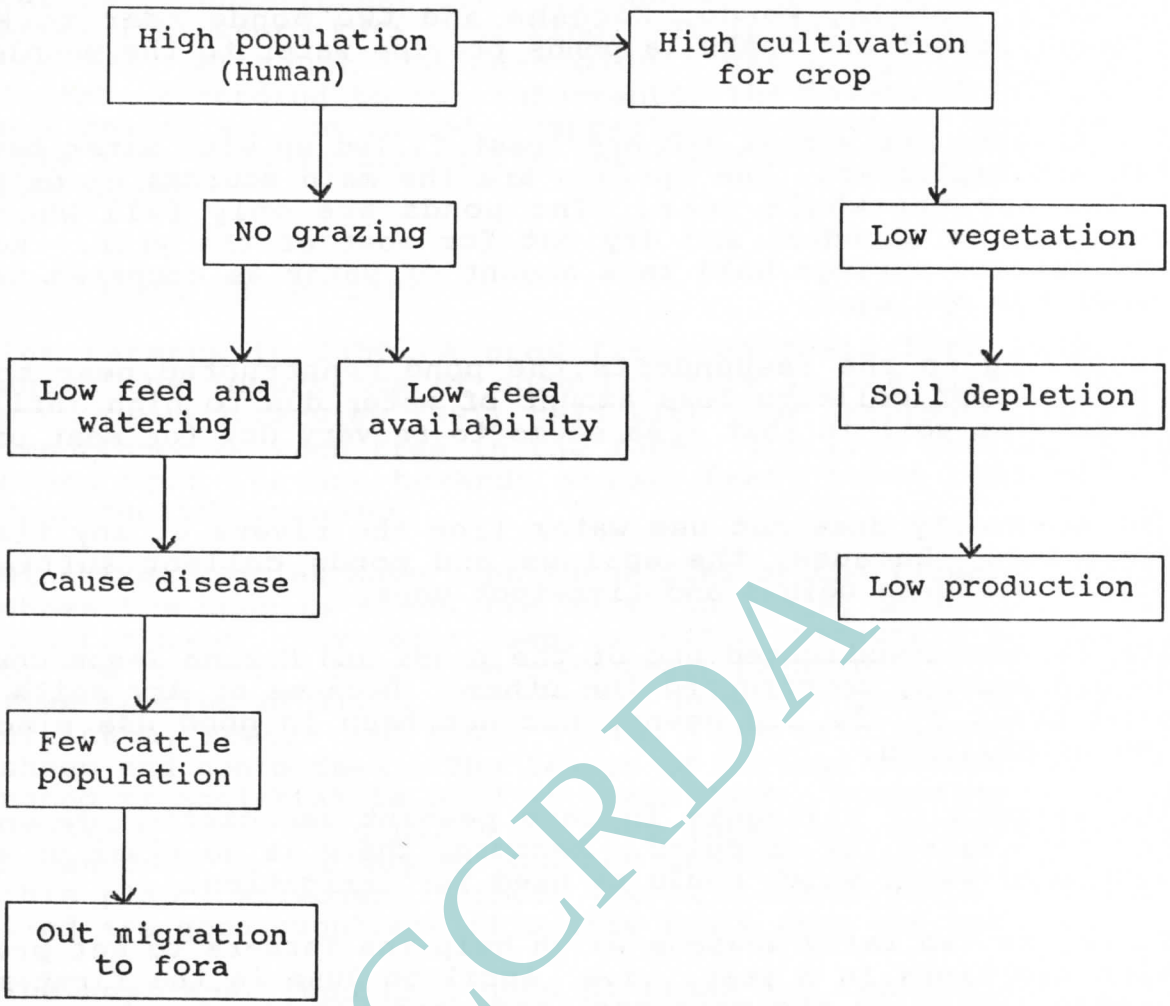
Methods practised	Type of disease	Type of Livestock to be treated
Branding with hot iron and incision	Black leg	Cattle
	Localised swelling	Cattle, sheep and goats
Malted barley	Bloating	Cattle, goats and sheep
Tobacco drenching	Oestrus ovis	sheep

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5.7. Water resources

In Gaho PA there is a shortage of water for livestock, especially during the dry season. There are two ponds and two springs available in the PA. The two ponds are named as Harta and Kotola while the two springs are called Kerasho and Torto. Both the ponds and springs are used for human and livestock during the dry seasons as the streams dry out. These water sources may also dry out if the dry season abnormally extends by reducing the rainy time.

FIGURE 5.4. CAUSAL CHAIN ANALYSIS IN RELATION TO FEED AVAILABILITY



CCRDA

CHAPTER 6. WATER RESOURCES

A total of 3 rivers, Porda, Kotola, Bohri, and four springs Hambera, Kotola, Pordo, Korosha and two ponds near to Kuffa remnant forest and Tamkulla ponds provide water to the people and livestock in the PA.

The streams are annual and are least filled up with water between May and September. The springs are the main sources of drinking water for the whole year. The ponds are only full when the rainfall is abundant and dry out for most of the year. Kotota and Hambera springs hold less amount of water as compared to the other two springs.

According to the respondents,the pond constructed near to the Kuffa forest collects less amount of water due to high infiltration. The soil in that area seems to be very dry for most of the year.

The community does not use water from the rivers at any time in the year. Because, the springs and ponds collect sufficient water for human beings and livestock uses.

The farmers constructed one of the ponds and Mekane Yesus Church, an aid agency, constructed the other. Because of dry soils this pond built by the aid agency has not been in good use since it was established.

The farmers or villagers in Gaho peasant association depend on the rain water for cropping. Because, there is no river or other source of water which could be used for irrigation.

There are two rainy seasons which help the farmers to get production two times in a year. i.e April to June is the first rainy season (which is the main one) and used for the first cropping. While September and October are the second rainfall season (locally called Hageya) which is used for ratoon crops.

For house hold use spring water is mainly collected. Out of four springs, three of them provide enough water for the whole year. But one of the four, i.e Hambera, gives less water in a year,and it may even dry out in some long dry months.

CCRDA

CHAPTER 7. FOREST RESOURCES

The only dense forest area in Gaho PA is the Kufa forest, named after its owner, Kufa, the king. It is located in the corner of the PA. Although the team didn't get a chance to visit the forest, according to our informants, the natural Juniperus procera dominates the forest composition. However, the son of the late king Kufa is blamed for merciless destruction of this natural forest.

7.1. Trees on the farm

The farmers in Gaho PA grow trees on their farm lands, which shows the importance of agro forestry in the area. The semi-structured interview (SSI) held with four informants reveals the importance of each tree in the farm. The tree growing is mainly based upon its use towards animal feed, human consumption and construction purposes.

Nine tree species have been identified by the farmers. Table 7.1 shows the species names (in local language, scientific name and amharic name), the major uses, specific characters and rank given by the farmers. Depending upon their palatability, the leaves of five species of trees (Terminalia brownei, Cordia africana, Olea africana, Acacia and Ficus vasta) are mainly used for cattle, sheep and goats feed. The leaves of Moringa stenopethla (locally named as Shelekta) is used as human food. According to an elderly informant, this plant is very important because almost all human food in one way or another are contained in the leaves of this plant. Moreover, farmers who have Ficus vasta in their farm land are good suppliers of edible fruit from the species.

The next most important uses of trees are fencing and construction. The tree which is said to be "termite-proof" is Juniperus procera. This tree plays the major role in the overall house construction followed by the Eucalyptus trees. The branches of Terminalia broweni and Cordia africana are used for fencing while the stem of Olea africana is a reliable roofing material. Trees like Terminalia broweni and Olea africana are further used in making handles of farm tools because they are strong, easily shaped and smooth. Doors, windows and most household furnitures are made from Cordia africana, Eucalyptus and Acacia.

Euphorhia (?) (Kinchib), is a very important plant in the community social affairs. Each farm family has to throw a small piece of this plant when the community expels socially out-casted people. For example, the former chairman, vice chairman, secretary of the PA and two other farmers exposed for theft faced this form of expulsion during the last four months. Euphorbia is also effectively used in preventing and controlling fire. This is because it has a very high water content.

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7.2. Ranking

Taking all possible uses in terms of human food, animal feed, and construction, our informants have ranked the trees from one to eight (Best to least important). But, because of it social implications, it is found very difficult to rank euphorbia. Taking a major part in human food, therefore, Moringa stenopthla was, undoubtedly ranked as the best tree. On the other hand, Ficus vasta is ranked as the least important or unpreferable because of its least advantages to the farmers (refer to Table 7.1).

There were no plantation sites for trees. Farmers do not intentionally replace trees after they cut them down.

CCRDA

Table 7.1 Forest resource and their uses in Gaho PA

Species Description	Juniperus procera "BIRBIRDA" (TID)	Terminalia brownii "OIBETA" (WEIBA)	Cordia africana "OTAIDA" (WANZA)	Olea africana "EGERDA" (WEIRA)	Eucalyptus camundulisis "BARZAFIDA" (BAHR ZAF)	Acacia "ORDARDA" (GIRAR)	Moringa stenuptera "SHELEKETA" (SHIFURAW, ALKO	Ficus vasta "LIA" (WORKA)	Euphorbia "KARADA" (KINCHIB)
MAJOR USES	House Construction - walls - roof	- Leaves for goats feed specifically - Branches for fencing - Roof of stone walled house -Handles for hand tools -Bark for thatching	- Leaves for cattle, sheep & goats feed -Branches for fencing & fire wood -Stem to make any furnitures including door	- Handle for hand tool - Leaves to feed goats - Stem for roof - Fuel wood	- For fencing - Overall house construction - To make doors - Fuel wood	- Leaves for animal feed -Bee hives carrier -Fuel wood -Fencing - The lower-end of the stem for feeding trough making	- Leaves to to make human food (prepare almost all food) - Branches for animal feed	- Edible fruit - Dry Season animal feed (leaves) - Shade in recreation area(MORA)	- Fence for individual farms -Fire prevention (high water content) -Cultural expelling much plant for socially out-casted people
SPECIFIC CHARACTERS (Remarks)	- Strong - Termites-proof - Manageable to shape - Helpful in building almost all house construction - Never use for household equipment		Never used for handles of tools		-Easily attacked by termites -Never used for human or animal food/feed		- Very important because, almost all human food contained in the leaves of this plant (tree)		- Socially, a very important plant
RANK	2nd	4th	3rd	5th	7th	6th	1st	8th	unrankable

CCRDA

CHAPTER 8. HOUSEHOLD ANALYSIS

8.1. Parameters and techniques in household analysis

The parameters used in the household studies were housing sanitation, food habits, family labour division and family income sources.

The team which was responsible for the household data collection selected four main techniques (transect walk, case and group studies, and secondary data) for information gathering.

In the transect walk the team got a cross-section view of Gaho village. Since the team was accompanied by a village elder and a translator, the team got explanatory answers for its questions from these two people.

As we walked in and around the village, we paid particular attention to peoples activities outside the home, i.e source, location and distance of drinking water and household fuel. On our way we met women weeding and hoeing, a man picking coffee beans and young children busy fetching water. We have also seen men and women making potteries in the second village of Gaho PA.

To get a detailed and specific information (about households) a case study of three households, different in their economic level, were selected. These households were stratified as rich, middle and poor level families. In the two households women were also there as we interviewed, but much of the talking was done by men. In selecting households the team got the help of the translator and a village elder, who were with the team throughout the interview.

Other than these families the team also interviewed a woman, whose husband was not there. This was done in order to get only women's view.

To cross check and get another supplementary information, the team used group interviews, which included also women. The maximum number of people interviewed in the group study was five people, three men and two women.

Similarly, secondary data was collected from the Konso Wereda MOA home economics agent, two nurses and three persons from the family planning sections of the two clinics in Konso (Ministry of Health and Mekane Yesus clinic).

All seem to agree that the leading social problems and killing diseases among children are diarrhoea and pneumonia. In addition, malaria and typhus, also affect adults. Under nourishment of young children was also identified by the group. They reported that these diseases are mostly caused by lack of sanitation. Which in turn is mainly caused by lack of adequate water supply in the villages and work load on women.

CCRDA

8.2. Case studies about selected families

The study team responsible for analysing household standards, purposively selected three socio-economically different families to understand livehoods of the people in the PA. The families included were rich, middle level and poor families, as identified by the key informants. The houses , crop fields, compounds and families' patterns of living were visited by the team. The status of housing and environmental sanitation, food habits and family labour divisions were key parameters for comparative analysis of the families.

8.2.1. Housing and sanitation

Rich Farmer :- The rich farmer interviewed had 3 houses on the compound. The houses were thatched with grass and mud walls, which were built from Juniperus and Terminalia trees.

There were other 4 storage huts built up on Juniperus tree logs and had open walls to tether animals, like goat, sheep and cows. The stores were used for sorghum storage and for keeping household utensils.

The 3 living huts were used for different domestic purposes:

Hut 1 : is a sleeping place for women, young children (under 10 years) and adult daughters and female guests.

- Food preparation and cooking centre.
- Store for grain containers i.e. clay pots, gourd, grinding stone mills.

Hut 2 : Used as a male guests' sleeping place, and for keeping household heads' clothings.

Hut 3 : is used for similar purposes as hut No. 1 above.

Four of the outside storage huts are built up on strong pillars and have open walls whose floors are used as livestock stable. It's built up like a platform but with small huts on them. The purposes of these huts include:-

Storage Hut 1 : grain storage and underneath used for sleeping place for father and male children.

Storage Hut 2 : grain storage and underneath used for cattle stable.

Storage Hut 3: grain storage and underneath used for sheep tethering.

Storage Hut 4: grain storage and underneath used for goat keeping.

CCRDA

There was no specific arrangements or classification of inner part of the house. Such as, bedding corners, household utensils areas etc. "Medeb" fixed mud-made broad beds were built on the circular floor. All the household utensils were dispersed all over in the house. The houses were not clean and tidy.

Compound of the rich farmer is tightly fenced and well secured. The entrance to the compound is narrow and blocked by logs of wood. It is very difficult to freely pass through these gates. Only one man or animal could pass at a time. During the interview, 9 people live on this compound.

The houses are built in between bench terraces. The living room/house is situated at about 1 meter (vertical interval) higher than the stable of animals. People walk on steps to come into the house. The farmer informed that this was built to discourage livestock from walking into the house. However, garbage were disposed near to the entrance to the compound. Premise setting and types of huts constructed are illustrated in Figure 8.1.

FIGURE 8.1. SKETCH MAP OF RICH FARMER'S PREMISE



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Middle Level Farmer:- Middle level farmer interviewed had 2 living huts and 3 storage huts. The huts were built from grass roof, mud walls, and earthen floor.

Hut 1 - Sleeping place for women, young children under 10 years, grown up daughters and female guests.

- A place for food preparation.
- Store for seed grain containers. i.e. pots and gourds

Hut 2 - Sleeping place for father, male children above 10 years and male guests.

Storage Hut 1 : Used for only grain storage

Storage Hut 2 : Platform is used for grain store and the underneath floor for cattle stable.

Storage Hut 3 : Platform is used for keeping household utensils and the underneath floor for goat and sheep tethering.

The inner part of the house is better arranged than the rich man's house. For instance, the father's sleeping place was tidy and clean. The grain containers were placed in a separate corner of the house. However, garbage was disposed of in front of the entrance to the compound.

The premise is well protected by long wooden fence. The main entrance was blocked by logs of wood, and the gate was very narrow.

The houses are built on the ridges of stone walls. The living houses are built on the higher side of the compound.

There were about 12 people living on the middle man's compound.

Figure 8.2 shows the middle level farmer's compound and his houses.

Poor level farmer has got, living house and one small storage hut. His living hut is used for different purposes. It is used for living, cooking food, and keeping grain containers. His storage hut is used for grain storage.

There were very few items in his house. The compound was not fenced and unclean. The huts are built on a flat surfaced ground. Only 4 people live in the compound.

Figure 8.3 shows the structure of the poor man's premise.

CCRDA

FIGURE 8.2. SKETCH MAP OF MIDDLE LEVEL FARMER'S PREMISE

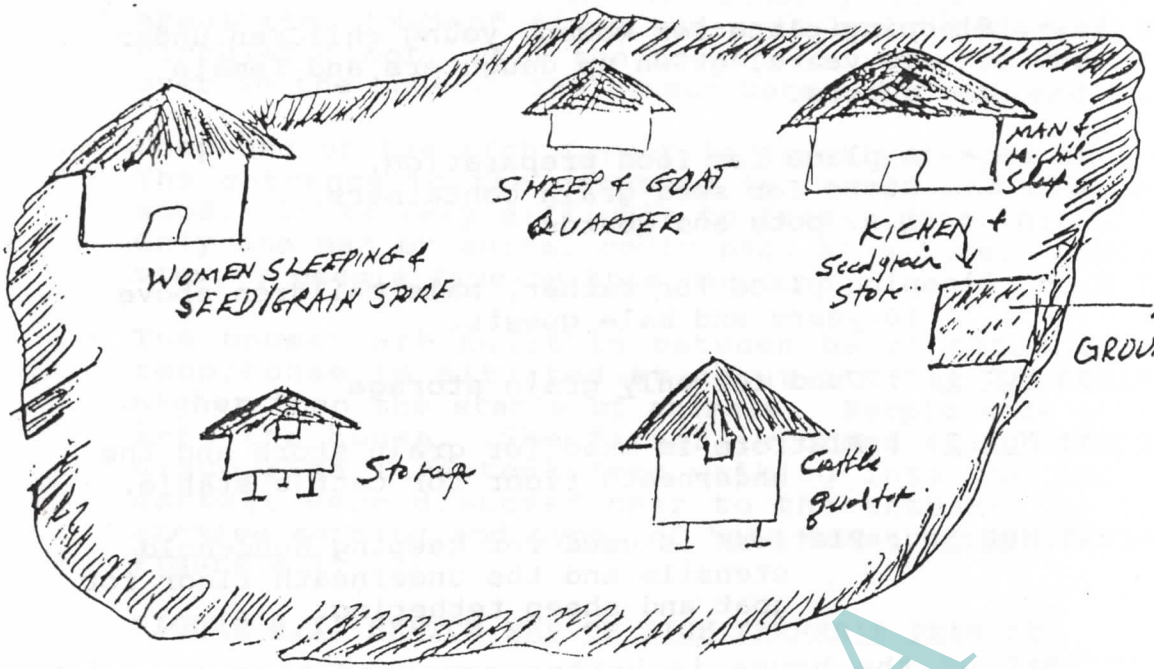
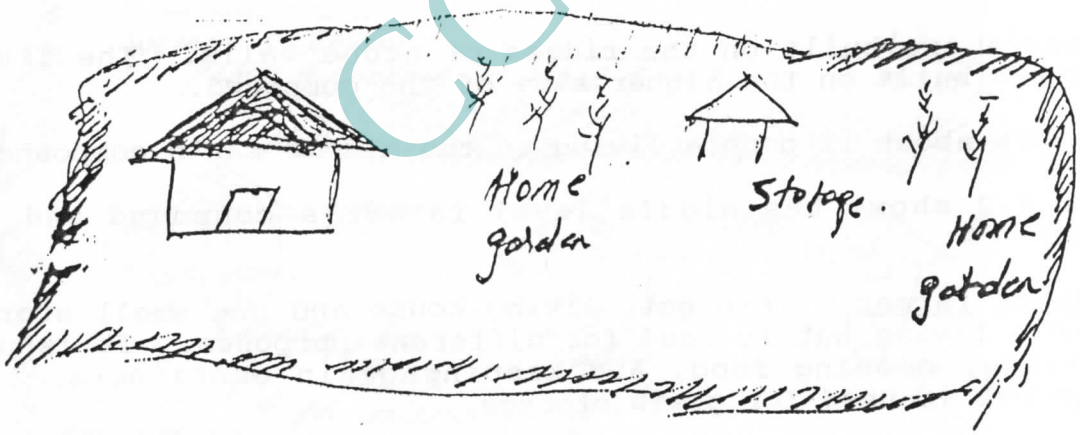


FIGURE 8.3 SKETCH MAP OF POOR FARMER'S PREMISE



CCRDA

8.2.2. Food habits

The main staple food crops in the PA include sorghum, maize, haricot beans, pigeon peas, moringa tree leaves, yam, kale (hagessa) and potatoes.

Rich and middle level farmers produce on their land the above food crops, where as the poor farmers purchase from market places in the area.

All the interviewed farmers (rich, middle level, poor) indicated different kinds of food preparation for major meals. The common dish prepared as solid food intake is "Karkufa" prepared from sorghum flour and "Shiferaw" or "mida", a green leaf from moringa tree. A lot of root crops i.e. yam, potatoes, "Koltso", cassava etc. are boiled and used as food for meals.

The second important liquid food widely used in the village is "Cheka" or "bordie"; which is prepared from sorghum and maize flour; and malt from germinated wheat, barley or maize. The ingredients are mixed with water in a wooden bowl or clay vessel and left for fermentation.

Other important dish widely used is "Harsha" which is made from boiled beans, pigeon peas or yam. This food item is use by all walks of people in the village.

Traditional food consumption pattern reveals some variations in food intake in the community. The time, the kind of dish served and the sources of crops differ according to wealth status of the families. For example, Table 8.1 shows the types of dishes used by different strata of the families.

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Table 8.1. Types of dishes used for meals by the different strata of the families

Description	Rich	Middle Level	Poor
For Breakfast	"horsha" coffee from coffee leaf, food left from the previous day	The same	The same
For Lunch	"Ererta " "Cheka" tamented overnight	"Mogo" yam "Kurkufa" or horsha (boiled beans)	Any available food
For Dinner	"Kurkuta", horsha, "cheka"	The same	Mogo (cassava)
Special occasion i.e. Easter	Meat, cheka, Kurkufa with butter	The same	Wheat bread
Mother's at child birth	Kurkufa with butter	Meat, butter for 3 days common food	small butter added to normal food
Supplementary food for infants	Sorghum gruel	-	-
Meal's serving pattern	Father & male children served separately in a wooden bowl	same	same
Person responsible for meal's preparation	The mother	Mother and daughter-in-law	The mother

CGRDA

8.2.3. Division of family labour

The other area of household analysis was based on labour division among family members of different economic status. Table 8.2 was constructed after obtaining information from the key informants selected.

Table 8.2. Labour division among different households

Description	Rich	Middle level	Poor
Responsibilities	- Women do about 75% of the house work, 40% of the farm work, 35% of the off-farm work	- Women do 75% of the house work, 60% of the farm work 55% of off farm work	- 75% o house work
	- Men do 25% of house work, 60% of farm activities, 65% of the off-farm activities, 65% of the off-farm activities	Men do 25% of house work, 40% of farm activities, 45% of off-farm activities	- Men do 25% of house work - 35% of the wag labour
	- Children under 10 years fetch for fuel and water, take care of the tering, look after livestock spinning.	the same	no anim
	- Adult children, female help their mother	the same	the same
	- Male children help their father	the same	

8.2.4. Sources of family income

Table 8.3 describes some of the sources of family income for the different starata of the farming community.

Table 8.3. Sources of family income

Rich	Middle level	Poor
- Agricultural produce - Spinning & weaving - Coffee sales	- - The same -	- Wage labour - petty trading - spinning and weaving

CCRDA

FIGURE 8.4. FOOD AVAILABILITY AND CONSUMPTION CALENDAR

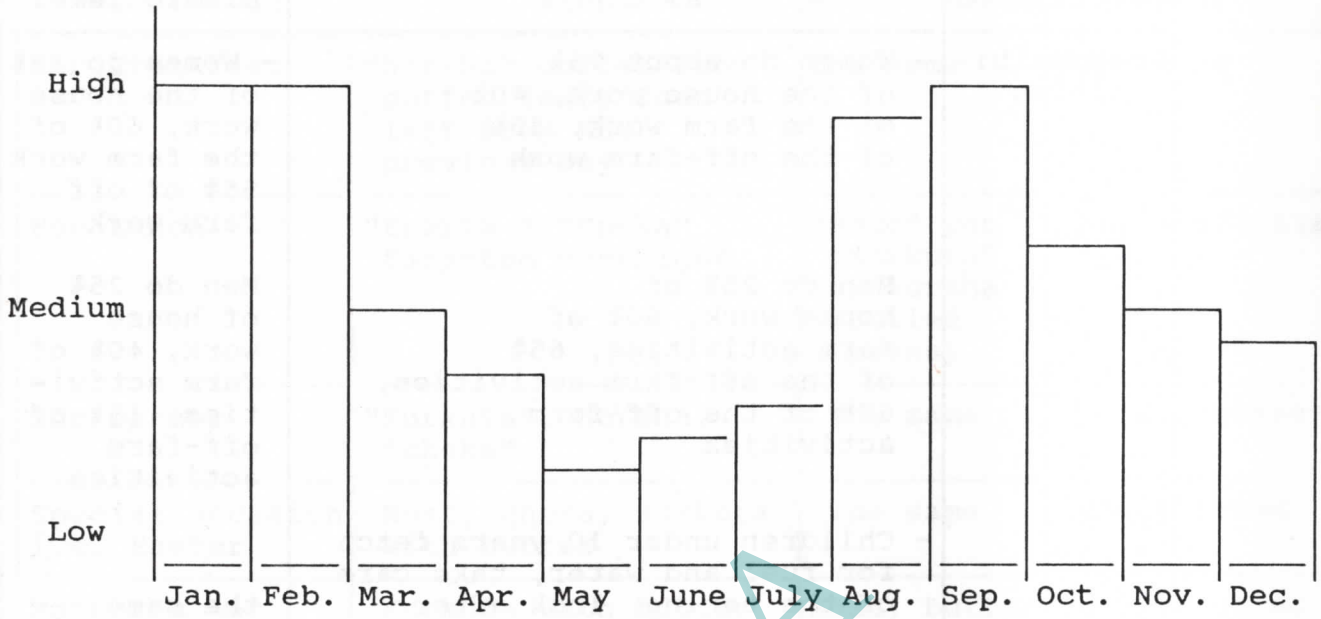


Table 8.4. Matrix ranking for different food types

	Cheka	Kurkufa *	Nifro **
Availability	1	2	3
Taste	1	2	3
Quality preference	2	1	3

* 'Kurkufa' consists of pigeon pea, sorghum and moringa cabbage

** 'Nifro' boiled cereal grains

CGRDA

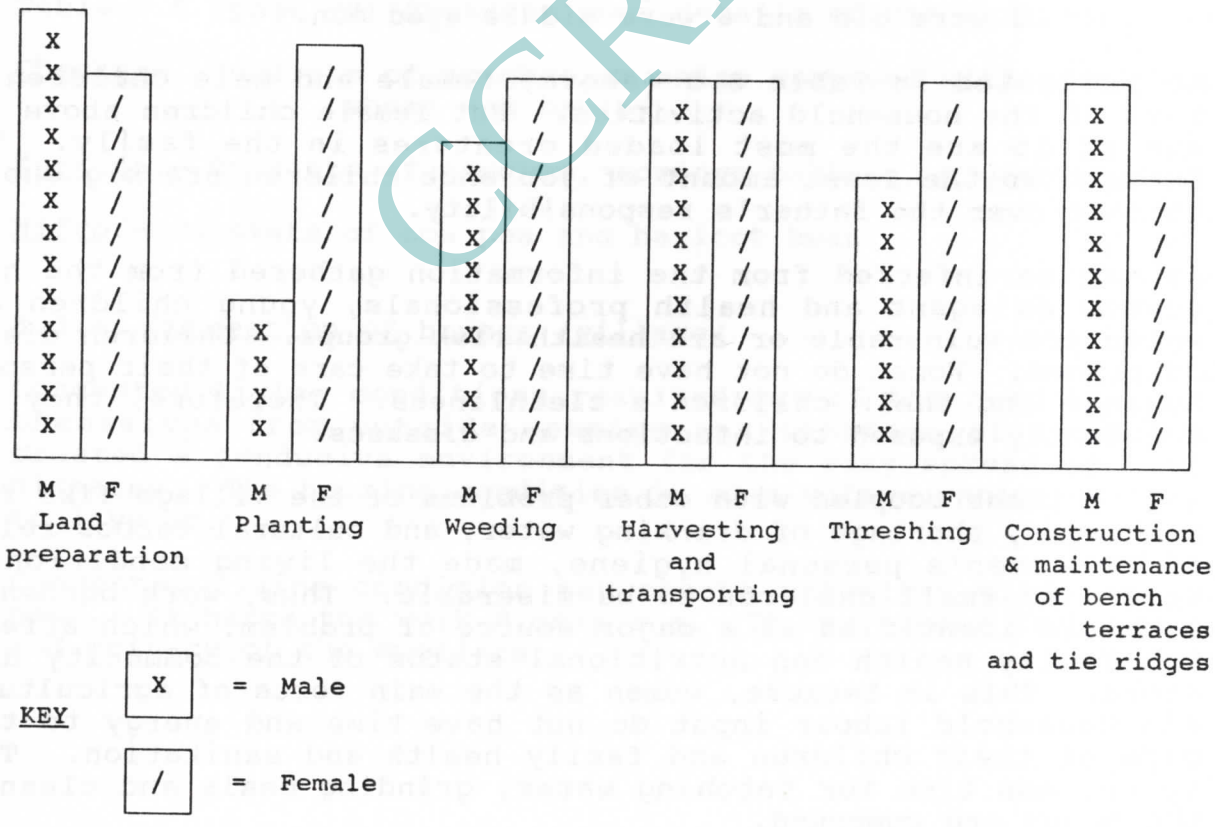
8.3. Problems identified in the household analysis

8.3.1 Work burden on women

In addition to women's responsibilities for all house work, child and family care, women in Gaho are reported to have major responsibilities in farm work and animal feed supply. They participate in the weeding, hoeing, planting, harvesting, transporting and threshing part of the farm activities. Since Gaho's agricultural production goes on a yearly cycle, women are busy working in the fields almost everyday throughout the year. Women carry goods on their back while going to markets. There is no means of transportation in the village.

Therefore, very little attention is given to child care, feeding the child, cooking food and other housework activities. Women grind foods by hand. As reported by the women themselves, this is the most tedious job among all household activities. Inner house and surrounding sanitation is poor, because women do not have the energy and time to transport household garbage out into the fields and clean properly houses and compounds. Unbalanced labour division among men and women is observed in the community.

FIGURE 8.5. RELATIVE LABOUR DIVISION CALENDAR



CCRDA

Table 8.5 Relative labour contribution by family members (Percent of time spent)

Activities	Father	Mother	Child		TOTAL
			Male	Female	
Land preparation	45	12	33	10	100
Planting/sowing	12	28	28	31	99
Weeding	10	40	19	31	100
Harvesting	38	12	33	17	100
Transportation	0	40	21	38	99
Threshing	36	0	64	0	100
Marketing of product	0	36	24	40	100
Spinning thread	9	27	24	40	100
Cutting ratoons	17	21	33	28	99
Feed collection	5	33	19	43	100
Fuel wood collection	0	40	0	60	100
Checka* preparation	0	40	0	60	100
Fetching for water	0	40	0	60	100
Livestock herding	29	0	71	0	100
Building a house	40	8	40	12	100

* Checka = Local beer

Source: Based on the scoring exercise with 9 informants, of whom 3 were old and 6 were middle aged men.

As indicated in Table 8.5 (above) female and male children do most of the household activities. But female children above the age of 15 are the most loaded creatures in the family. The fathers do the least amount of job once children are big enough to take over the father's responsibility.

As can be inferred from the information gathered from the home economics agent and health professionals, young children and women are vulnerable or are health risk groups. Children die of diarrhoea. Women do not have time to take care of their personal hygiene and their children's cleanliness. Therefore, they are constantly exposed to infections and diseases.

All of these coupled with other problems of the village like food shortages, shortage of drinking water, and cultural taboos related to women's personal hygiene, made the living condition of women and small children to be miserable. Thus, work burden on women is identified as a major source of problem, which affects the family health and nutritional status of the community as a whole. This is because, women as the main force of agricultural and household labour input do not have time and energy to take care of their children and family health and sanitation. They spare less time for fetching water, grinding meals and cleaning the house and compound.

CCRDA

8.3.2. Relative labour division calendar

From Figure 8.5 and Table 8.5 we understand that women contribute a higher share of labour in farming activities

8.3.3. Food availability and consumption

Food availability is high during the months of September, August, January and February (See Figure 8.5). Since the area is classified in the bi-modal rainfall pattern, there are two harvesting periods. The amount of food available and consumed is high in comparison to non-rainfall months. As we see from the calendar the amount of food consumed declines at the end of rainfall season and there after. Serious problem of food availability occurs in the month of May, June and July.

8.3.3.1. Ranking for different food types

The ranking of different food types according to their availability, taste and quality preference is connected with the type of crops grown in the area.

Checka is the favourite drink /food/ of the community, where they consume it at their home, farm land, market places. Kurkufa is the second important food mostly prepared in home occasionally.

Table 8.5 (page 70) Presents some details of the ranking.

Checka:- Consists of sorghum or maize composed with germinated wheat and barley

Kurkufa:- Consists of sorghum, moringa cabbage, pigeon pea

Nifro:- Consists of cow pea and haricot bean

8.3.4. Congestion of houses /village/

Congested living conditions resulted out of the need to protect themselves from outside enemies and shortage of land. This created a conducive environment for the easy spread of various diseases. The housing condition is also unfavourable and hostile to live in.

Congested living condition may create unhealthy mind and laziness. It harms the work discipline. It may hinder free movement and privacy of the dwellers.

CCRDA

8.3.5. Low nutritional status /diet/

Inadequate food supply basically contributes to the absence of proper diet. In addition to the availability of food stuffs, the consumption habits contribute for the existence of unbalanced diet. This creates an unfavourable condition for the natural immune system to resist various diseases. Malnourished people are physically and mentally weak and they become too weak to produce the needed amount of food.

This reveals a sign of vicious circle of poverty, where the people can not come up with new hopes and prospect for a better future. That life appears to be meaningless and results in loss of self confidence (sociologist's view on the team).

8.3.6. Sanitation and personal hygiene

Cultural taboo Women have traditional imposition not to wash their body throughout their life. It is culturally believed that their husbands would die if they do it. So they are faced with different health problems. Besides other family members are also victims due to low sanitation and hygiene of home environment. Since women carry all the burdens of the household, their health condition is decisive for the sustainability of the family.

8.3.7. Out migration

Scarcity of land in the village have resulted in the out-migration of the minors /young people/ to other places, where they can earn their means of livelihood.

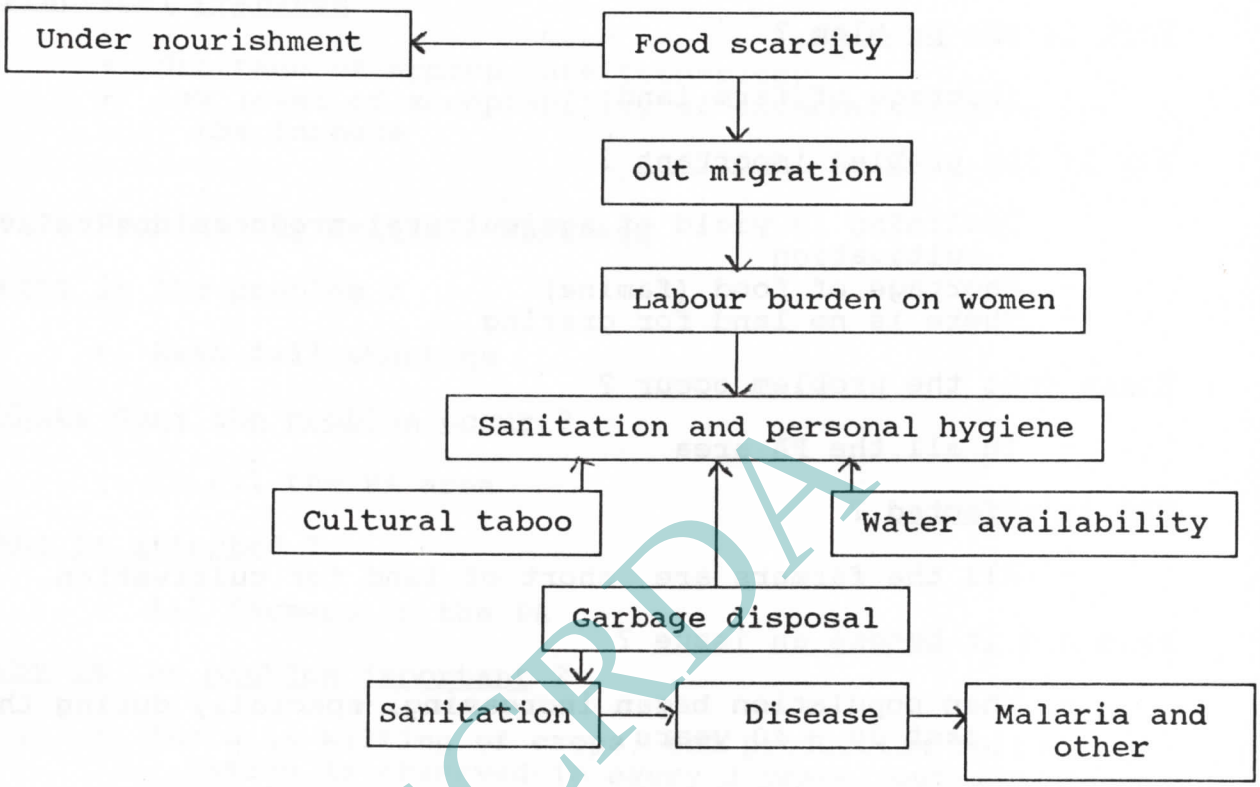
This out-migration of the young people left the old people in the PA area who are not capable to accomplish different tasks. As a result, the work load is put on women. In addition, the migrants would be exposed to the hostile environment, where the norms and values of the new community might draw them into frustration or psychological tension.

8.3.8. Garbage disposal

In a congested living environment, there is no spare place where the garbage is disposed off. In addition, the low fertility of the soil necessitates collection of garbage disposals closer to the house where animals are kept. However, the requirement of crop production on the one hand and on the other the health problems which the garbage causes become incompatible, and leave the village with unconducive environment to live in. Health problems obviously result in weak labour supply and low economic status.

CCRDA

FIGURE 8.6. HOUSEHOLD PROBLEMS' CAUSAL CHAIN ANALYSIS



CCRDA

CHAPTER 9. IDENTIFICATION OF PROBLEMS AND BEST BET SOLUTIONS

9.1. Problem I: Shortage of farm land

What is the problem ?

- Shortage of farm land

Why is the problem important ?

- Declining in yield of agricultural products due to over-cultivation
- Shortage of food (famine)
- There is no land for grazing

Where does the problem occur ?

- In all the PA area

Who is affected ?

- All the farmers are short of land for cultivation

When did it become an issue ?

- When population began increasing, specially during the last 30 - 40 years

How are farmers coping ?

- Use diversified cropping, migratory farming, youngsters become employees of other rich farmers in the vicinity of the PA or outside Konso

CCRDA

BEST BETS FOR SOLVING PROBLEM I

What ?

- Use of improved cultural practices with an appropriate technology, mainly improving farm implements

Why ?

- To increase yield on the small area of land available.

How ?

- Through the help of different NGOs and MOA, diffuse different technologies to the farmers specially those convenient to small holding of land

Who benefits ?

- Farmers who are willing to practice new way of production and use improved farm inputs can primarily benefit.

Practical problems

- Shortage of appropriate technology
- Low level of acceptability of external intervention by the farmers

9.2. Problem II: Rainfall shortage

What is the problem ?

- Rain fall shortage

Where does the problem occur ?

- In all the PA area

Who is affected ?

- All farmers in the PA

Why is the problem important ?

- There is wilting of crops, and production failure. Famine is observed in every 3 years. Out-migration of people during low rainy season is high.

When did it become an issue ?

- For maize and sorghum during 1st weeding and for other crops during their maturity period. Some times it becomes an issue when maize and sorghum start flowering.

How are farmers coping ?

- They plant crop during early season
- They use crop residue as mulch
- They use relay cropping

CCRDA

BEST BETS FOR SOLVING PROBLEM II

What ?

- Introduction of short season/ drought tolerant crop varieties
- Implementation of improved cultural practice such as mulching
- Afforestation programmes
- Introduce short season moisture conservation practice (tie-ridge, dry land farming practice)

Why ?

- To avoid risk

How ?

- By the help of MOA and NGOs

Who benefits ?

- All farmers in the PA

Practical problems

- Recurrent rainfall shortage and stoniness of the land.

9.3. Problem III: Depletion of soil

What is the problem ?

- Soil depletion

Why is the problem important ?

- Low production, increased labour requirement to maintain and build terraces, more labour is required to transport and incorporate manure in the farm land

Where does the problem occur ?

- Throughout the farm land

Who is affected ?

- All farmers but resource poor farmers are more exposed

When did it become an issue ?

- Through out the year

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How are farmers coping ?

- Terracing of steep land to avoid erosion hazard. Adding animal manures and plant residues

BEST BETS FOR SOLVING PROBLEM III

What ?

- Using artificial fertiliser, crop rotation (cereals and legumes) fallowing methods and other relevant practices

Why ?

- To maintain and increase soil fertility

How ?

- Supply of fertiliser by MOA and other NGO's. Introduction of improved cultural practices

Who benefits ?

- All the farmers will benefit

Practical problem

- Shortage of supply of fertiliser
- Low acceptability of external intervention by farmers.

9.4. Problem IV: Pest and diseases

What is the problem ?

- Pests and disease of crops

Why is the problem important ?

- Causing considerable damage to crops either in field or storage
- Yield declining

Where does the problem occur ?

- All over the PA.

Who is affected ?

- Most of PA members

CCRDA

When did it become an issue ?

- Starting from the month of February when the crop is at its early growth stage. For sorghum and maize at maturity time

How do farmers cope ?

- Use different cultural practice; Bird scaring during crop flowering and fruiting. Use of storage pesticides

BEST BETS FOR SOLVING PROBLEM IV

What ?

- Provision of disease resistant crop varieties
- Provision of pesticides to farmers
- Strengthening bird-scaring techniques
- Implementing improved cultural practices of crop diseases control

Why ?

- To control crop diseases and pests

How ?

- Undergo intensive exploratory research
- Advise farmers to use different cultural practices
- Strengthening extension service of MOA and NGOs

Who benefits ?

- All farmers, the whole community

Practical problems

- Shortage of pesticide
- Shortage of disease resistant crops

9.5. Problem V: Livestock feed availability

Where is it a problem ?

- All over the PA.

Who is affected ?

- All farmers who possess livestock

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Why is it important ?

- Livestock production depends upon the availability of feed so as to produce milk, meat, etc. Hence shortage of livestock feed will tremendously affect the production potential of each animal, which in turn influences (affects) the economy of the farmers

When did it become an issue ?

- This problem is especially critical every year during the dry season

How farmers are coping ?

- When the farmers faces shortage of livestock feed they are forced to move their livestock to the lowland areas known as gera and abaroba, where feed is available in abundance. Moreover, during the early and main dry season animals can be fed on the drought-resistant shrubs as well as tree leaves.

BEST BETS FOR SOLVING PROBLEM V

In order to reduce the feed availability problems in the PA, we recommend the following options:-

1. Introduction of
   - Fodder trees
   - Fodder trees which are resistant to drought
   - Various grass species suitable for livestock feeding
2. Extension work on motivating farmers to produce excess or extra feed during the rainy season and conserve it for the dry season.
3. Since there is no individual or communal grazing land in the PA, farmers should be advised and assisted in establishing at least common grazing area.

9.6. Problem VI: Livestock disease problem

What is the problem ?

- Trypanosomiasis

Where is it a problem ?

- In settlement and in the fora

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When is it a problem ?

- Through out the year, but more acutely in April, March and September

For whom is it a problem ?

- All owners of cattle

The evidence available for the problem

- Farmers' opinion and visual diagnosis by the consulted veterinarians

Additional evidence required

- Check on the secondary data
- Sample survey for sick animals for laboratory diagnosis

What is the problem ?

- Foot rot

Where is it a problem ?

- In settlement especially those animals confined in a barn

When is it a problem ?

- During the early racing season

For whom is it a problem ?

- For all farmers who owned cattle, sheep and goat

The evidence available for the problem

- Farmers' opinion as well as visual observation

Additional evidence required

- Sample survey for sick animals for extra diagnosis because this disease is more likely to be confused with foot and mount disease in terms of clinical symptoms

How are farmers coping with the problem ?

- By using traditional medication

Farmers usually use different types of herbal medicines to treat various infections as well as non-infectious diseases. The principal local medicines practised by the farmers are listed in the Table 5.3.

CCRDA

BEST BETS FOR SOLVING PROBLEM VI

What ?

1. Supply veterinary drugs, especially antibiotics, and anti-helminthics with a reasonable cost

2. Provide farmers an organised veterinary service regularly. This would help to strengthen the relation between the veterinarians and the farmers. It also helps in following disease outbreak within the area

3. Foot rot in the Gaho PA is a critical livestock disease. The main cause of the disease is lack of sanitation in the barns in which animals are kept for an extended period of time. The disease becomes more intense during the rainy season when the barns and houses are more favourable for the growth of infectious microorganism. Therefore animals can be safe from some disease if the barns and house are kept clean and dry. Besides the cattle should be allowed to stay in the outside at least once a day.

9.7. Problem VII: Deforestation and depletion of trees

What is the problem ?

There is a great shortage of trees for home use and houses building

Where does the problem occur ?

Land all over the PA is devoid of important natural trees

Who is affected ?

Farmers dwelling in the traditional land on top of the hills are largely affected

Why is the problem important ?

Depletion of natural vegetation affected living conditions of the households in many ways. There is an acute shortage of fuel wood for cooking and heating a house, and shortage of poles for house building. Animal feed shortage also becomes scarce with vegetation removal for cropping.

When did it become an issue ?

Deforestation and cutting of trees with a complete removal of roots began a long time ago when bench terraces were introduced in the area as the main land preparation method. The expansion and intensity of cropping to increase products further contributed to uprooting the whole of a tree.

CCRDA

The people living in the traditional village were threaten by the tribes living adjacent to Konso tribes. This necessitated building of a high fence around the village setting. Moreover, every compound was strongly fenced with a big log of wood to protect the family against inside and outside enemies. This hostility perhaps contributed to the cutting down of most of the valuable trees.

How are the farmers coping ?

The farmers collect fuel wood from bushes and use weeds cleared off the crop fields. Dried branches of the pigeon pea cover the greater proportion of the energy sources.

Wood for house building is generated from self established trees on farm. Gaho farmers travel to the next PA area and purchase timber for house construction from individuals. Terminalia tree is the most used construction tree and source of livestock feed.

BEST BET FOR SOLVING PROBLEM VII

What ?

- For instance some of the local tree species and introduce fodder trees like leuceana and sesbania trees.

Why ?

- This will help to conserve soils and provide wood for fuel, house-building, and fencing

How ?

- Establish wood lots along the lands unutilized for cropping
- Encourage establishing better agroforestry systems with an introduction of multipurpose trees

Who benefits ?

- All farmers interested will benefit

Practical problem

- The venture might encounter an acute shortage of land and the farmers' willingness to change their current farming system.

CGRDA

9.8. Problem VIII: Water availability

What is the problem ?

- Scarce water supply to human beings and animals

Where does the problem occur ?

- In the villages

Who is affected ?

- All members of the family, specially the women and childern are highly affected

Why is the problem important ?

- The sanitation standards of the community are very poor. Women do not clean themselves at all. Children are not washed. Cooking materials are not properly cleaned etc, etc. Livestock is thirsty for most of the week.

When did it become an issue ?

- The women's poor hygiene has been there for a very long period of time. It was worsened when rainfall started declining

How are farmers coping ?

The farmers use economically small amounts of water form ponds and springs spread over the PA. Ponds were constructed by the people and the Mekane Yesus Church.

BEST BET FOR SOLVING PROBLEM VIII

What ?

- Construct additional ponds for livestock use
- Protect springs which are already in use
- Encourage the community to keep clean the available springs and ponds

Why ?

- In the PA, water for livestock use is scarce, because, the streams and the ponds dry out during the dry seasons. Thus additional water sources should be made available.

CCRDA

- Children usually fetch for water from the springs. They were seen misusing and disturbing the spring water. Even, they wash their feet in the waters. This could lead to a serious health problem. The community needs to protect it and properly use it.

How ?

- It is possible that the excess water running off the bench terraces could be harvested in the ponds down in the valley bottoms.

- The farmers themselves could be encouraged and assisted to build stone walls to collect water and use it during dry seasons.

- The springs needs to be developed by constructing cement floors and shelters

Who benefits ?

- All the farmers will benefit. However, those who are willing to harvest rainwater will benefit better than the others.

Practical problems

- The probability of getting enough rainfall during a year is very low. Any scarce rains falling do not satisfy thirsty soils. The soils rate of obsorption of rain water would be very high. This could lead to very low rate of excess water (floods) running down the hills to the ponds.

- A preliminary geological survey might be necessary before excavating new areas of water sources.

9.9. Problem IX: Work burden on women

What is the problem ?

- Women in Konso community fully participate in all kinds of household activities. They are responsible for all household activities (cooking, child care, feed collection etc.) and contribute significant labor force to crop cultivation. They do the work of hoeing, weeding planting, harvesting, transporting and threshing of major grains. This keeps the women busy for the whole year round

Where does the problem occur ?

- All over the PA

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Who is affected ?

- The female members of the community do most of the house hold activities. However, girls above 15 years are the most burdened "creatures" in the Konso families. They stay for longer hours in the fields and do the most difficult activities.

Why is the problem important ?

- Women mainly stay out of the home area for most of the day. Therefore, very little attention is given to child care, cooking food, personal hygiene and environmental sanitation. As a result, children are malnourished, poorly dressed, garbage is disposed in front of the dwelling unit. It was reported that several diseases occur in the area, due to low sanitation and low food intake.

When did it become an issue ?

- In Konso, females are expected to work hard in order to please their men-folk. Some farmers interviewed indicated that a mature girl should show her talent by carrying a big load of commodities on her back to find some one to marry. At home, they need to work hard to please their husbands. These expectations existed in the community for generations.

- Konso men have been engaged in tribal wars between Borana, Tsema and other neighborhood tribes for years. Men are always on alert to be called off for wars in case of invasion. They should remain around the village and homesteads whenever the village elders announce that the village security is under a threat. Then, the women substitute their spouses and do the whole cropping activities. This also necessitated women to follow up both agricultural and household activities. These wars have been a problem of labour input for many years (A note given by two old men).

How are farmers coping with the problem ?

- Young boys and girls form mutual assistance groups and work on the land of members in turn. This voluntary ganged up labour-easing group go round the members' crop fields and do the job for one full day. The group is provided food and drinks for lunch by the field owner.

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BEST BETS FOR SULVING PROBLEM IX

What ?

- The young men's and women's voluntary labour-easing groups could be encouraged and strengthened by providing improved hand tools, and seeds.

Why ?

- The farmers use crude farm implements to cultivate their crops. It takes long hours to accomplish smaller activity on a smaller area. The groups could effectively do the job in shorter hours and walk back home in time.

How ?

- The farmers in Konso are capable to do handicrafts and small scale industries. This local knowledge could be systematized to produce improved farm tools in the village.

- Farmers who are good at handicrafts could be organized in groups and be provided with a small equipped metal workshop at the outskirt of the village. These work shops could be equipped with simple hand tools, machines, and furnitures to produce hand hoes, axes, sickles and other necessary farm implements.

- The responsibility of these metal works workshops could be given to the community elders.

- Mekane Yesus's metal and woodworks school could be encouraged to produce initial hand tools and train the farmers capable to do metal works. Meanwhile, initiate farmers to visit the Arba Minch Mekane Yesus wood and metal works school and other rural black smith shops.

Who benefits ?

- The metal works group members could primarily benefit from the outputs of the workshops. However, the labor-easing groups could buy the farm implements produced and use them for their purposes.

Practical problem

- The availability of improved models and metal scraps may constrain a continuous production of the improved tools.

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9.10. Problem X: Environmental sanitation and personal hygiene

What is the problem ?

- The farmers in Gaho dwell in a congested village. Grass roofed houses are built close to each other and surrounded by wooden fences fodder shrubs and trees.

- Livestock are kept under the grain stores or sleeping platforms and grain stalks and straw are stored on the compound. All household refuses, animal dung and human faeces are collected on the compound or disposed around the fence for manure. The garbage is not cleaned for the whole year.

- During the small rains the whole village stinks from the garbage. One walks over a stinking garbage in between the houses, which is extremely unhealthy for children and other people.

Where does the problem occur ?

- Inside the village.

Who is affected ?

- Children, pregnant women and old aged people who stay in the house for the whole day are highly affected.

Why is the problem important ?

- The hygiene of the village is extremely low. The people live in a health hazard situation. It was reported that diarrhea highly affects children and often breaks out in the village.

When did it become an issue ?

- Collection of garbage inside and around the compound started with the deterioration of soil fertility. Gradually, the bench terraces reduced their productivity and yield declined some years ago (unknown period). Then, the people decided to intensify crop production on the same field with the application of manure and mixed cropping. Every villager has to accumulate his own manure resources around his premise. The process become permanent habit and every one fertilizes his land with manure (no time reference)

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How are farmers coping with the problem ?

- Some farmers dig a pit for garbage collection outside their compound. However, these pits are not deep and covered.

BEST BETS FOR SOLVING PROBLEM X

What ?

- Primarily, the villagers need to be taught about environmental sanitation, its uses and hazards. The teaching could be done with pictorial illustrations.

- Secondly, some demonstration pits could be arranged with interested farmers in the village outside the home area.

- It is also possible to encourage villagers to use pit latrines and discourage collection of human faeces for manure.

Why ?

- The people in the village should be aware of the health hazards and the consequences that follow from the collection of garbage around their homes. The advantage of using pit latrines should be understood by the community members.

- The awareness created and provision of tangible solutions will help farmers to think about their small environment and its cleanliness.

How ?

- Mekane Yesus church and Ministry of Health clinic in Konso should take the responsibility of creating awareness among the farmers. This could be done through regular visits to the PA and teaching their students in a classroom. Hygiene education could be given in a class room and other casual occasions.

- The two organisations and the farmers themselves need to build a common pit latrine outside the village. The organisation needs to train the farmers how to utilise it.

- Proper garbage collection points needs to be arranged also outside the village.

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Who benefits ?

- All the farmers living in a village will benefit. Particularly, those living in the middle of the village will be the primary beneficiaries.

Practical problem

- The collection of garbage around homes came about as a response to soil fertility problem. The farmers may resist to use pit latrines, because they may lose part of their manure sources. They are not well aware of the human aspect but are concerned about the soil fertility and yield increase.

9.11. Problem XI: Low nutritional status poor diets/

What is the problem ?

- The farmers interviewed indicated an overall food shortage in their village. During the survey, home economists on the team discussed about the food situation in the PA with two clinics person and home economists at MOA office in Konso. The informants indicated that there is an overall shortage of food items in the area. As the team witnessed and the informants revealed, malnourishment affects the lives of most families in the area. One could observe children with large bellies, shrunk skin and thin legs in the village.

Where does the problem occur ?

- All over the PA.

Who is affected ?

- It is a problem for most families. In particular, house holds with a few number of terraced strips of lands produce small amounts of food crops. Such families are vulnerable to absolute food shortage, in the case of crop failure.

- Within the vulnerable group, children, pregnant women and elderly could be highly affected.

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Why is the problem important ?

- The combination of diet used per family is scanty. The main food sources mentioned are maize and sorghum, taken in the form of liquid called "cheka" It's mainly a source of carbohydrate. Thus, the diets lack vitamins, proteins and other components of balanced diets.

- As a result, many children are malnourished and physically weak.

When did it become an issue ?

- Normally, diets are not well balanced in the community. However, whatever meager resources the people have, it is affected by short rainfall and resultant crop failure. Therefore, the crop production gradually declined with the decline of rainfall. This became an issue for many decades.

How are farmers coping with the problem ?

- The farmers have attempted to overcome food shortage through mixed cropping. Among the crops, pigeon pea provides necessary protein for their body.

- During food shortage, Mekane Yesus Church and RRC distributed food grains

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BEST BETS FOR SOLVING PROBLEM XI

What ?

- In short term the dietary situation needs to be improved through food assistance and supplementary food supply which includes food items which do not grow in the area.

- Large number of vegetables and root crops grow in the area during the rainy season. These food sources could be improved through better cooking measures. A short term training is needed to women on how to cook and handle food.

- In the long run, production of vegetables and introduction of various varieties of crops like better pigeon pea varieties provision would be necessary.

Why ?

- Food intake and distribution pattern has to be improved for all members in all seasons. Seasonalities in food intake pattern might affect or retard growth of people. There should be relatively balanced food consumption pattern in the whole year.

How ?

- Ministry of Health, Mekane Yesus Church and MOA's Home Economics section at Konso should train the farmers about proper cooking and handling of food. The training needs to be followed up by continuous supervision of the people (or) through growth monitoring of children.

- Preliminary food situation survey should be undertaken before commencing any valuable program. Then, identify the source of dietary shortage and provide the necessary supplementary food.

Who benefits ?

- All families could benefit out of these interventions.

Practical problems

- Willingness of the institutions to intervene through different programmes might be a key constraint.

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