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# PARTICIPATORY RURAL APPRAISAL

## Qile Obi and Arfinjo Borodo PAs, Tokkee-Goro Solee project area, Ambo District, West Shewa Zone, Oromia Region Ethiopia

CRDA

A diagnostic study, based on PRA fieldwork by:

EENGO: Sorsa Debela, Fanta Terefe, Lemma Borena, Mekdes Abebe, Gonfa Edessa, Birkenesh Teresa, Belainesh Kumsa, Mideksa Regassa,

District MoA: Lemma Desta, Shitay Terefe,

CRDA: Akalewold Bantirgu, Wim de Regt,

and Deborah Rossell.

Report edited and compiled by Wim de Regt (Qile Obi) and Akalewold Bantirgu (Arfinjo Borodo).

**Ethiopian Environmental NGO (EENGO)**
**Christian Relief & Development Association (CRDA)**

1995/96

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# I. INTRODUCTION

The Ethiopian Environmental NGO (EENGO) is implementing an integrated rural development programme in the area around the small town of Goro Solee which is about 155 kms west of Addis Ababa, in Ambo District of West Shewa Zone of Oromia Region. The programme is rather new and its implementation was never preceded by an in-depth study of the local conditions, resources and needs. The programme started in 1994 and built upon experiences of other programmes undertaken in neighbouring areas, like Hamus Gebeya, also by EENGO, and Tokkee Irensa, by BGCM (Baptist General Conference Mission). Some of the planned programme components, such as soil & water conservation and farmers' training, could not yet be implemented due to a perceived resistance on the part of the farmers, as well as a lack of in-depth information about local practices, needs and resources.

In an effort to gather such information, as well as to improve the participatory nature of the programme and to improve skills in participatory needs assessment and development planning amongst EENGO staff and government partners, a Participatory Rural Appraisal (PRA) diagnostic study was undertaken in two selected Peasant Associations within the project area. The study was to come up with some practical suggestions for locally appropriate development projects to be included in phase II of EENGO's Conservation-Based Agricultural Development and Environmental Protection Programme.

The PRA study was undertaken from August 21 to 31, 1995. It started with three days training in Participatory Rural Appraisal techniques, including practical exercises. This was held in EENGO's project office in Goro Solee town. The actual fieldwork, on which the findings in this report are based, took six days. The trained participants were split up in several fieldwork teams who each studied part of the selected PAs around the town.

Trainees and participants were mostly EENGO's project staff, supplemented with some other EENGO staff and local staff of the Ministry of Agriculture (MoA). Names and positions of the participants are listed below:-

1. Ato Fanta Terefe - EENGO Tokkee Project Manager (covering both the Goro Solee and Hamus Gebeya projects)
2. Ato Sorsa Debela - EENGO Selale Project Manager (North Shewa)
3. Ato Lemma Borena - EENGO Agriculturalist, Tokkee
4. Wzt. Mekdes Abebe - EENGO Women Development Worker, Selale
5. Ato Gonfa Edessa - EENGO Local Development Agent (LDA), Goro Solee Project
6. Wzt. Birkenesh Teresa - EENGO LDA, Goro Solee Project
7. Wzt. Belainesh Kumsa - EENGO LDA, Hamus Gebeya Project
8. Ato Mideksa Regassa - EENGO LDA, Hamus Gebeya Project
9. Ato Lemma Desta - MoA Ambo District, Agronomist
10. Ato Shitay Terefe - MoA Hamus Gebeya Development Agent (DA)
11. Deborah Rossell - Australian volunteer (water expert)
12. Akalewold Bantirgu - CRDA Advisory Unit, PRA facilitator
13. Wim de Regt - CRDA Advisory Unit, PRA trainer/facilitator

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This report is produced out of daily process reports made by all participants, including maps, graphs and diagrams originally drawn by the villagers. As with all PRAs, the survey has been carried out with the full and indispensable cooperation of the local people. The PRA teams are indebted to all villagers, whose patience, openness and generosity allowed us to compile this report.

After this introduction, we will outline the methodology, i.e. the PRA techniques used, site selection and the organization of the fieldwork. The survey covered two Peasant Associations (PAs), and the findings are therefore described in two separate parts: part III about Qile Obi PA and part IV about Arfinjo Borodo PA.

The figures, i.e. maps, diagrams, graphs etc. are presented in separate boxes, if available together with short descriptions of the processes involved in obtaining the information and the people's analyses, to allow the reader to get an idea of the practical application of PRA techniques and to give an indication of the scope and reliability of the information.

Both parts contain final chapters on community priority setting and suggestions for development activities. A summary of findings and conclusions for both PAs is added as part V of this document.

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# II. METHODOLOGY

## II.1. Participatory Rural Appraisal

The methodology which was used to obtain baseline information about the local community, natural and socio-economic conditions in the project area is called Participatory Rural Appraisal (PRA).

The survey team was first trained in PRA. The training included an explanation about the nature of PRA, the origins of both PRA and RRA (Rapid Rural Appraisal), about the key features of PRA, a brainstorming discussion on the reasons for participation of local people in development activities, and some guidelines for undertaking successful PRA fieldwork.

The participants learnt and practiced the following basic PRA techniques, which were also used during the fieldwork to obtain the actual information included in this report:

1. Social mapping
2. Resource mapping
3. Opportunities & services
4. Transect
5. Historical profile: time line
6. Trend diagrams
7. Seasonal calendars
8. Matrix preference ranking/scoring
9. Pair-wise preference ranking
10. Wealth ranking
11. Venn-diagram
12. Farm sketches/flow diagrams

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These techniques were combined with semi-structured interviewing on basis of checklists, direct observation and information collection from secondary sources. Most of the techniques were first practiced in role-play situations or with some villagers around the EENGO project office.

## II.2. Site selection

EENGO's Goro Solee rural development programme comprises five PAs around the town of Goro Solee:-

Qile Becheki
Qile Obi
Qile Chancho
Qile Godeesa
Arfinjo Borodo

For the PRA, EENGO selected two PAs with differing agro-ecological conditions to be representative for the variety in the whole project area. At the same time, it was ensured

that both these PAs have a land area and population size which could be covered by four fieldwork teams in a period of six days.

The selected PAs were:-

- Qile Obi, a highland PA located on the mountain slopes, and therefore expected to suffer serious soil erosion problems;

- Arfinjo Borodo, a more plainland PA which is expected to have less erosion problems.

## II.3. Fieldwork organization

After three days of PRA training and on basis of information provided by the EENGO staff at Goro Solee, the participants were divided in four fieldwork teams, each of them covering half of one PA:-

- Qile Obi South, comprising the area called Camp Sefer and southwards towards Mount Obi, by Team A, comprising Sorsa Debela, Shitay Terefe, Birkenesh Teresa and Wim de Regt;

- Qile Obi North, comprising the villages of Qocha, Chafewari and surroundings, by Team B, comprising Lemma Desta, Gonfa Edessa and Deborah Rossell;

- Arfinjo Borodo West, comprising the villages of Kono, Biro Akababi, Abuyee and Qilxushishi, by Team C, comprising Fanta Terefe, Mekdes Abebe and Mideksa Regassa;

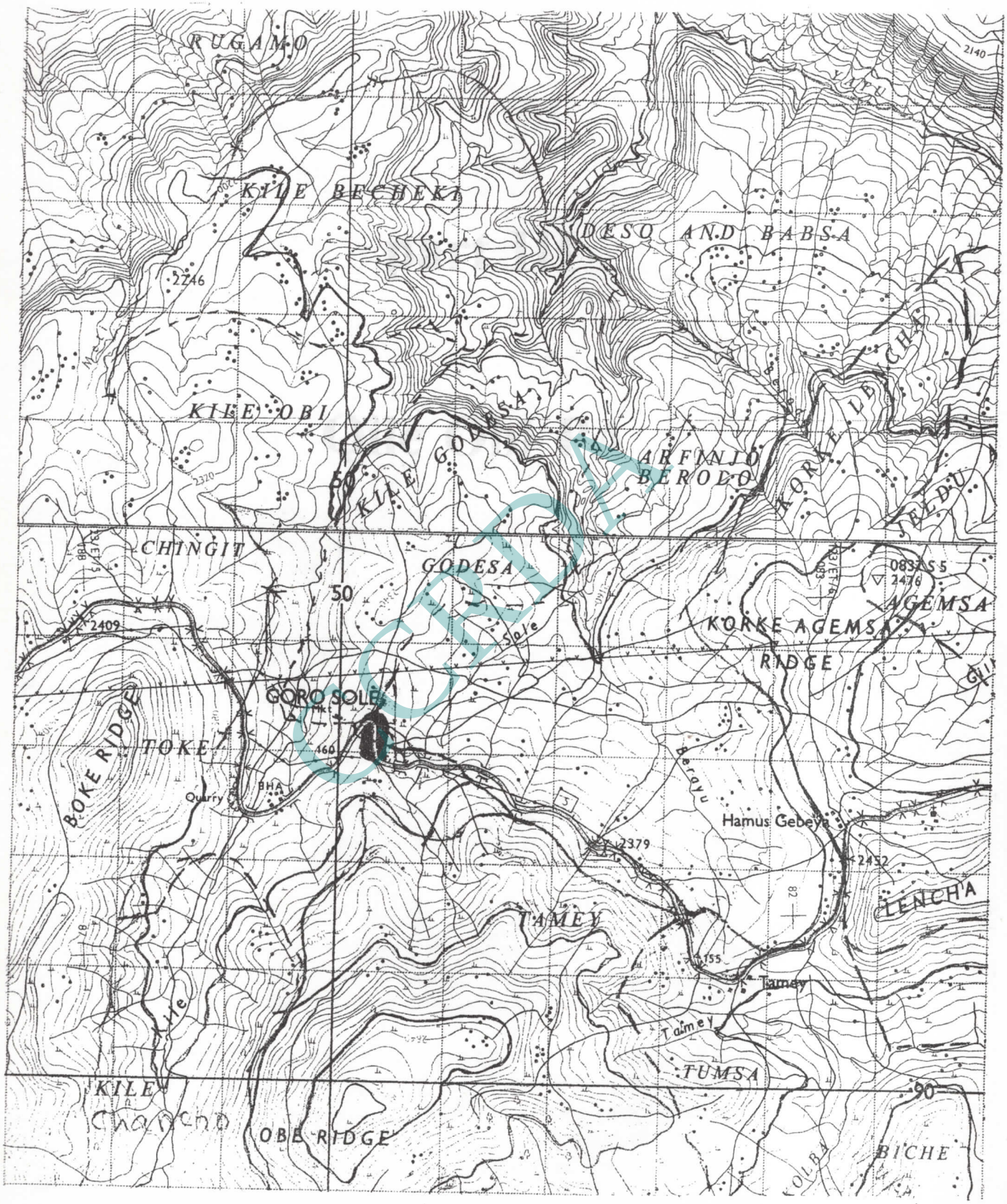
- Arfinjo Borodo East, comprising Balefu, Tutu and Borole, by Team D, comprising Lemma Borena, Belainesh Kumsa and Akalewold Bantirgu.

Each team included at least an Oromo speaker, a woman and a variety of disciplines, with at least one agriculturalist in each team. The LDAs were spread over different teams. During one fieldwork day, all women formed a separate women's group to do women-specific exercises in Arfinjo Borodo.

As it was the middle of the agricultural season, the fieldwork was organized on days when the farmers would be less occupied with farming work, e.g. on weekend and local Saint's Days.

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*Figure 1 - Topographic map of the project area, 1:50,000*



# part III

# Qile Obi PA

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# 1. GENERAL PROFILE OF QILE OBI P.A.

## 1.1. Location and climate

Qile Obi is located 0.5-1 km west of Goro Solee town, which is 155 kms west of Addis Ababa, and about 35 kms west of the zonal capital, Ambo. Goro Solee, the central town in EENGO's Tokkee project area, is estimated to have 832 inhabitants. Qile Obi PA stretches itself out from north to south alongside the Qile river (see figure 1). The southern side of the PA, located on the eastern side of the Qile river, descends from the Obi mountain to the tarmac road, and was visited by one PRA team ("Qile Obi South"). The part on the western side of Qile river, sloping down to the north-east from Boke mountain, towards the plains of Huru Gamo, was visited by another PRA team ("Qile Obi North").

The altitude of the area ranges from 2,200 masl. to 2,800 masl. and traditionally it falls in the wet Weyna Dega agroclimatic zone. The majority of the area has lower slopes of 8 to 15 %, middle slopes of 15 to 30 % and upper slopes greater than 30 %.

The nearest meteorological station is in Ambo and its records show a unimodal rainfall pattern with the main rains falling from June to September and annual average rainfall is 912 mm (because of altitude and location, in Goro Solee it is expected to be a little higher). Monthly maximum temperature ranges from 22 to 27.4 degrees Celsius and the average minimum is 11.6 degrees.

Every year, in the period from mid-August to early December, the area is affected by frost, although the intensity varies. This mainly damages beans, barley and lentil crops.

## 1.2. Population and settlement patterns

Through participatory mapping exercises, we have found that there are 195 households in the PA. The average household size was reported to be as large as 8-10 persons, including extended family relatives living together (according to the villagers); the size ranges from 4 to 20 household members. Therefore, the total population of the PA is estimated to be 1,755.

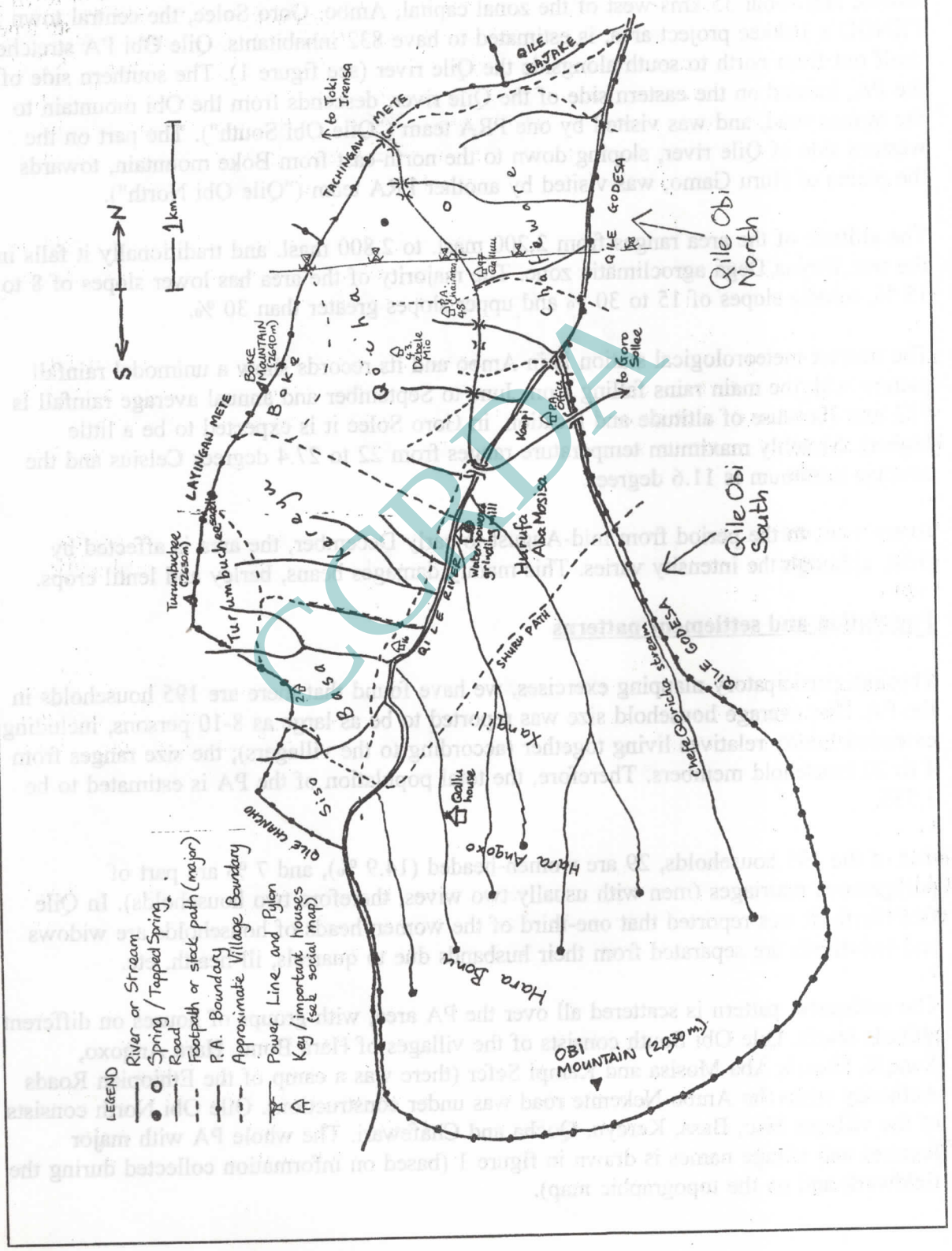
Out of the 195 households, 29 are women-headed (14.9 %), and 7 % are part of polygamous marriages (men with usually two wives, therefore two households). In Qile Obi North, it was reported that one-third of the women heads of households are widows and two-thirds are separated from their husbands due to quarrels, ill-health, etc.

The settlement pattern is scattered all over the PA area, with groups of houses on different altitude levels. Qile Obi South consists of the villages of Hara Bonu, Hara Anqoxo, Xanqili, Hurufa Aba Mosisa and Kampi Sefer (there was a camp of the Ethiopian Roads Authority when the Ambo-Nekemte road was under construction). Qile Obi North consists of the villages Siso, Basa, Kereyu, Qocha and Chafewari. The whole PA with major features and village names is drawn in figure 1 (based on information collected during the fieldwork and on the topographic map).

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***Figure 2 - Sketch map of Qile Obi PA***

*(based on the combined social maps - figures 3 and 4 - and the topographic map)*

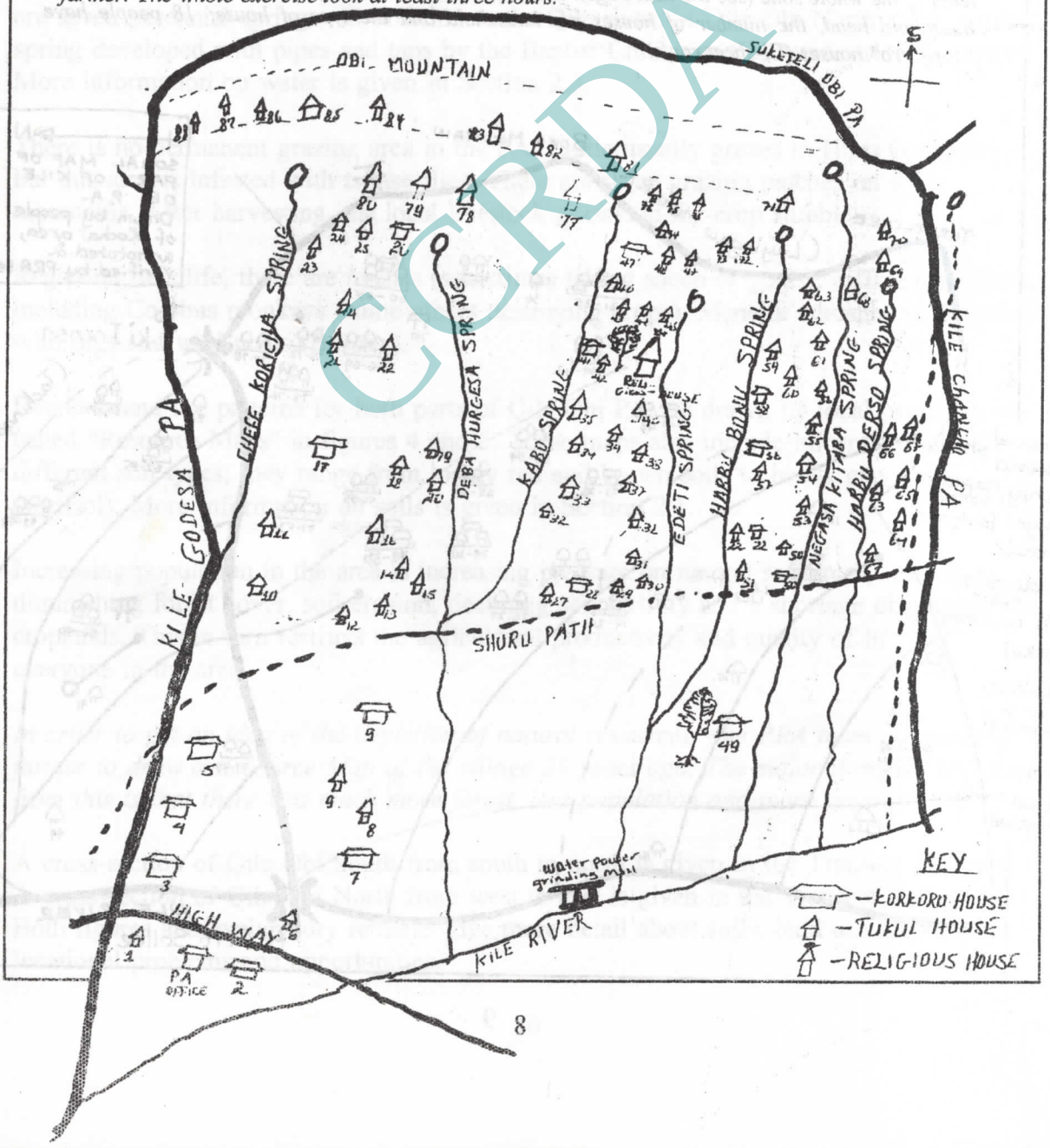



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***Figure 3 - Social map of Qile Obi South***

*The first fieldwork day it was raining, foggy and very cold. Therefore it took us a very long time to find villagers. After waiting for some time in the house of a young farmer, the news of our coming had spread and eight men had gathered in another farmer's house to participate in the mapping exercise. The men varied in age from 21 to 57 years. It took us a long time to convince them of our objective and how to go about it. However, the above-mentioned farmer, Obbo Gudisa Megersa, took the lead, appeared to know a lot about all households, and starting drawing the features of the area and all houses on a piece of paper in a meticulous manner.*

*First he started by drawing the boundaries of the village, which are the Qile river in the north-west, the Chafe Qoricha stream in the east and the Obi mountain in the south. He also indicated the tarmac road, Shuru path which bisects the village, and different spring streams which all have their own names derived from the person living closest to the springs. After this, Obbo Gudisa turned to other participants to show them the work and to ask for their confirmation. Then he drew all houses with numbers while one of the team members recorded the names of the household heads. This was done with very active participation from the other farmers. In addition, they indicated the PA office, a traditional religious house (Qallu), a traditional water-powered grinding mill and some big trees. After drawing in pencil, the whole map was overdrawn using markers, and finally signed by the same farmer. The whole exercise took at least three hours.*




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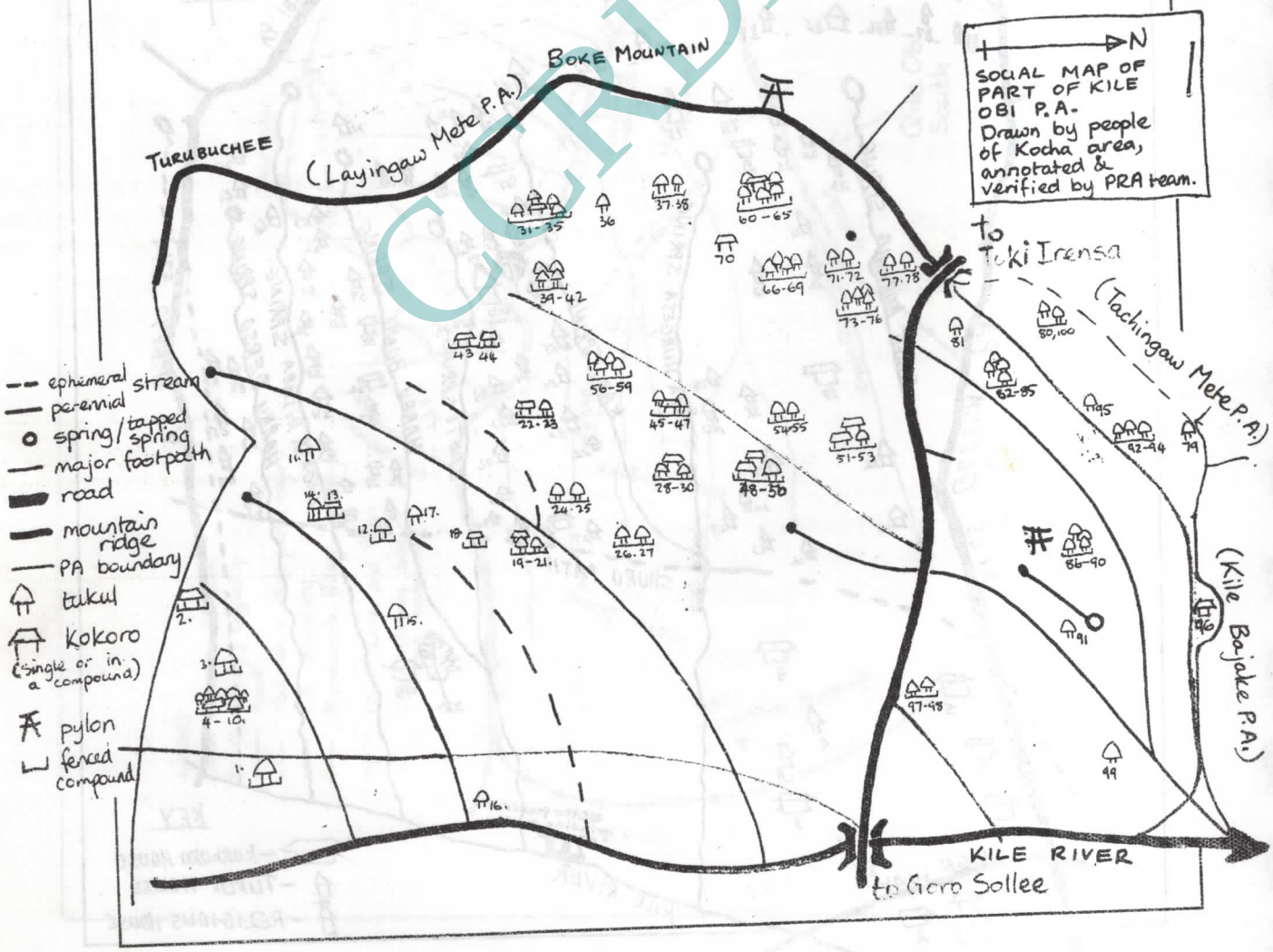
Most houses in the PA have walls made of mud over split eucalyptus poles, and grass-thatched roofs. However, 34 households (17.4 %) have houses with corrugated iron roofs.

Both parts of the PA have been drawn by villagers on social maps: see figures 3 and 4.

The participants of the mapping exercises also provided information on the social composition of the community. All inhabitants were reported to be of Oromo ethnic origin and nearly all of them are of Ethiopian Orthodox religion, except probably two to four who are protestants. Nevertheless, most inhabitants are also practicing traditional Oromo religion (*Qallu*), especially to solve conflicts between people or in case of other social problems. Three people in the PA act as *Qallu* priests.

***Figure 4 - Social map of Qile Obi North***

*The map was drawn by a group of people in Qocha area, and was later annotated and verified by the PRA team. Initially only Qocha village was drawn, but later an overall map was made by the team of the whole zone (see the next page). All household names were recorded, with the sex of the household head, the number of houses per household and the type of house: 18 people have "qorqorro" houses (CI-sheet roofs).*




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## 1.3. Land forms and land use patterns

The land of Qile Obi PA is sloping towards the north and east. Although sloping, most of the land is occupied by crop farming, the main crops being teff, maize, sorghum, wheat and barley, mostly grown for the farmers' own consumption.

The major part of the PA's territory is cultivated. Patches of forest land and settlements form the second major land use. Forest dominates on the higher slopes of Mount Obi and Boke, settlements are concentrated in the middle slopes, and the lower areas are mainly occupied by farmland. Small grazing areas can be found in between the cropland and settlement areas, but more so in between the forest on the higher slopes.

Native forest can still be found towards the Obi and Boke mountain ridges. Although farmland and population is encroaching into these forest areas, they are still the main sources of timber and fuelwood for these and surrounding areas. Details on tree species and uses can be found in Section 2.2.

Perennial springs and the Qile river are the main water supplies. In Qile Obi South there are seven perennial springs, all draining to the Qile river. In Qile Obi North there is one spring developed with pipes and taps by the Baptist Church and 2-3 undeveloped springs. More information on water is given in Section 2.3.

There is no permanent grazing area in the PA. Cattle usually grazes in Huru Gamo PA, but this area is infested with tse-tse flies. There are some grazing patches on the mountains. After harvesting, the local livestock grazes on the crop stubble.

Regarding wildlife, there are hyenas (sometimes taking sheep or goats), different monkeys including Colobus monkeys (some others destroying crops), Menelik's bushbuck (*Dikula*), wild pigs and wild goats (*Bosonu*).

Detailed land use patterns for both parts of Qile Obi PA are drawn by local people in so-called "Resource Maps" in figures 4 and 5. These maps also include information on the different soil types; they range from loamy red and brown soils to heavy clay soils (vertisol). More information on soils is given in Section 2.1.

Increasing population in the area is increasing pressure on natural resources, leading to diminishing forest cover, soil erosion, declining soil fertility and a shortage of grazing and croplands. This in turn restricts the agricultural productivity and quality of life for everyone in the area.

*In order to get an idea of the depletion of natural resources, one PRA team requested a farmer to draw a Resource Map of the village 25 years ago. The major thing we learnt from this is that there was much more forest, less population and more grazing area.*

A cross-section of Qile Obi South from south to north is given in the Transect in figure 7. A cross-section of Qile Obi North from west to east is given in the Transect in figure 8. Both figures and explanatory remarks give more detail about soils, land use and specific locational problems and opportunities.

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***Figure 5 - Resource map of Qile Obi South***

*On the same Friday, with the participation of the same people as the Social Mapping exercise, this map was drawn, by Obbo Negasa Kitaba. The map shows all the natural resources within the village boundaries. This includes: forest areas, water sources, farmland and soil types. The participants also indicated waterlogged and erosion-affected areas. During the discussion, the farmers gave us information on all these resources, including on livestock and wild animals. Later on, we requested one of the participants, Obbo Delesa Wayesa, to draw a Resource Map of 25 years ago (which is not shown, as it did not differ much except there was more forest, especially where the slope increases, and more grazing land).*

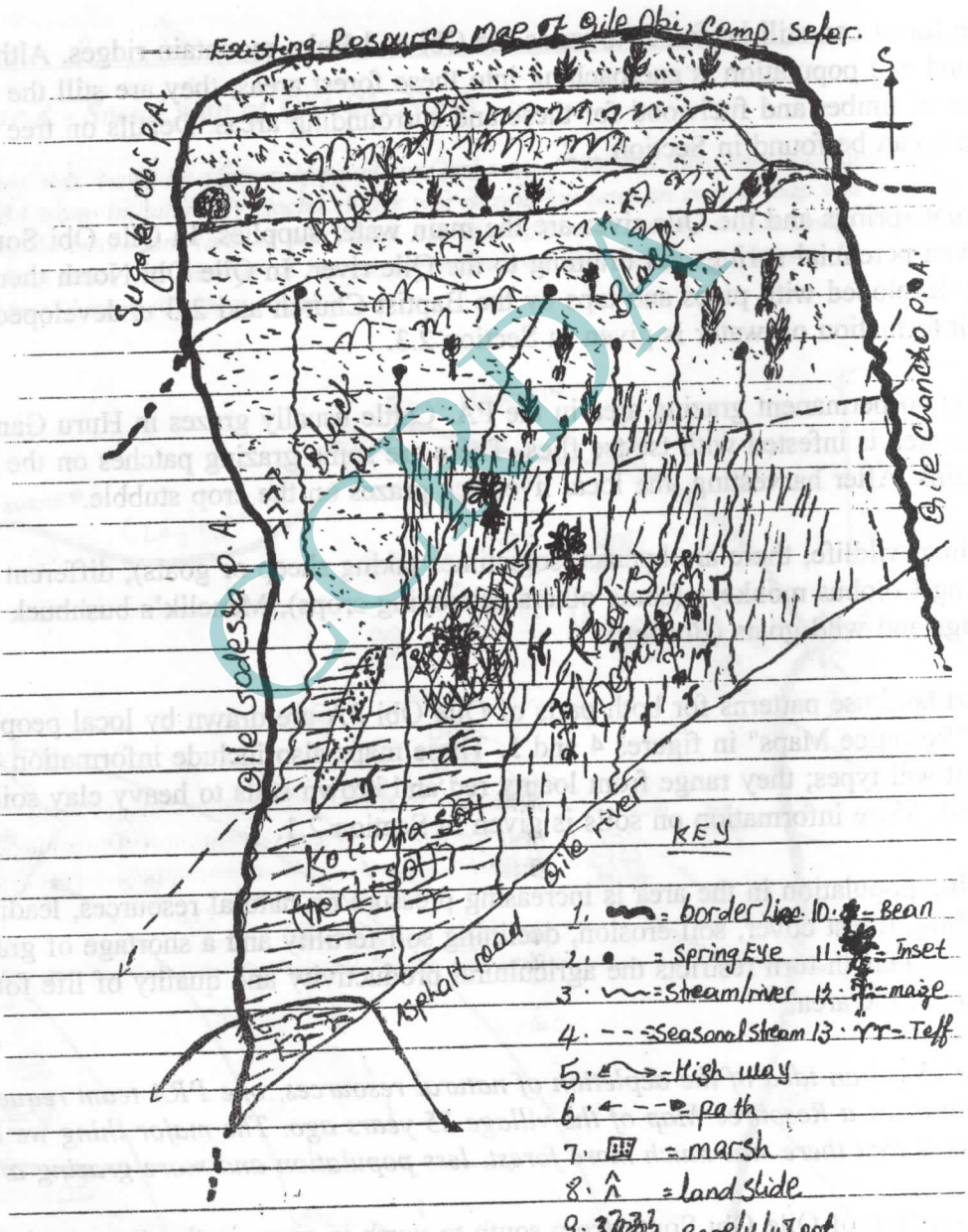
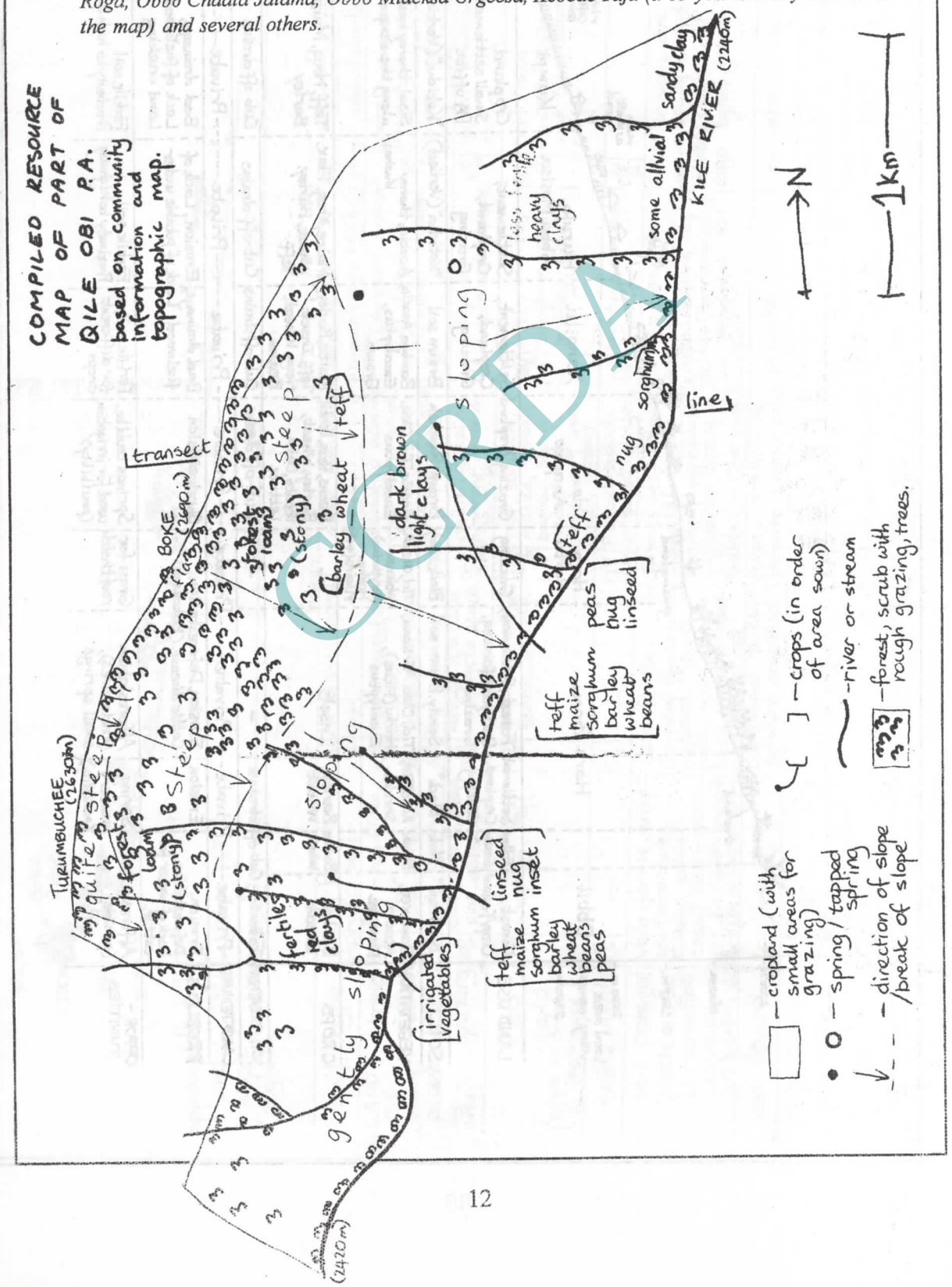


***Figure 6 - Resource map of Qile Obi North***

*This map is made up of two different maps drawn by two groups of villagers:*

- *one in Chafewari village near Bekele Dinka's house (on 25/8/95), consisting of Obbo Kumale Tesisa (the artist), Obbo Tesisa Gure (the main informant), Obbo Bakane Tura, Aade Dade Dinka, Obbo Baka Kakabe and Aade Diso Kakabe.*
- *one near Boke Mountain, in the open area below the home of Chalchise Gutama (on 26/8/95), consisting of Aade Dandene Daaba (who is member of the Development Committee), Obbo Daaba Roga, Obbo Chaala Jatama, Obbo Mideksa Urgeesa, Kebede Tafa (a 15-year old boy who drew the map) and several others.*




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## *Figure 7 - Transect from Mount Obi to Camp Sefer, Qile Obi South*

*A transect walk was made from near the top of Mount Obi, from the highest crop fields, straight down to the PA office on the tarmac road and to the end of the zone, where the Chafe Qoricha stream and Qile river come together. We were accompanied by three farmers who provided us specific information in addition to our own observations.*




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## *Figure 8 - Transect through Qocha and Chafewari, Qile Obi North*

*The team decided to make a transect from Boke to Qile River, to see the variations of environment and agricultural land use with altitude. The location of the transect is show on the resource map (figure 6).*




| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| soil type | loamy dark brown forest soil. | dark brown (loamy clay) | dark brown clays | massive dark brown clay / Black | | | | dark brown clay minor alluvial clay | Sand |
| LAND USE (showing percent by area) trees & natural veget.n | 5% Few trees (Olea, acacia, tid) | K1% Fewer trees (olea, acacia) | 3% •Isolated acacia, olea & eucalypt. •Some marshy areas unploughed | 5% •Isolated Acacia tid, eucalypt. •Gullies vegetated. | 3% | | | Large mature forest trees (Ficus, Podo- carpus & others). Natural vegetation along river, 0-8m | |
| | 75% Dense scrub 6m high, thorny. | 68% thorny scrub. | | | | | | | |
| grazing | 20% cattle, goats, sheep pigs, apes, hyenas | Rough grazing in Acacia scrub. | 15% | rough grazing amongst Acacia shrubs | 18% | "migera" und improved pasture | 40% | 'gandi' prevalent here. | |
| crop Land (crops in order of importance) | 45% barley, wheat sorghum, teff. | 10% barley, wheat sorghum, teff. | 85% | teff, sorghum, maize, wheat, barley, beans, peas, rug. (Shambako), inset gomen, maras) | 86% | teff, maize, sorghum, rug, barley, linseed. | 30% | teff, rug -heavy soils suit these crops only. | |
| settlement | 0% — | 0% — | 17% | Fenced tukuls in small clusters | 1% | No houses near river. | 0% | — | |
| soil potential problems & conservation practices in use | Very fertile, excellent structure. Easily eroded. Stony soil - stones left on fields preserve fertility & stop erosion. | Less fertile. Stones in cropland. Stones in fields resist erosion. Small areas cropped amongst scrub. | | Diagonal furrows on cropland. Strips of permanent vegetation between fields (1-15m wide) but resistant to erosion. | | Low fertility. Poor structure but high water-holding capacity. Poor drainage | | Gandier soils are more easily eroded. Heavy clays limit crop types grown. | |
| Land tenure | communal | communal forest | | public stock route | | | | | |
| | | private cropland | | private crops/grazing | | private | | | |
| opportunities problems & remarks, | • reforestation (with eucalypts especially) • lack of water only prevents settlement of this area. | • soil erosion • deforestation causes springs to dry up. | | • stock route is of perennial native tussock grass "migra" | | • Severe erosion on foot/cattle tracks. • Reforestation of gullies. • Limited water supplies. | | • Landslides & bank erosion on river banks. • Bridge/ford needed • Severe erosion at cattle water points. | |
| | Cropland < 2 years old | Cropland ~ 5 years old. | | Croplands > 20 years old. | | Cattle disease "gandi" | | | |

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## 1.4. Historical profile

The two PRA teams have each interviewed two elders in both zones of the PA on major events that took place in their lifetimes. The following is a compiled account of these events. It gives information on the history, culture, external influences, and other factors worth considering for any development agency.

The following people participated in the exercise: Ob. Nadhesa Angasu, 72 years old, and Ob. Kitila Qixata, 78 and blind, in Hara Bonu, Qile Obi South, and Ob. Debele Mio, 85 years old and Aade Yabali Geleta, 70, in Qocha village, Qile Obi North. They most vividly remembered the oppression by the Ethiopian administrators, the positive contributions of the Italians, the destructive policies of the Dergue, various disease and drought periods (incl. locusts and army worms) and periods of heavy deforestation. Approximate dates are derived from the participants' accounts by the PRA teams.

*1910 EC -* *Ob. Debele: "I was born in Goro Solee, and came to this place when I was 7 to 8 years old. At that time this area was thick **forest**, very few people lived here. The soils were very fertile, but prices for crops and cattle were low."*

*1920 EC -* *"While I was young there were bad outbreaks of **influenza and smallpox**, which killed many people, two or three from every house. Since at that time there was no remedy at all for these diseases, the people who were infected were kept separate from the others. We left food for them outside their door."*

*1925 EC -* *"Also the **cattle disease** called "Aaba Gorba" (blackleg) came, killing many cattle, almost all of them. Then a great time of **starvation** began. Due to this, the people planted inset which was introduced from Gurage-land. Since there were no oxen, we tried to plough the land with horses and mules; even we tried with women pulling the plough."*

*1920-38 -* *Bara Hawaannisa: **Desert locust** invaded the area very frequently and destroyed crops and vegetation (Ob. Kitila).*

*Before 1928 EC -* *"Before the Italians came in 1928 EC, the **administration** of this area was terrible. Soldiers from the Amhara people took teff flour and honey for taxes but also for themselves, and treated us badly. Also, we were ordered to take flour, honey and fuelwood to Addis for the government every year. The journey took three or four days by mule." "The Amhara settlers (Malkegna) confiscated our **land**, which was communally owned before that. They confiscated 72 gashas from this area, especially a man named Azazsh Abba Tamsas, who later sold his land to Ras Mesfin. The Malkegnas were very cruel; for criminal offenses they tied people's hands with their feet."*

*1927 EC -* *Bara Makinaan Duradhufe: At a time when there was no paved road yet, Fitawrari Birru W/Gebriel, the then regional governor, brought the first car to the area and ordered the local people to push it up the hill from Goro Solee to Tokee Irensa (a distance of 7 kms).*

*" " -* *Earthquake; it lasted half an hour. "All the walls fell down and we were very frightened."*

*1928 EC -* ***Italian invasion**: "The soldiers from Italy came like a flood. They were followed by Hamassien people (from Eritrea and Tigray). The Hamassenis were guides and interpreters, since the Italians knew nothing of this area. We tried to resist, and many of us were killed. I was young enough, and bought myself a gun to fight with. But the Italians conquered this area and ruled for five years. At the same time, some of us retreated into the forest and kept fighting, while the women and children stayed behind in the villages." "The*

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*Hamassenis killed people because of simple misunderstandings as they spoke a different language".*

*1928-33 EC -* ***Italian occupation****: "In those years the administration was good. There was a good Italian administrator called Kabo Kontre, who did not give us orders all the time." Participants remembered the following:*
** no land taxation*
** The Italians built a stone road through here (only in 1975 EC it was asphalted), which improved cattle and crop prices, and created a demand for leather among other things*
** The Italians introduced western clothing. "Before the Italians came to the area the people wore no clothing above the waist. The Italians brought shirts and shoes, and taught people to wear them." (mentioned by both main interviewees)*
** The Italians introduced improved wheat varieties. As a result, the local varieties were neglected and eventually disappeared, since the new varieties were good and high yielding.*
** They introduced paper communication. Before the Italians all communication was face-to-face.*

*1933 EC -* ***"Haile Selassie returned*** *with help from Sudan and England. These soldiers came from the West and North; the local people also started fighting the Italians again, until they were finally kicked out."*

*"All the time since Haile Selassie's reign began, things were becoming more civilized. The administration was improved, the school and clinics were built, and eucalyptus was introduced. But conditions for people who were not* ***landlords*** *were tough, since we could not get land easily, but had to sharecrop and shepherd for the landlords. Women and children of the landless were working in the landlords' houses and this caused much resentment of the administration. The schools were only for children of the rich."*

*1934?EC -* *Another Bara Hawaannisa: "****Locusts*** *came and covered the sky as if it was night. We tried to protect our crops by making noise, beating drums and making smoke, and really we succeeded, but still all the grazing land and everything green we lost. There have been other locust attacks, but this was the worst." (Ob.Debele)*

*1947 EC -* *Bara Beelaa (****famine****): "During this year our people suffered of serious famine caused by the preceding year's drought. Many people were forced to move to Chabo, near Inchine, where there was drought-resistant inset." Ob.Kitila remembered the following song of that time: "Abo seree were dada, Chabo male malen yada" (I have nothing to think about these days, except Chabo where I can find my food).*

*" " -* *Bara Katabaa (****vaccination****): "In the same year, all animals were vaccinated against rinderpest and human beings against smallpox."*

*1950 EC -* *Sun eclipse (Bara Guyyan Dhihe): "There was darkness in the middle of the day, at four o'clock, for one-and-a-half hours. We didn't know what happened, we were troubled and terrified."*

*1954 EC -* *Bara Geergii: "****Army worm*** *(geerrii) destroyed the whole crop. We were powerless to resist. In 1986 EC (one year ago) this was again repeated."*

*1957 EC -* ***Goro Solee elementary school*** *established.*

*1966 EC -* *Downfall of Haile Selassie, start of the* ***Derg period*** *(Bara Dergi); Major events remembered were:*
** "Return of the* ***land*** *to the real owners. This was the only benefit of the Derg." (except for those who were landowners, like one of the interviewees)*

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** "Civilians were disarmed, and all arms were given to the Kebele committees."*
** Zemecha/Militias/**National service**: "These campaigns took many youngsters out of the village. Many never returned. Young men were taken by force to fight in the north of the country. For this reason our workforce was small and our crops suffered."*
** **Grain procurement** to the government in a quota system: "Crop prices fell as we were forced to sell at a fixed price to the government. Livestock numbers, beehives and perennial crops all suffered due to this situation."*
** **Villagization**: "We had to rebuild our houses in village settlements. Deforestation increased tremendously, as we all needed wood to rebuild our houses. At the same time, crop production suffered, as we had less backyard plots and had to walk farther to cultivate our land and to protect our crops from wild animals."*

*1977 EC -* *The big **drought** of 1984/85 GC: "Actually, droughts come every four years, but this year we sowed our seeds and the ground stayed bare. Starvation occurred, people were dying on the road as they tried to walk to town. The government gave us haricot beans which caused diarrhoea." "But, these droughts are still coming and I worry about these things." (Ob.Debele)*

*1983 EC -* *Bara Weyyaanee; Major remembered events are:*
** Earthquakes for two times (1983 and Nov.1986 EC)*
** **Heavy deforestation** on communal forests (e.g. on Obi mountain)*
** The PA administration has changed; it depends on the person how they value this.*

*"When I compare today's life with my childhood, many things have improved. Education, our clothing, transport, health condition, all this is continually getting better. Only our material wealth and natural resources are declining. There is scarcity of fertilizer and other things, and prices keep going up." (Ob.Debele)*

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# 2. NATURAL RESOURCES

## 2.1. Soil conditions

### 2.1.1. Soil types

The villagers of Qile Obi identified four different soil types:

*"Dimilee"* - red, loamy soil; commonly found near the mountain-tops, where there is still forest cover, although also in Hara Anqoxo and Xanqili villages in the middle of Qile Obi South (see figure 5); this is quite fertile soil, although it easily washes away with the rains; it is mostly used for cultivation of teff, wheat, barley and maize.

*"Guracha"* - black or dark-brown clay soil; this is the most common soil in Qile Obi, prevalent in mid-altitudes (see figures 5 and 7); it is most preferred by the farmers; it is suitable for maize, barley, beans and many other crops.

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***Figure 9 - Matrix scoring of soil types in Qile Obi South***

*On a Sunday morning the PRA team gathered a group of about seven male farmers of different ages, from 20 to 65. We sat down in a clearing in the middle of a village on two tree-trunks and asked the group a number of questions about crops and soils. Regarding soils, we first asked them which soils existed in their PA, and how they would rank them in order of preference. Then we drew a matrix on flip-chart paper, collected a number of wooden sticks from the area around us and requested them to put small sticks in the different boxes on the paper according to the different criteria agreed upon. The maximum number of sticks that could be put in each box is 10, the minimum zero. The first three criteria have a negative value, so the greater the score, the less preferred. The last two criteria have a positive value, hence the greater the score, the more preferred. This exercise aroused a lot of discussion. The man who put the sticks was often immediately countered or backed up by the bystanders with strong and cheerful remarks.*

| soil types / CRITERIA | Koticha (vertisol) | Dimilee (red soil) | Guracha (black soil) | Shabi (brown soil) |
|---|---|---|---|---|
| Overall rank | 2 | 3 | 1 | 4 |
| Fertilizer requirement → | IIIIII | IIIIIII | IIIII | IIIIIIIII |
| Hardship for tillage − | IIIIIIIII | IIIII | IIII | I |
| Susceptibility to erosion − | III | IIIIIIII | IIIIII | IIIIIIIII |
| Retention capacity after rain + | II | IIII | IIIIIII | 0 |
| Suitability to various crops + | IIII | IIIIIIII | IIIIIIII | IIIIII |

− = negative value

+ = positive value

*"Koticha"* - heavy black cotton soil (vertisol); this is found only in certain patches in Qile Obi, especially in the eastern part of Hurufa Aba Mosisa (see figures 5 and 7) and the northern part of Chafewari (see figures 6 and 8); it is mostly grown with teff and noug.

*"Shaabi"* - brown-sandy soil; to be found in the middle of Qile Obi South, and alongside the Qile river in Qile Obi North (see figures 6 and 8); it is least preferred by the local farmers (see figure 9) and most suitable for sorghum and linseed.

The PRA team of Qile Obi South did a matrix ranking exercise on soil types with a group of local farmers. Figure 9 shows how they ranked the soil types according to different criteria. *"Guracha"* was most preferred because it requires less fertilizer, it retains a lot of moisture after the rains and it is not that hard to till. *"Koticha"* and *"Dimilee"* came next, but they require more fertilizer and do not retain that much moisture. *"Shaabi"* was least preferred, as it requires the most fertilizer and is highly susceptible to erosion.

### 2.1.2. Soil fertility

The soils have become less and less fertile, mainly because of intensive cultivation. Forest cover is removed, and fallowing is less practiced, so that the soils do not get the chance to recover. As a result, the productive capacity of the soil is decreasing, and chemical fertilizers are being applied widely.

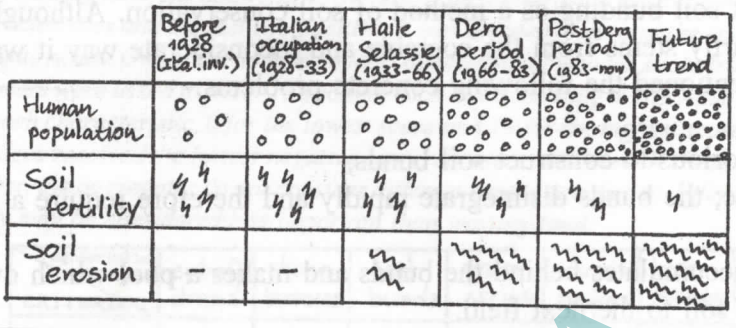
Virgin soils from which the forest cover is newly cleared are very fertile, but fertility declines very rapidly, within five years. This was clearly illustrated by the PRA team in Qile Obi North, who wrote the following about soil fertility during their transect walk from Boke to Qile River (see figure 8): "From a distance, Boke ridge looks well forested. Up close, the vegetation consists of thorny scrub with few trees. Cattle grazing in this area inhibit seedling regrowth, and pressure on the forest for timber is heavy. This area has very good and fertile soils, so despite the steep gradient, new cropping areas are still being cleared. From an environmental or agronomical point of view this is foolish, as the new cropland will rapidly suffer from declining fertility and soil erosion. As one man in Chafewari stated: *"We destroy this forest ourselves for our stomachs even though we know we are destroying our future."* With another man who owned cropland high on the mountain we asked why he farmed there when he knew the cropped area would only be good for two or three seasons. He replied that the area there was better than soils lower on the hill, and said the restriction to clearing of this forest was lack of water, which limited settlement, rather than the future difficulties that were being caused. The main problem is that the soil is droughty, has a limited water-holding capacity. As you proceed down the hillside, the soil becomes heavier (more clay), better in water-holding capacity but lower in fertility."

Figure 10 shows the decline in soil fertility as perceived by the farmers over the years. Up to the downfall of Haile Selassie (1974) they practiced shifting cultivation, i.e. after some years of cultivation they left the land fallow or used it as grazing land. This maintained a stable soil fertility. Another farmer mentioned that during the Italian occupation the land

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was not cultivated widely (only some maize around their homesteads) due to insecurity, which made soil fertility remain stable. In the Derg period, the population increased rapidly, so shifting cultivation and fallowing had to be abandoned, and the fertility of the soil declined rapidly. In the present and the future, the same pressures on the land are continuing, so soil fertility will become a very serious problem.

***Figure 10 - Historical trends in human population, soil fertility and erosion, Qile Obi South***




2.1.3. Soil erosion

As mentioned above, soil erosion is most severe on the light, newly cleared forest soils on higher slopes, which have a limited water-holding capacity. As the PRA was held during the rainy season, we have witnessed a severe landslide which occurred overnight on the face of the ridge to the southeast of Goro Solee (Tamey). This landslide must have destroyed a few hectares of planted cropland.

Other areas of intense soil erosion are alongside the streams (see Resource Map QO South, figure 5) and the paths, especially those going down vertically with the slope (e.g. the main path on the right side of the map, which is especially bad near Qile River - see Social Map QO North, figure 3). The asphalt road bridge over the Chafe Qoricha stream was severely affected at the time of our fieldwork, with the asphalt cracking and neighbouring teff fields being undermined. The farmers in Chafewari mentioned that farmland and even houses are sometimes attacked.

See also the transect figures 7 and 8.

2.1.4. Soil conservation

Apart from fallowing, crop rotation and other cropping practices (see Sections 3.3.3 and 3.3.5), the local farmers have used three physical soil conservation methods to protect the soil from erosion: cut-off drains, soil bunds and tree planting.

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Cut-off drains can be seen widely, nearly on every field in the PA. These are transverse ditches to collect excess rain water and lead it downwards without washing away the soil; apart from diverting run-off water, they also serve to drain out waterlogged lands. They are temporary structures, which only last one growing season. Cut-off drains are prepared by deep ploughing with oxen.

Soil bunds were introduced during the Dergue period, starting from 1975/76 EC (1983/84 GC), when mass campaigns were set up to curb soil erosion. However, this was done with coercion and without much concern for local applicability. The farmers in Qile Obi were very negative about soil bunding as a method of soil conservation. Although the farmers' negative attitude partly stems from the coercive and inconsiderate way it was implemented previously, they mentioned the following concrete problems:-

- it is highly laborious to construct soil bunds,
- it is not durable; the bunds disintegrate rapidly and therefore require a lot of maintenance,
- run-off water accumulates behind the bunds and makes a pool which overflows and carries a lot of soil to the next field.

Stone terraces were also known by the farmers, although not practiced in their area. They were as negative about this as about the soil bunds. They mentioned the following negative aspects:-

- there are hardly any stones in the area,
- it is very laborious to construct stone terraces,
- they harbour rodents.

Tree planting is practiced to a limited extent alongside the fields, but the farmers were not very positive about tree planting as a soil conservation method, mainly because it wastes land and cannot easily be combined with crop farming.

The PRA team of Qile Obi South had a long discussion with a group of farmers about soils, conservation and crop farming, resulting in a number of matrix ranking tables (see figures 9, 11 and 17), one of which focused on soil conservation methods. Apart from the above-mentioned methods known by the farmers, the team explained the farmers about two other soil conservation methods and asked them for their opinion: grass strips and live hedges. Although they found it difficult to judge on these measures, they mentioned the following reservations:-

- they may harbour rodents,
- they waste land,
- the grass or hedge may expand into their cropland.

During the matrix ranking exercise, grass strips were considered the most promising soil conservation method (see figure 11). Overall, the farmers refused to consider soil bunds and stone terraces as conservation methods; they had developed a sort of hatred against these measures. Cut-off drains were considered useful, as they already practiced it.

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***Figure 11 - Matrix ranking/scoring of soil conservation methods, Qile Obi South***

*This exercise was done with the same group as figure 9. First the group listed the different soil conservation methods known and some unknown methods were added, which were explained by the team. We first asked the farmers for their overall rank of the different methods: grass strips came out first, followed by cut-off drains and live hedges; the farmers refused to consider soil bunds and stone terraces, because of their negative experiences with these methods. Then the farmers together with the team considered characteristics of the different methods: labour requirement, harbouring pests/rodents, wasting land, durability, effectiveness as an anti-erosion measure. As the first three are negative characteristics and the last two positive, it was decided to reverse the scores of the last two for the aggregate result. One of the team members collected small wooden sticks from the surrounding area. The farmers were asked to put 0-10 sticks in each box according to the value they gave for each measure on each characteristic, 0 for the lowest score and 10 for the highest score. In the aggregate totals live hedges received the lowest negative score, so was considered the best, followed by grass strips. However, the aggregates do not consider different values attached to different characteristics, e.g. durability may be considered less important than wasting land.*

| conservation measures / CRITERIA | cut-off drains | stone terraces | soil bunds | grass strips | live hedges | tree planting |
|---|---|---|---|---|---|---|
| Overall rank | 2 | Ø | Ø | 1 | 3 | 4 |
| Labour requirement | IIII | IIIIIIIII | IIIIIIIII | II | IIIII | IIIIIII |
| Harbouring pests/rodents | Ø | IIIIIII | I | III | IIII | IIIIIIIII |
| Wasting land | II | IIIIIII | IIIIIIII | IIIIII | IIII | IIIIIIIII |
| Not durable | IIIIIIIII | IIIIII | IIIIIII | IIII | III | I |
| Not effective | IIIIIIIII | II | IIIIII | IIIIIII | III | IIII |
| Not known | | ✓ | | ✓ | ✓ | |
| TOTAL SCORE* | 26 | 34 | 34 | 23 | 21 | 33 |

* low score = most preferred ; high score = least preferred

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## 2.2. Trees and forest resources

As mentioned in Section 1.3, Qile Obi PA has forest cover on the higher slopes towards the ridges of Mount Obi and Mount Boke. Although much of this is being cleared for farming, fuelwood and construction timber, one of the PRA teams found a farmer living on the edge of the forest who actively protected the forest and planted some new trees around his homestead.

Apart from the communal mountain forest, trees and shrubs are abundant around the spring streams and scattered trees can be found around homesteads and in and around the fields (cropland and grazing areas).

The following common tree types were listed by the PRA teams:-

| Local Oromo name | Scientific name |
|---|---|
| *Ejersa* (most common) | Olea africana |
| *Lafto* | Acacia lahai/abyssinica |
| *Gatira* | Juniperus procera/Cupressus |
| *Bahr Zaf/Bargamo* | Eucalyptus |
| *Heexoo (Kosso)* | Hagenia abyssinica |
| *Kombolcha* | Maytenus senegalensis |
| *Birbirsa* | Podocarpus |
| *Kusayee* | Lantana trifolia |
| *Harbu* | Ficus |
| *Wolensu* | Erythrina |
| *Bakkanisa* | Croton macrostachyus |
| *Ebicha (Grawa)* | Vernonia amygdalina |
| *Mexi* | Palm |

Other vegetation includes shrubs, sisal, grasses (e.g. *Migira*, a strong grass used for thatch).

In figure 12 one can note the decrease in forest cover. The area was covered by dense forest before the Italian occupation (see also Section 1.5, Historical Profile 1910 EC), and most of the land was not cultivated since the population density was very sparse. According to the farmers, it was during the Italian occupation that cutting down of trees increased. Especially Juniperus and Podocarpus were cut down, and therefore became very scarce. Up to the end of Haile Selassie's regime the number of trees decreased gradually, but after the downfall of Haile Selassie there was a sudden deforestation upsurge. Acacia was increasingly used for charcoal. Deforestation continued, up to the present level, but the participants were optimistic that tree planting would increase in future, especially of Eucalyptus (see figure 12).

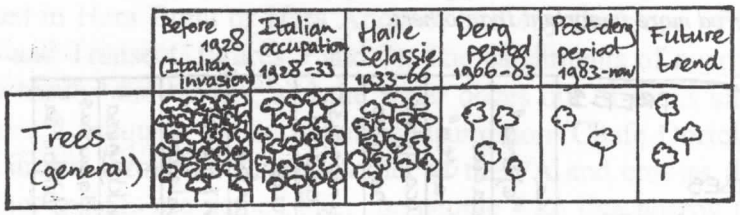
The local people are very aware of the problem they created by tree cutting: *"We have destroyed all these indigenous trees for our own stomachs"*. The women said: *"We use for fuelwood only the wood leftover from construction, or naturally fallen branches of trees."* Local farmers often go to the mountain ridges to collect wood, which can be up to two hours walking from the far end of the PA, where sometimes disputes with the farmers there arise. Even people from Goro Solee town go to Obi and Boke mountains to take wood, which increases the rate of deforestation.

No major afforestation programmes have been undertaken by the Ethiopian government or by individuals. EENGO has started growing tree seedlings on a nursery in Goro Solee recently. Tree planting is not yet widely known, but some farmers have cleared patches of land and planted them with Eucalyptus seedlings, sometimes for income-generation rather than for soil conservation or use of fuel/construction wood. However, there is a clear awareness on the part of the community about the value of reforestation and this could be utilized positively.

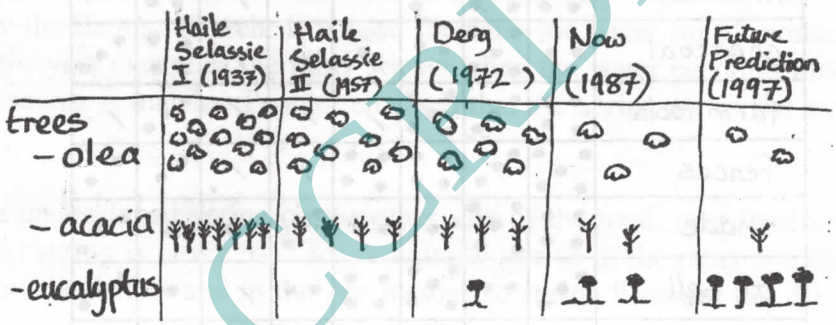
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***Figure 12 - Trends in tree vegetation cover, Qile Obi South (overall) and Qile Obi North (three species)***

***South:*** *Although we had made an appointment with a few farmers, we had to wait for quite some time before some wise old people had gathered in front of the PA office. Finally, we began the exercise with Ob. Kefani Gelalcha (80) and Ob. Beyensa Dinqa (68). Several others stood by. We unrolled a flipchart paper with rows for different aspects and columns for different historical periods, and we asked the old men to indicate the number of trees in each period with small stones which we collected from the PA office porch. The participants were very explicit: they put loads of stones in the first period and only two stones at the present time (see picture nr. 5).*




***North:*** *This exercise was done with Ob. Daba Roga (66), Ob. Tafa Negassa (45) and a woman (40). The team selected periods that the participants could easily identify, as they were not very clear about exact years. The diagram indicates that indigenous trees like Olea and Acacia are depleting, while Eucalyptus is on the rise.*




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The PRA team in Qile Obi North did a ranking exercise on the uses and values of different tree species (see figure 13). Acacia and Eucalyptus are the most versatile tree species, but the participants preferred Juniperus as their overall choice, and also Olea was liked. It seems that this was mostly because of construction and sales value. Ficus, Acacia and Erythrina are considered better for soil fertility. The most important thing that can be learnt from the diagram is that there are many trees, and each has its value, each of which is highly appreciated by the local farmers.

The PRA team learnt that the villagers are eager to plant more trees, especially Eucalyptus, which is fast growing, has a high market price, is hardy and good for fuelwood. The Kereyu villagers estimated that "20,000" would be an appropriate number in the village area. Reasons for not planting or for a low success rate are:-

- seedlings are not easily available (there is no permanent nursery in the area, and 15 bare-rooted seedlings cost 1 Birr in Goro Solee market),

***Figure 13 - Matrix scoring of tree types in Kereyu village, Qile Obi North (28/8/95)***

*Participants were two men (one 18, one about 50) and two women (middle-aged), and some others. The people first suggested the most common tree types in the area; they even listed the number of each tree type in their village (see the last row). Then they suggested different uses and values in order of importance: "soil fertility and conservation" was considered the most important, since planting trees can only be done on good soil, and if you can't plant trees you can't use them either. The trees were given a score from 0 to 5. The total scores are added up and reflected in the row called "ranking", which gives a measure of tree versatility. An "overall choice" was given by the men separately; this reflects how the trees rank regardless of criteria, and therefore indicates that some criteria are considered more important than others.*

| TREES / USES & VALUES | olea "ejersa" | Acacia "lafito" | Eucalyptus "bargamo" | Juniperus "gatira" | Ficus "arbu" | Eritreana "waleensu" | "bakkaniisa" | podocarpus "birbirsa" |
|---|---|---|---|---|---|---|---|---|
| soil fertility & conservation | ●● | ●●● | ● | ● | ●● | ●● | ●● | ●● |
| building construction | ●●● | ●● | ●● | ●● | / | / | ●● | ●● |
| firewood | ●● | ●●● | ●● | ●● | / | / | ●● | ●● |
| charcoal | ●● | ●●● | ●● | ● | / | / | ●● | ●● |
| farm tools | ●● | ●● | ●● | / | / | / | ●● | / |
| fences | ●●● | ●● | ●● | ●● | / | / | ●● | ●● |
| shade | ●● | ●● | ● | ●● | ●● | ● | ● | ●● |
| to sell | ●● | ●● | ●● | ●● | ●● | / | ● | ●● |
| house tools | / | / | / | / | ●● | ●● | / | / |
| windows & doors | / | / | ●● | ●● | ● | / | ● | ●● |
| cattle food | ●● | ●● | / | / | ●● | ●● | / | / |
| total score | 26 | 33 | 28 | 24 | 21 | 10 | 21 | 22 |
| ranking | 3 | 1 | 2 | 4 | 6 | 8 | 6 | 5 |
| overall choice (by men) | 3 | 4 | 2 | 1 | 7 | 8 | 6 | 5 |
| number of trees now in village | 10 | 30 | 50 | 10 | 0 | 0 | 5 | 0 |

• criteria are listed in order of decreasing importance.

*Notes:* * *Conservation value is high if the tree leaf-fall is thought to add to soil fertility. A score of 1 shows the tree's only benefit is in anchoring the soil; they deplete soil nutrients.*

* *A tree value "collecting rainfall" was considered more important than "shade", but was not scored, as all trees give the same benefit.*

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- many tree seedlings die in the dry season if not watered,
- potted seedlings are more vigorous than bare-rooted seedlings.

## 2.3. Water resources

Perennial springs and the Qile river are the main water supplies. There are no shallow wells. One could say that apart from some isolated places such as the western part of the PA, there is enough water in the area. Only the quality could be a problem.

In Qile Obi South there are seven perennial springs, all draining to the Qile river. Most of them are located in Hara Bonu or Hara Anqoxo, halfway the slope of Mount Obi (see Resource Map and Transect, figures 5 and 7). The catchments of nearly all these springs are covered by shrubs and bushes, and the water oozes out of rocks and stones. Therefore, they are considered adequate for household consumption. Chafe Qoricha is the easternmost spring, whose stream forms the eastern border of the PA and crosses the tarmac road. Most of the other springs are named after the people who live nearby (e.g. Negasa Kitaba spring).

Details of the water resources in Qile Obi North are as follows:-

The tapped/developed spring in Chafewari (see Social Map, figure 3) was constructed two years ago by the Baptist Church. It is used for domestic water for all houses in Chafewari throughout the year except in the rainy season when the water becomes muddy; this is because the source is marshy. People remarked that the spring water has a nasty smell all year.

There is one undeveloped spring on the other side of the road, near Qocha village. However, this spring is never used for drinking water as in the rainy season it is muddied by another overland flow and in the dry season the spring becomes too dry.

Nearby the border of Tachingew Meti PA there is another spring developed by the Baptist Church, which has good water, but it is only used by two households in Qile Obi PA, as it is too far away from the other houses.

The Qile River is perennial and used for stock water. The main problem is that cattle are attacked by the tse-tse fly when drinking from the river (especially since the riverbanks became deforested).

On the north-eastern face of Boke Mountain, there is one undeveloped spring which supplies all the houses on the higher mountain (about 33 houses). The spring is protected from livestock, and has good water. In some times of the year, in some years, the flow is sufficient to be used for irrigation of a vegetable plot (garlic, etc.) on the farm down the slope.

The western part of the PA has no river or other water sources except a small ephemeral spring. Cattle are taken to Qile River for watering.

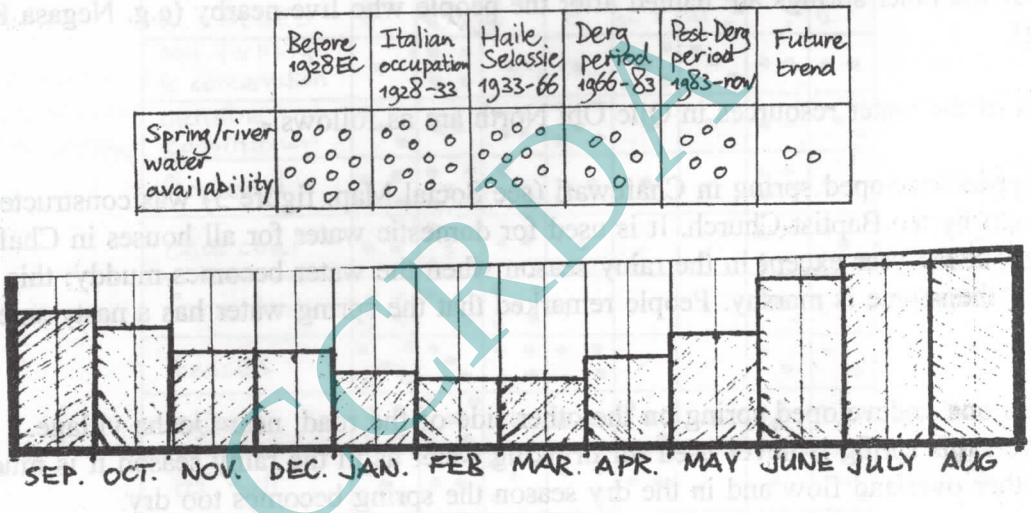
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Figure 14 shows the historical trends in the overall water yield of the springs and rivers. According to the villagers the yield declined especially from 1950 to 1983 EC (1958 to 1991 GC). Since 1991 it increased again, due to the improved rainfall since then. In the future they expect a decline again.

Figure 15 shows the seasonal pattern of water availability. As expected, the springs and rivers have the highest quantity of water during the rainy season, especially June, July and August. Over the subsequent months, the quantity decreases and the lowest water availability is during February and March towards the end of the dry season.

***Figure 14 - Trends and variations in water availability, Qile Obi South***

*Historical trend lines, which included trends in water availability, were drawn by a few old men (see figure 12), and seasonal calendars were outlined by a few women (see more in figure 23), at two different occasions.*




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# 3. AGRICULTURE

## 3.1. Farming systems

The people of Qile Obi practice a mixed farming system, but cultivation of cereal and pulse crops is the most important occupation. Livestock production is a secondary. Farmers have an average of 2 ha cultivated land, and 5-10 heads of cattle.

The major part of the PA's territory is cultivated. Patches of forest land and settlements form the second major land use. Forest dominates on the higher slopes of Mount Obi and Boke, settlements are concentrated in the middle slopes, and the lower areas are mainly occupied by farmland. Small grazing areas can be found in between the cropland and settlement areas, but more so in between the forest on the higher slopes.

Figure 15 gives some indications of the farming systems of different farmers. The following conclusions can be drawn from the farm sketches:-

- Inset and maize is usually cultivated around the homestead, within the fence, sometimes supplemented by hop (Gesho) and chat. Backyard maize plots vary in size from 1 to 4 *olcha* (0.25-1 ha).

- Small plots of 1-3 *olcha* (0.25-0.75 ha) cultivated with teff, wheat, barley, flax, beans, peas, lentils and sorghum are usually located at 100 m to 1 km distance from the homestead; barley and wheat are usually cultivated at the higher level plots and teff, flax, maize and sorghum at the lower altitudes.

- Small grazing areas are usually located nearby the homestead (e.g. 100-200 m).

- Older farmers have more plots and more livestock than younger farmers.

- On teff and barley fields chemical fertilizer is applied. Animal manure is applied mostly on backyard inset and maize fields.

- Wheat and barley stock is used for roof thatching. Barley, wheat, sorghum, and pulse (bean, pea) crop residue is used to feed animals.

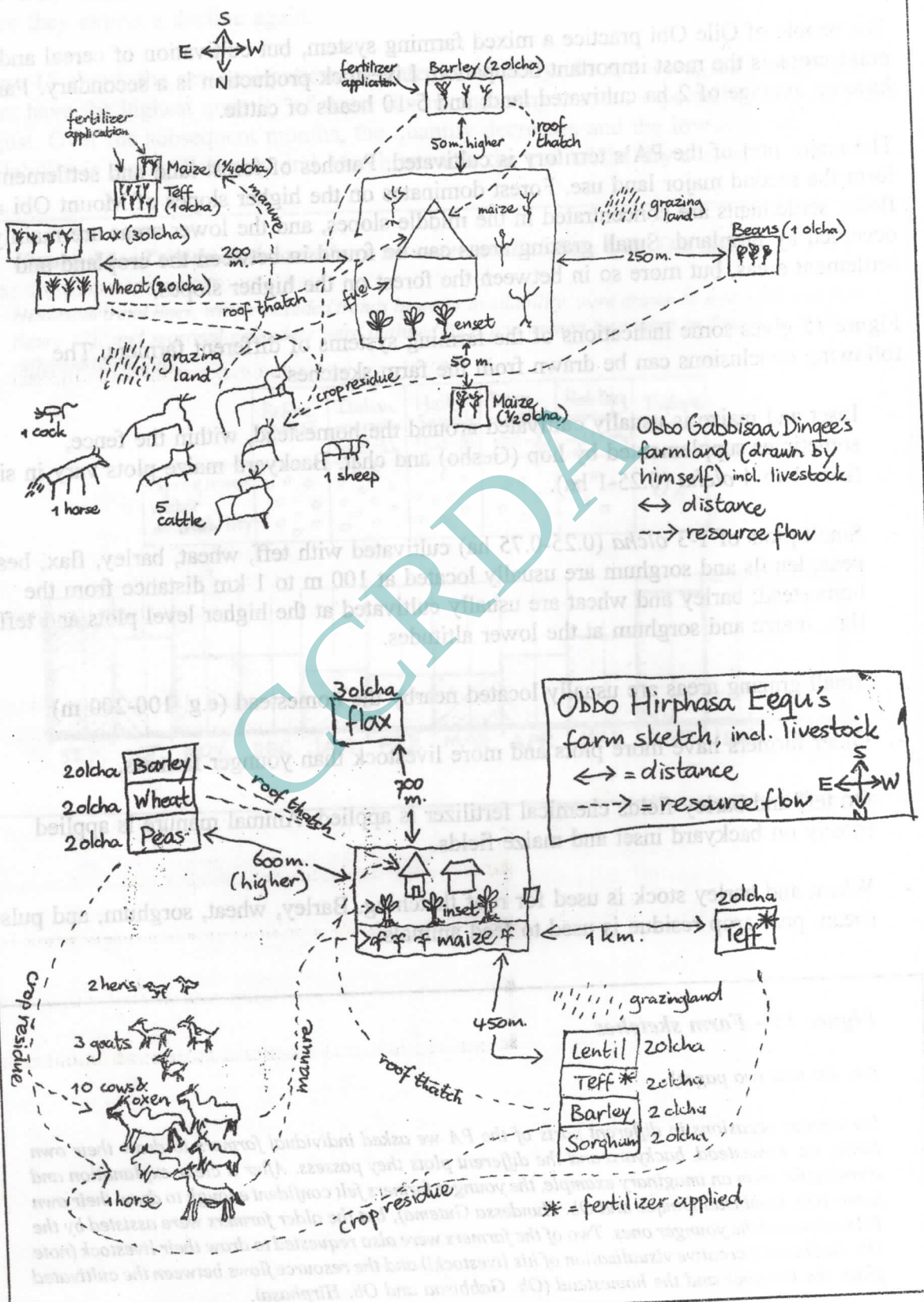
***Figure 15 - Farm sketches***

*(see the next two pages)*

*On various occasions in different parts of the PA we asked individual farmers to draw their own farms, i.e. homestead, backyard and the different plots they possess. After a clear explanation and drawing for them an imaginary example, the younger farmers felt confident enough to draw their own farms (Ob. Gabbisaa Dinqee and Ob. Hundessa Gutema), but the older farmers were assisted by the PRA team and the younger ones. Two of the farmers were also requested to draw their livestock (note Ob. Gabbisaa's creative visualization of his livestock!) and the resource flows between the cultivated plots, the livestock and the homestead (Ob. Gabbisaa and Ob. Hirphasa).*

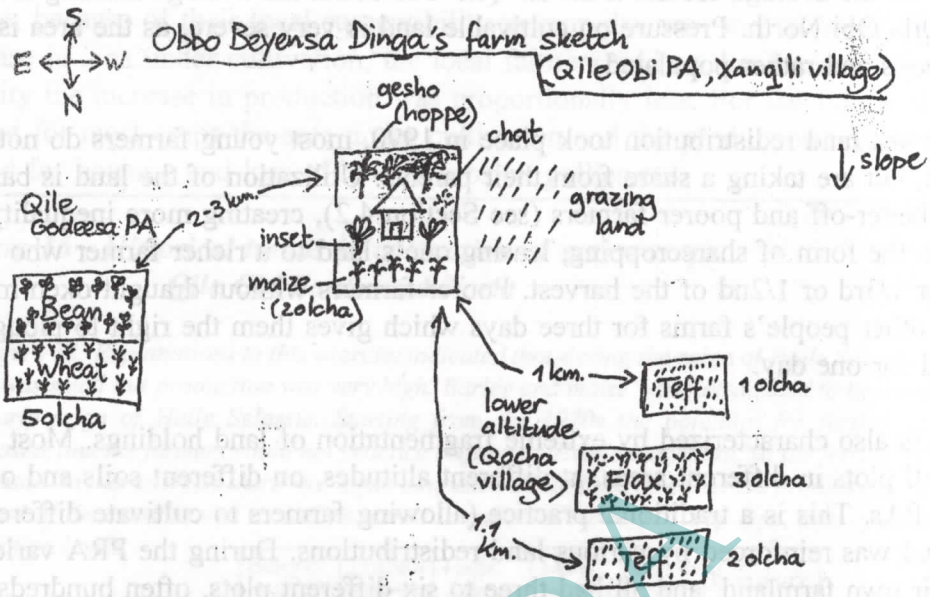
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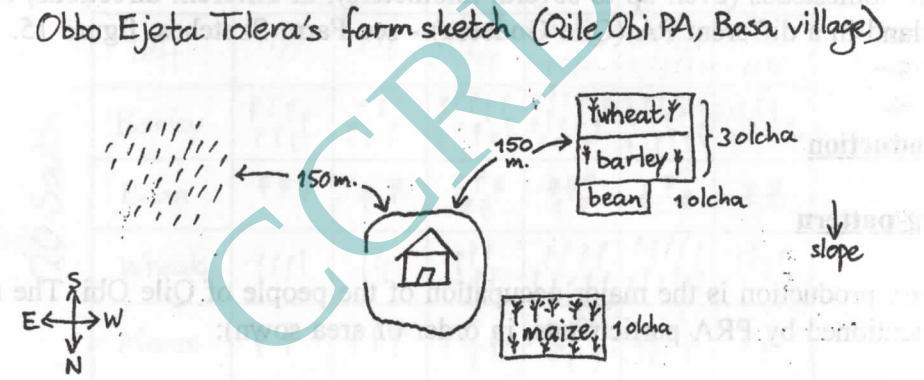
*Figure 15 - Farm sketches*

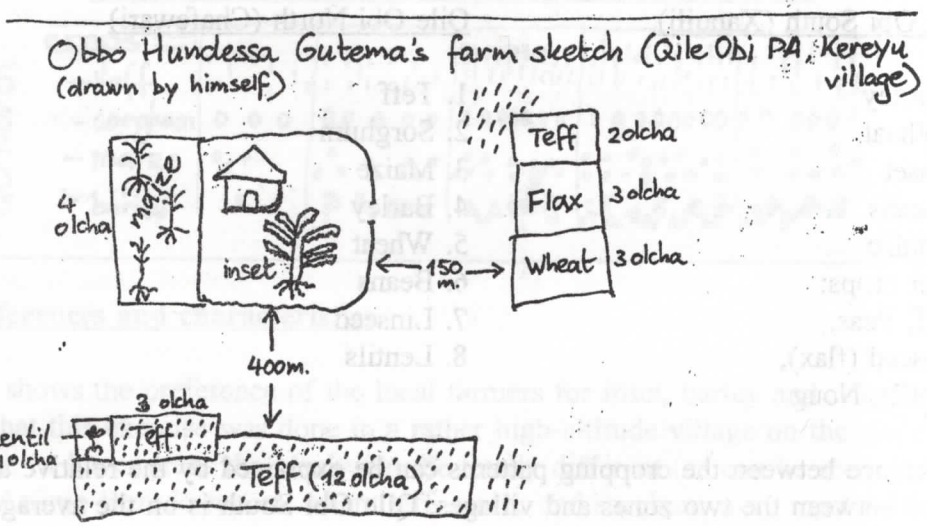



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*Figure 15 - Farm sketches*




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## 3.2. Land tenure

Land is "owned" by small-scale farmers. Land ownership ranges from 0 to over 4 ha. (16 *olcha*), with the average around 2 ha. In Qile Obi South the average holding is smaller than in Qile Obi North. Pressure on cultivable land is very severe, as the area is mountainous and rather populated.

Since the last land redistribution took place in 1990, most young farmers do not have their own land, but are taking a share from their parents. Utilization of the land is bartered between better-off and poorer farmers (see Section 4.2), creating more inequality. This is usually in the form of sharecropping, leasing one's land to a richer farmer who will pay the owner 1/3rd or 1/2nd of the harvest. Poorer farmers without draught oxen may also work on other people's farms for three days which gives them the right to plough their own field for one day.

The area is also characterized by extreme fragmentation of land holdings. Most farmers have small plots in different areas, at different altitudes, on different soils and often in different PAs. This is a traditional practice (allowing farmers to cultivate different crop types), and was reinforced by various land redistributions. During the PRA various farmers drew their own farmland, and all had three to six different plots, often hundreds of meters from their homesteads (even up to several kilometers), in different directions; two out of five had land in a different PA (Qile Godeesa) - see Farm Sketches, figure 15.

## 3.3. Crop production

### 3.3.1. Cropping pattern

Cereal crop production is the major occupation of the people of Qile Obi. The major crops are (as mentioned by PRA participants, in order of area sown):

Qile Obi South (Xanqili)

1. Barley
2. Wheat
3. Inset
4. Beans
5. Maize

Other crops:
Teff, Peas,
Linseed (flax),
Lentils, Noug

Qile Obi North (Chafewari)

1. Teff
2. Sorghum
3. Maize
4. Barley
5. Wheat
6. Beans
7. Linseed
8. Lentils

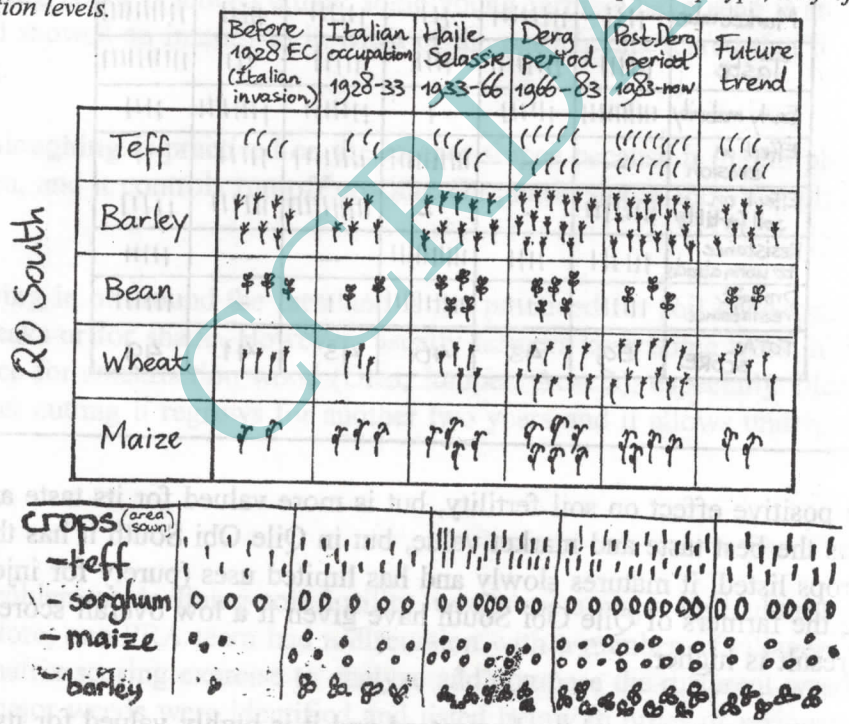
The difference between the cropping patterns can be explained by the relative altitude difference between the two zones and villages: Qile Obi South is on the average a bit higher than Qile Obi North.

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Figure 16 shows that the cultivation area of all major crops has grown enormously over the years. There are no major differences in trends between the crops; barley and wheat have always been the major crops in Qile Obi South, and teff, sorghum and maize in Qile Obi North. Only in Qile Obi South there was a slight reduction in the cultivation of beans and maize, because of their local susceptibility to crop diseases and worm attacks. Despite the increase in area under cultivation, the local farmers told us that because of declining soil fertility the increase in production was proportionally less. For the future, the farmers expect that for most crops the area under cultivation and the production will decrease due to demand for housing and loss of land to erosion gullies etc.

***Figure 16 - Historical trends in cultivation of major crops, Qile Obi South and North***

*See figure 12; Explanations to this exercise indicated that during the reign of Haile Selassie the area sown was small but production was very high. Barley and maize were introduced to the area during the early reign of Haile Selassie. Starting from the 1970s the potential for further expansion decreased, and the farmers could not practice shifting cultivation anymore, so the fertility of the soil decreased. In this exercise there was some confusion about area sown versus production - although the goal of the exercise was to outline trends in cultivated area per crop type, they often indicated production levels.*




### 3.3.2. Crop preferences and characteristics

Figure 17 shows the preference of the local farmers for inset, barley and wheat. It should be noted that this exercise was done in a rather high-altitude village on the slopes of Mount Obi; in lower areas the result may be totally different (as can be seen from figure 37 in the Arfinjo Borodo report, where teff, maize and sorghum were most preferred). In Qile Obi South, the preference for barley is mostly driven by a high yield, multipurpose use, early maturity and positive effect on soil fertility (which is all linked to the local habits and soil conditions).

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***Figure 17 - Matrix ranking/scoring on major cultivated crops, Qile Obi South (Xanqili)***

*This exercise was done with the same group as figures 9 and 11. We first asked the participants to mention the major crops, and then we asked them to rank these crops from 1 (most preferred) to 6 (least preferred). Surprisingly, inset scored the highest number, followed by wheat and barley, while teff and beans were the least preferred. In order to get a more detailed picture, we asked the farmers to list different characteristic criteria. Together with the team they identified nine different criteria (see the rows in the matrix below). Then, for each criterium, they gave a score with 1 to 10 small sticks for each crop (10 is highest score, 0 is lowest score). When adding all the scores (which does not take into account the difference in importance between the different criteria!) barley became the most preferred, followed by teff and inset!*

| crops / criteria | Barley | Wheat | Inset | Bean | Maize | Teff |
|---|---|---|---|---|---|---|
| OVERALL RANK | 3 | 2 | 1 | 6 | 4 | 5 |
| Versability in use | 9 | 7 | 3 | 2 | 5 | 3 |
| Yield | 9 | 5 | 4 | 4 | 7 | 3 |
| Market value | 4 | 7 | 3 | 5 | 4 | 9 |
| Taste | 5 | 7 | 4 | 5 | 2 | 9 |
| Early maturity | 8 | 5 | 1 | 6 | 7 | 3 |
| Effect on erosion | – | – | 8 | 7 | 5 | 3 |
| Effect on soil fertility | 8 | – | – | 9 | 5 | 5 |
| Resistance to worm attacks | 5 | 4 | 9 | – | – | 5 |
| Drought resistance | 5 | 4 | 9 | 1 | – | 6 |
| TOTAL SCORE | 59 | 43 | 46 | 43 | 41 | 49 |

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Wheat has no positive effect on soil fertility, but is more valued for its taste and market value. Teff has the best taste and market value, but in Qile Obi South it has the lowest yield of all crops listed, it matures slowly and has limited uses (purely for injera). For these reasons, the farmers of Qile Obi South have given it a low overall score, although its accumulated result is higher.

Inset is an important crop around the homestead and it is highly valued for its drought resistance, resistance to worm attacks and positive effect on erosion (because of the roots); the farmers mentioned that inset is always available for food even in the months and years when hunger threatens the survival of many people. The negative aspect is that it takes 15 years for the plants to mature. The people use inset for porridge (*bula*), bread (*qocho*), and to eat the boiled roots (*amicho*).

Beans cultivation has the best positive effect on soil fertility, and is therefore often used in rotation with other crops, to fertilize the soil for future use (see Section 3.3.3). However, it was not preferred because of its high vulnerability to drought and worm attacks and

limited yield and use. Maize was also considered vulnerable to drought and worm attacks (possibly due to locational factors) and the taste was not preferred.

### 3.3.3. Cropping practices

According to a group of farmers in Qile Obi South (see figures 9, 11 and 17), they only use crop rotation as a means to improve crop production. Other improved cropping practices are hardly known.

**Crop rotation** is well-known and practiced widely; especially beans are cultivated to fertilize the soil once in four years on plots followed by barley, wheat or teff. Teff could be cultivated for two consecutive years, but not a third year; it is usually rotated with noug. Because of its negative effect on soil fertility, wheat can be cultivated only one year, and should then be followed by beans or peas.

**Intercropping** is not practiced, except by chance, when mixing the seeds of different crops, such as peas and beans.

**Row planting** is not practiced either; some young farmers have seen it around Babich and Guder, and showed an interest in it. Most of the participants feared that it would be time-consuming.

**Contour ploughing** is practiced on the steeper slopes because it makes ploughing easier for the oxen, and it controls run-off erosion. On gentle slopes they plough in different directions.

**Tree planting** in or around the farmland is not practiced for soil conservation reasons, e.g. as wind-breaks or for shade. However, usually farmers keep some trees in their farmland as a resource for construction wood (Olea, Juniper, Acacia); especially Olea is liked, because after cutting it regrows for another two years and it allows undergrowth of crops.

### 3.3.4. Weeds

After the problem of declining soil fertility, weeds are a major agricultural problem in the area. Therefore, one PRA team had a discussion with a number of villagers about weeds and did a matrix scoring exercise to analyze and compare the different weeds. The following major weeds were identified and listed below in order of seriousness:-

[Local Oromo name - Scientific name - Description]

1. *Adaa - Bidens Pachyiom*:
   Can damage all crops seriously, but if weeded by hand or by herbicides it can be controlled easily. If roots are left in the field, it will regrow.
2. *Muujaa - Snowdenia Polystachya*
   Grows on fertile soils, spreads over a vast area and can damage all crops. It has very strong roots which makes it difficult to weed. It can re-vegetate even if weeded by

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***Figure 18 - Matrix scoring of major weeds, Qocha/Chafewari, Qile Obi North***

*This exercise was undertaken on a rainy morning in the house of a villager in Qocha. Seven people gathered in the house after the house owner called some others to join: three older men, one woman and three young men (ranging from 18 to 85 years of age). We requested them to tell us about the major weeds in the area. One of them went outside and collected samples of the different weeds they talked about. Then we drew a matrix diagram and laid the samples on the columns. We first asked if they could give scores (from 1 to 10) to them according to their seriousness. Then we discussed about different criteria and listed them in the rows. We collected small straws and gave the main participant (the household head) ten straws for each box. The discussion was very lively and the visualization in the matrix made things more clear and pronounced for the participants. We made a picture of the result at the end*

| weeds / criteria | Adaa | Muujaa | Asardaabo | Kaase | Doobi | Qorxobii | Laamoyi |
|---|---|---|---|---|---|---|---|
| OVERALL RANK | 1 | 2 | 6 | 5 | 3 | 7 | 4 |
| Damages many crops | \|\|\|\|\|\|\|\| | \|\|\|\|\|\|\|\|\| | \|\|\|\|\|\| | \|\|\| \|\|\| | \| | \|\|\|\|\| | \|\|\|\|\|\|\| |
| Cannot be weeded chemically | \|\|\|\|\|\| | \|\|\|\|\|\|\| | \|\|\|\|\|\|\|\| | \| | \|\| | \|\|\| | \|\|\|\|\| |
| Not easily differentiated from crop | \|\|\|\|\| | \|\|\|\|\|\|\| | \|\|\|\|\|\|\|\| | – | – | \|\|\|\| | – |
| Hand weeding difficult due to stinging | – | – | – | – | \|\|\|\|\|\|\|\| | – | – |
| Hand weeding difficult due to strong roots | \|\|\|\|\|\|\| | \|\|\|\|\|\|\| | \|\|\|\|\|\|\|\| | \|\|\|\| | \|\| | \|\|\|\|\| | \|\|\|\|\|\|\| |
| TOTAL SCORE | 29 | 36 | 37 | 11 | 15 | 18 | 21 |
| use as cattle forage | \|\| | \|\|\|\|\| | \|\|\|\|\|\|\|\| | – | – | – | – |

hand. It damages maize during the early seedling stage. After collection, it can be used for cattle feed.

3. *Doobii - Urtica Siminsis*
   Usually grows on fertile soils; damages maize, vegetables and other garden crops. It has hairy thorns which can irritate the human skin and therefore it is impossible to weed it by hand. During the exercise one of the women said this weed is *"my enemy"*.

4. *Laamoyi - Amarantus Hybridus*
   This weed has deep roots and can damage many crops. It damages the crops by its roots and broad leaves. After collection, it could be used for cattle feed, but in the flowering stage it is harmful for cattle.

5. *Kaase - Galinsoga Parviflora*
   This weed has broad leaves, damages several crops and decreases the crop yield at large. As its name indicates it can spread over a wide area and can damage crops in a short time.

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6. *Asandaabo - Plantago Lanceolata*
   This weed damages especially teff, wheat and barley. It is difficult to distinguish it from the crops, it has strong roots and it cannot be weeded chemically (by herbicides).

7. *Qorxobii - Scopiurus Muricatus*
   This weed decreases the quality of crops if it is threshed together with the crops. However, it can be weeded easily by hand or chemically.

8. *Mergegogori - Delphinium Wellbyi*
   This weed is less common, but it is very harmful for teff. It is very small in size, difficult to pick out by hand and it has strong roots.

In figure 18 these weeds are ranked and scored according to different criteria. According to the participants, the most important criteria when considering the seriousness of the weeds is that it can damage different crops. The most serious weeds could often also not be differentiated from normal crops. Other important criteria were related to the weeding operation: difficult to weed by hand (due to strong roots or poison) or no possibility to weed chemically. In Qile Obi, most weeding is done by hand, but approximately 30 to 50 % of the farmers are said to use herbicides (75 Birr per liter for one hectare). As an extra information, the weeds were ranked by their use for cattle forage.

### 3.3.5. Crop residue use

After harvesting crops, the local farmers use the residue of the crops (stalks, straw, leaves, chaff) for various purposes. Crop residue is considered very valuable in Qile Obi: firstly as a source of animal feed due to the scarcity of grazing land in the area, especially in the dry season, secondly as an organic fertilizer of the soil. But there are many other uses. The local farmers say: *"Only foolish people leave the crop residue about the threshing area."*

One of the PRA teams did a matrix scoring exercise on crop residues in Qile Obi North: see figure 19. The most important use of all crop residues is for cattle fodder. Barley and teff straw is mostly used as animal feed, but noug and beans are considered most effective for cattle fattening and nutrition.

Maize and sorghum stalks are an alternative fuel. Roof thatching is an important use of wheat and barley residues, while teff and barley straw and husks (leftover after threshing) are used to mix with mud (*chika*) for house walls. Wheat husks are too slippery.

Beans, peas and noug residue is commonly left rooted in the field after harvest for soil conservation and fertilization. Mulch of the softer crop residues is used around vegetables and tree seedlings to retain water and improve soil fertility.

Some crop residues are sold (teff, sorghum, barley), but only by poor farmers. The cost for a bag of teff straw in the market is 0.50 Birr.

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***Figure 19 - Matrix scoring of crop residues, Kereyu village, Qile Obi North***

*This exercise was done with the same participants as the matrix scoring on trees (see figure 13). The same approach was used, but the score was made out of 8. The "overall preference" rank at the bottom gives the participants' preferences regardless of individual criteria (1 is most preferred, 8 is least preferred). Uses are listed in decreasing order of importance. The scoring on uses was done with stones, where 8 is best and 1 worst.*

| CROP RESIDUE / USES | barley | teff | maize | sorghum | horse beans | peas | mug | wheat |
|---|---|---|---|---|---|---|---|---|
| cattle fodder | ●●●● ●●●● | ●●●● ●●●● | ●● ●● | ●● ●● | ●● ●● | ●● | ●● ●● | ● |
| green manure - left on fields | ●● ●● | ●● | ● | / | ●●●● ●●●● | ●● ●● | ●● ●● | ●● |
| fuel | / | / | ●● ●● | ●● ●● | / | / | / | / |
| house thatch | ●● | / | / | / | / | / | / | ●● ●● |
| in mud for house walls | ●● ●● | ●●●● ●●●● | / | / | / | / | / | / |
| mulch | ●● ●● | ● | / | / | ●● ●● | ●● ●● | ●● | ●● |
| for sale | ●● | ●● ●● | / | ●● | / | / | / | ● |
| total score | 25 | 25 | 11 | 11 | 18 | 15 | 15 | 12 |
| ranking | 1 | 1 | 7 | 7 | 3 | 4 | 4 | 6 |
| overall preference | 1 | 2 | 6 | 7 | 4 | 5 | 3 | 8 |

"/" means crop is not used for this purpose.

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## 3.4. Livestock production

### 3.4.1. General

The average household in Qile Obi has 6-10 heads of cattle, 4-5 sheep or goats, and 1-3 horses and/or donkeys. Oxen are considered the most important, as they are used for ploughing. Cows are kept for milk production and reproduction. Sheep, goats and chicken are reared mostly for income-generation from sale of the animals and their products. Livestock is also kept as a means of security to sell in times of crisis.

Livestock ownership is proportional to the wealth status of the households and often to age. The rich have 10 or more heads of cattle and several horses and small ruminants, while the poor usually only have chicken and 1-3 sheep or goats (see also Section 4.2, Wealth Ranking).

The total livestock population owned by the farmers of Qile Obi is estimated to be around 1,200 cattle, 800 small ruminants and 250 horses. However, most of the time these animals are not within the boundaries of the PA, as they are sent for grazing to other areas.

***Figure 20 - Trends in livestock population and grazing land, Qile Obi South***

*Livestock population and grazing land was included in the historical trends outlined by Ob. Kefani and Ob. Beyensa (see figure 12).*

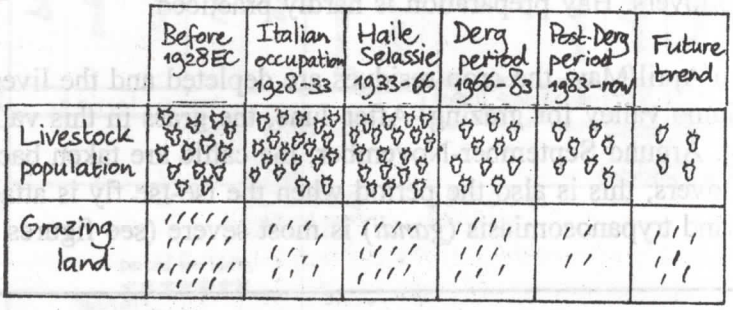



Figure 20 gives an indication of the trends in livestock population. Until the downfall of Haile Selassie the livestock population was on the increase, mainly because there was enough grazing land at that time. When land was nationalized and reformed, it was split up in many small plots and the grazing area decreased. As a result, the number of livestock in the area also decreased, and this trend is continuing because of increasing growth of the human population and a resulting scarcity of farmland. Another factor in the declining livestock population is the spread of trypanosomiasis (*gandi*), which is caused by the tse-tse fly encroaching in the river valleys in the area, which are now predominantly used for cattle grazing. While the average household used to have about 10 heads of livestock 10-20 years ago, this number is starting to decline because of trypanosomiasis and other livestock diseases, and because of shortage of grazing land. Therefore, the PRA participants indicated that in the immediate future the livestock population will drop even further, unless the land is supported by some improving measures and livestock is supported by extra fodder and veterinary services.

Apart from trypanosomiasis, other livestock diseases include: black leg, anthrax, FMD, stomach bloat and ticks. All livestock diseases more frequently attack adjacent lowland PAs to the north of Qile Obi.

### 3.4.2. Animal feed and grazing land

As in Arfinjo Borodo, animal feed comes solely from grazing lands, crop residues and weeds (see also Sections 3.3.4 and 3.3.5). For the major part of the year the livestock of a group of neighbours or relatives is assembled and taken to a grazing area in a valley to the north of Qile Obi, near the village of Cadu (Huru Gamo PA, 1800-2000 masl). The process of taking cattle for extended stay (one to three months) outside the PA is called "*dereba*"; some farmers have stopped taking their cattle down because the area has become infested with trypanosomiasis. Some of the households take their livestock to the Boke and Obi mountain summits. There is no communal grazing land within the PA. From a

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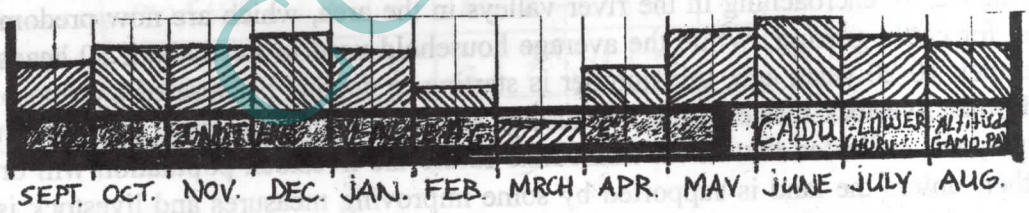
resource map of 25 years ago (drawn as remembered by one farmer) we learnt that there used to be communal grazing land on the higher slopes of Mount Obi in Qile Obi South. At present this is all being used as cropland.

After harvest, the animals are taken back to the PA to graze on the crop leftovers and weeds, partly on the fields and partly on the threshing leftovers near the homesteads. However, there is no developed practice of cut-and-carry or stall feeding which is geared to the nutrition needs of the livestock, although the farmers realize the value of e.g. bean and noug leftovers. Hay preparation is hardly practiced.

After March/April/May, the crop residues are depleted and the livestock is usually taken to the Huru Gamo valley for grazing. After June, the grass in this valley depletes because of overgrazing. Around September-November, the cattle are taken back to Qile Obi to graze on crop leftovers; this is also the period when the tse-tse fly is attacking the cattle more vigorously and trypanosomiasis (*gandi*) is most severe (see figures 21 and 22).

***Figure 21 - Seasonal calendar of grazing and animal feed availability, Qile Obi South***

*This exercise was done with two women in Hurufa Aba Mosisa. We started with a discussion on seasonal variations in women's work, household income and expenditure, water availability and ended with grazing and animal feed availability (see figures 23, 25 and 14). The women indicated during which months the livestock is taken to the grazing land outside the PA (Cadu, Huru Gamo PA) and when they are grazing on crop leftovers and grass patches inside the PA. They also indicated the relative availability of feed, which is lowest in March, February and April.*



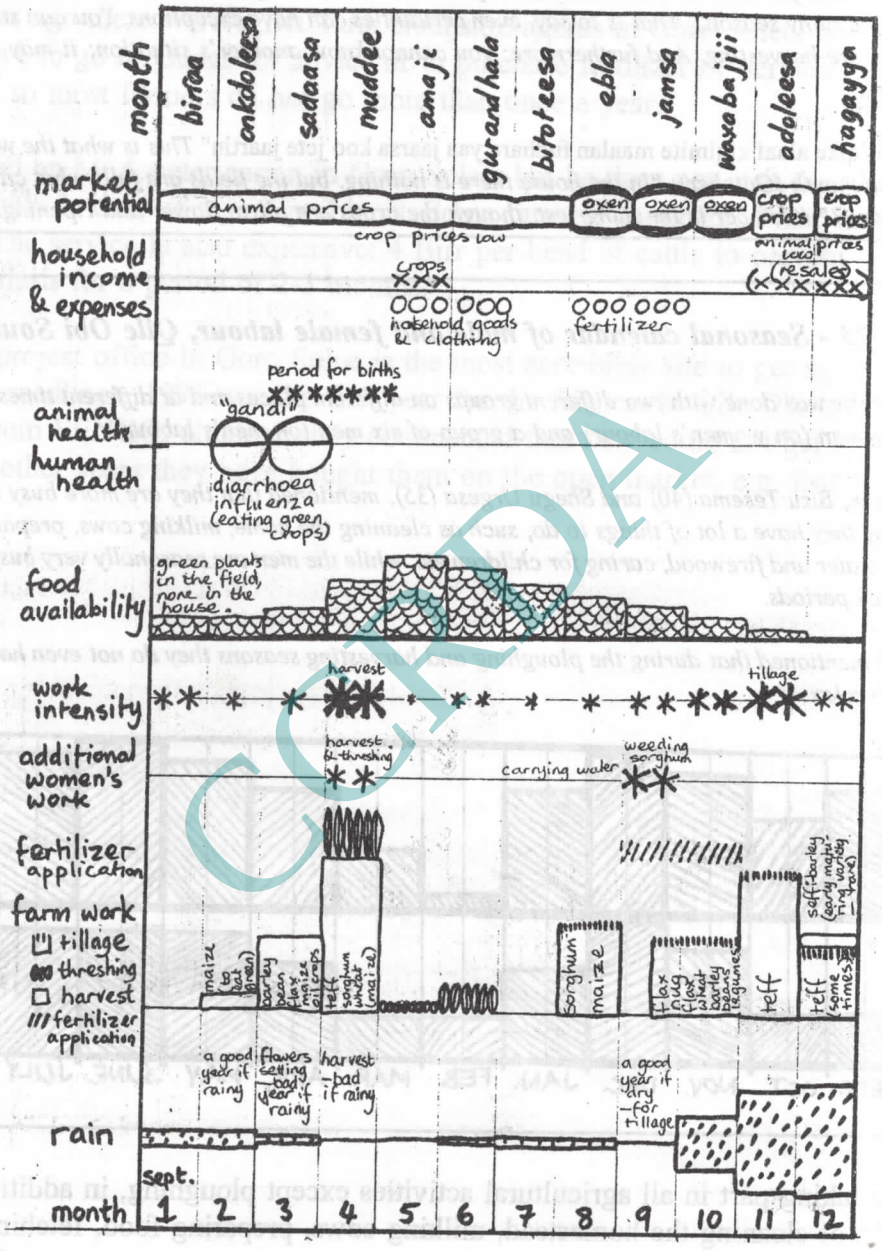

## 3.5. Agricultural activities

From figure 22 and 23 one can learn about the peak working months and the different activities undertaken throughout the year, disaggregated for men and women.

Male farmers are extremely busy two times in the year. One is during the period of tillage, incl. ploughing, fertilizer application, sowing and weeding, which covers mainly the months of May, June and July. The other is the harvest season which covers November, December and January. During both seasons almost all farmers are occupied the whole day; the PRA participants stated that sometimes they even lack the time to eat, leave alone to relax. August, September and April are the next busy months (for weeding and tillage). February and March are relatively slack periods for the male farmers, during which they can perform other activities, like going to the market, drinking and visiting relatives.

***Figure 22 - Seasonal calendar of different agricultural conditions, Qocha village, Qile Obi North***

*This calendar was made with barley-harvesters in Qocha. The calendar shows the occurrence and intensity of various things associated with agricultural production throughout the year.*




*We started with an indication of the seasonal rainfall pattern. The calendar show an average/typical year, but variations from this are common, and critically important to farmers. As cattle are desperately in need of water during December and January, they say the following:* "Mudee nu mudee ti furmi nu furi jete dulon" *("In December and January we are anxious but in March we get relief").*

*The farmers told us other traditional stories associated with the rainfall pattern (see next page):*

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*The farmers told us other traditional stories associated with the rainfall pattern:*

*"The son came to his father and said 'Please, get me a girl to marry'. The father said 'Oh, you've asked a good question. If the 9th month of this year is dry and the 2nd month of next year is rainy, I'll get you a wife. But if the 9th month is rainy and the 2nd is dry, I'll even have to send your mother from my house, instead of getting a wife for you, because the year will be so bad!'"*

*"Nobody knows for another the unkindness of a mother, the hunger in Mudee (December), or the thirst in the rainy season." That is to say, even certainties can have exceptions. You can starve even while you are harvesting. And furthermore: you cannot know another's situation; it may not be as it appears.*

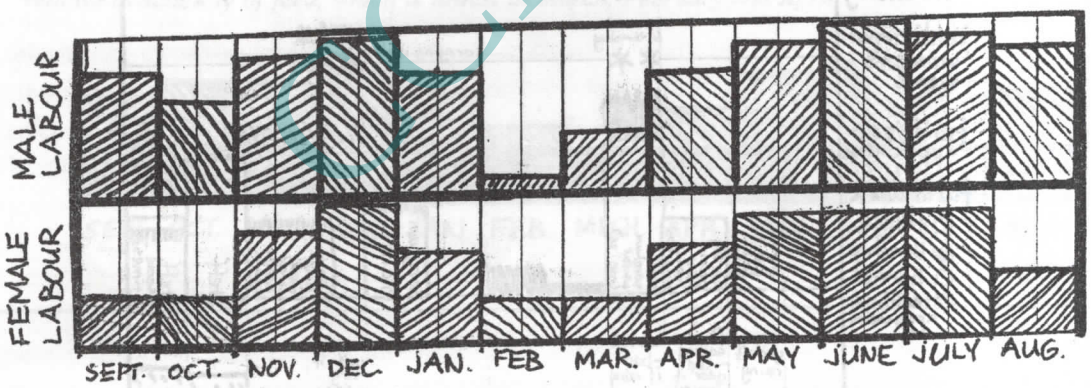
"Mana biliqixe alaaf xiqimite maalan fudhare yaa jaarsa koo jete jaartin" *This is what the women say in the 2nd month (October): "In the house there is nothing, but the fields are full; what can I do for my husband?" (October is the hungriest, though the crops are all in flower and ripening.)*

***Figure 23 - Seasonal calendar of male and female labour, Qile Obi South***

*This exercise was done with two different groups on different places and at different times: a group of two women (on women's labour) and a group of six men (on men's labour).*

*The women, Bizu Tesema (40) and Shegu Urgesa (35), mentioned that they are more busy than men. Every day they have a lot of things to do, such as cleaning the home, milking cows, preparing food, fetching water and firewood, caring for children etc. while the men are seasonally very busy but also have slack periods.*

*The men mentioned that during the ploughing and harvesting seasons they do not even have time to eat or to relax.*




Women are taking part in all agricultural activities except ploughing, in addition to their regular tasks of cleaning the homestead, milking cows, preparing food, fetching water, collecting fuelwood/twigs, caring for children etc. Women have the most work during the harvest season, especially in December, when they assist with harvesting itself and are responsible for carrying the harvested crop to the threshing site. Threshing itself is also attended by women. During the period of tillage, in the months of May, June and July, women are also busy, especially with hoeing and weeding maize and sorghum. To a lesser extent, in August, September and October the women are involved in weeding and some harvesting (esp. pulses and barley). The relative slack months for women are February and

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March, but at that time threshing is still going on and the collection of water for the household becomes a more difficult task.

When comparing the two bar-graphs in figure 23, it becomes clear that June is the peak month for male farmers and December is the peak month for women. However, their activities are very much interlinked.

## 3.6. Agricultural extension services

A few years ago there were agricultural extension agents in Goro Solee, but at present the farmers have to go to Guder for advice or to purchase fertilizer or herbicides. Guder is 23 kms away, so most farmers do not go more than once a year.

There is still an MoA veterinarian in Goro Solee, but he does not visit the villages regularly, only in case of severe problems. Some farmers commented that the service is very bad. The service is also expensive: 4 Birr per head of cattle to prevent trypanosomiasis for a period of 2-3 months.

EENGO's project office in Goro Solee is the most accessible site to get agricultural advice or e.g. tree seedlings. 1995 was the first year for the farmers in Qile Obi to get tree seedlings from EENGO, although they commented that they could not get as much as they wanted. In other years they have bought them on the open market, e.g. from Guder.

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# 4. HOUSEHOLD ECONOMY AND FOOD SECURITY

## 4.1. Means of livelihood

All people in Qile Obi PA are farmers, except for one or two ex-soldiers who did not get land and are now involved in trading. Small-scale production of grains and pulses constitutes the major means of livelihood, with some livestock production as an extra source of food, income and security. Finally, there are some farmers who use wood/trees, grasses, crop residues, etc. as a subsidiary source of income.

Nearly all crop production is for subsistence or home consumption, although some crops are sold at certain times during the year (esp. teff, wheat, beans, lentils). We did not get the impression that there was a lot of trade in grains and other crops.

Within the villages the only non-farm income-generating activity seemed to be the sale of local alcohol (*araqee*). For purchase of retail commodities like petrol, salt, sugar, coffee etc. the inhabitants of Qile Obi go to Goro Solee. For the sale of crops and the purchase of industrial goods like clothes, farm tools and kitchen utensils the villagers also go to Goro Solee, esp. to the Wednesday or Saturday markets. Animals like sheep or cattle are usually sold at Babich and Guder markets.

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## 4.2. Socio-economic classification

Within a rural community like that of Qile Obi there are always differences in socio-economic standards and well-being. The PRA fieldwork teams have tried to find out what these differences were in the eyes of the local people, and what relations there are between the different socio-economic groups. For this reason the teams have asked the local people to identify criteria for well-being, characteristics of different socio-economic groups and relative sizes of these groups, as part of a PRA exercise known as "Wealth Ranking".

The following were seen by the villagers as the major criteria for local well-being:- livestock ownership (esp. oxen), land ownership (esp. size), condition of the house and other assets. The villagers have their own descriptions of different wealth categories in Oromo language:-

*Deegaa* ("those who have nothing") - If one takes the literal meaning of this term, there are no people of this category in the area, but the PRA participants used this term to indicate people who do not have their own house or have only a very small hut, who have no land or rent out their land as they are unable to cultivate it because of lack of oxen or labour power (e.g. because of old age, sickness or handicap). Those who are still able to work, sell their labour to other farmers, e.g. as cattle-herder or to carry things. Mostly people in this group do not have more than one regular meal in a day. This group was not separately identified in Qile Obi South, where they were grouped together with the *Harka Qall'eessa*. It is estimated that about 8 % of the households in Qile Obi is *Deegaa*.

***Figure 24 - Wealth ranking in Qile Obi***

*In Qile Obi South, halfway up the hill, three farmers (two of them harvesting), two old and one young, were ready to discuss with us on wealth categories in their village. In Qile Obi North, a group of about six men discussed after harvesting on the same issue. For both fieldwork zones four categories were identified, but the categories were a bit different by name and definition. Both groups were reluctant to mention names of people in each category, but managed to count the number of people in each category. Below is an indication of the categories, from poor to rich, and their relative sizes, according to the participating villagers.*

| *Qile Obi North* | | *Qile Obi South* | |
|---|---|---|---|
| *Deegaa* | *8 hhs.* | - | |
| *Iyeesa* | *10 hhs.* | *Harka Qall'eesa* | *25 hhs.* |
| *Fooya Qabeesa* | *69 hhs.* | *Wayya Qabeesa* | *20 hhs.* |
| | | *Jiddu Galeessa* | *30 hhs.* |
| *Soreesa* | *13 hhs.* | *Qabeessa* | *20 hhs.* |
| | *100 hhs.* | | *95 hhs.* |

*Iyyeesaa* or *Harka Qall'eessa* ("those who have something, but not enough to live a good life") - These people only have a small house, chicken and 2-3 small ruminants (goats or sheep), they have 2-3 *olcha* (under 1 ha.) of farmland but no oxen, so they either work as plougher on other people's farms which gives them the right to use the oxen one day for each three days labour on other farms, or they sharecrop their land, i.e. letting others plough their land, thereby getting 30 to 50 % of the harvest. They also only eat once a day. They sleep on a *kasha* (mat made of fibres) on the floor. About 14 % of the households falls under this category.

*Wayya Qabeessa* or *Foyyaqabeessa* ("those who can feed themselves") - This group has one or two tukul houses, 1-3 oxen, two cows, 2-3 small ruminants, a horse and 5-10 *olcha* (1-2.5 ha.) of farmland, although sometimes more in Qile Obi North (up to 15 *olcha* or 4 ha.) where land is not so scarce as in Qile Obi South. Although they have little farmland, because of their ownership of oxen these people can sometimes sharecrop land of the *Harka Qall'eessa*. They fully use their own farm labour. They sleep on *medeb* beds (made of mud) covered with hides. They eat twice in a day. About 30 % of the households is *Wayya Qabeessa*.

*Jiddu Galeessa* ("those who have enough") - have one or two tukuls and sometimes also a *qorqorro* house (with a corrugated iron roof), 3-4 oxen, 3-4 cows, 3-4 small ruminants, 1-2 horses, and 10-15 *olcha* of farmland (3-4 ha.). They sleep on wooden beds with leather straps covered with hides. Regularly, they eat three meals a day. They also sharecrop the land of those who have land but no other inputs, like oxen or fertilizers. This group was not separately discerned in Qile Obi North, but grouped under the *Fooyaqabeesa*.Overall, one can estimate that 33 % falls under this group.

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*Qabeessa* or *Soreessa* ("those who can give to others", "the rich") - They usually have a nice *qorqorro* house, a good tukul plus a small kitchen or service quarter. They own 4-8 oxen, 4-5 cows, 5-6 small ruminants, 2-3 mules or horses, and 15 or more *olcha* of farmland (more than 4 ha). They usually cultivate the land of other farmers who have no inputs (sharecropping or leasing). They hire labour from other farms in the peak agricultural seasons, against payment in kind or in cash. They have wooden or iron, wire-mesh beds, as well as other assets such as sewing machines or radios. They sometimes even have a house in town (in Goro Solee). They eat a good meal three times a day. About 17 % of the households in Qile Obi is considered part of this group of "rich".

From figure 24 we can conclude that the population is quite equally divided over the different wealth categories, but that the middle category (*Wayya Qabeesa* and *Jiddu Galeessa*, i.e. people with approx. 2 ha of farmland, 2 oxen and 2 cows) is the biggest group. In Qile Obi North they seem to have more farmland and less oxen, whereas in Qile Obi South they have less farmland and more oxen. Sharecropping and farm labour determine the relationships between the different socio-economic categories, with the better-off (*Wayya Qabeesa*, *Jiddu Galeessa* and *Qabeessa/Soreesa*) hiring labour or renting land from the poor (*Deega*, *Iyeesa* and *Harka Qall'eessa*).

## 4.3. Household food security, income and expenditure

Part of the above categorization was defined by the number of meals eaten per day. About 50 % of the households in Qile Obi South was estimated to eat less than three meals per day (with about 25 % eating only one meal a day), i.e. to have some chronic food deficiency (although this remains a very subjective indication given by only a few farmers).

The poorer households experience more problems during food shortage months, i.e. especially in the rainy season (June-August), as we can see from figure 22, "food availability". In September and October the availability of food is better because of ripening green plants (pulse crops) and early maturing varieties of especially barley. The availability of food is at its best in January, after which it starts depleting slowly through consumption by the household and sale of some crops in order to buy some other highly needed items, like household goods, clothing and fertilizer, or to fulfil other obligations, like tax payment and repayment of debts (see figures 22 and 25).

The richer households are generally able to make better use of their crop and livestock. They can afford to sell them when prices are high. Crop prices are high in the rainy season when there is food shortage. Those who have stored their crops can therefore sell them at better prices during especially July and August (see figure 22). Prices of poultry, sheep and goats rise during annual holidays, i.e. during Ethiopian Christmas (December), Easter (April) and New Year (end of August). Therefore these are the times when farmers get maximum income during the year (see figure 25). Continuous income is derived from the sale of butter, eggs and local liquor (*araqee* or *katikala*), especially during the dry season, when there is less farm work to do.

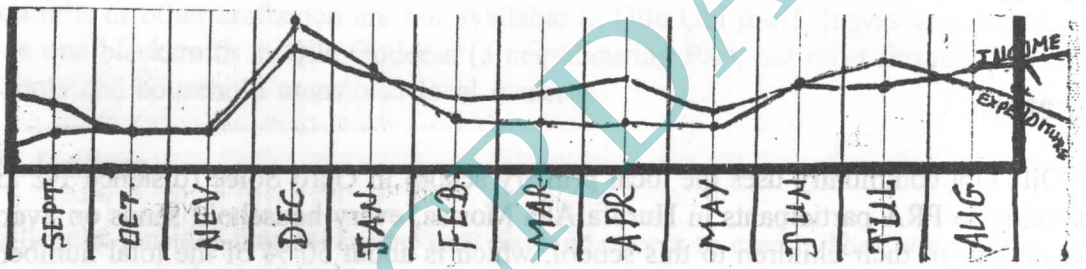
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The farmers also have different cash expenditures. The most common expenditures are school fees and education materials for their children, tax payment, credit repayment (especially to repay their fertilizer credit), purchase of household commodities (salt, coffee, pepper, etc.) and clothes. According to the participants in Qile Obi South, the highest expenditures are made in December and January, when they pay taxes and repay their debts following the harvest income. September is also a period of increased expenditure, when children go to school, followed by July when grain has to be purchased for home consumption as they exhaust their own reserves from their store.

By and large it was noted that expenditure slightly exceeds income and farmers lead their life in deficit or are continuously indebted. They complained that expenses were high in December, when crop prices are low. If more farmers would be able and clever enough to sell their crops and livestock when prices are high, they would be in a much better position.

***Figure 25 - Seasonal calendar of household income and expenditure, QO South***

*This exercise was conducted with two women in Hurufa Aba Mosisa. They allowed themselves some time to work with us on a seasonal calendar of household income and expenses. Both income and expenses are mostly determined by food availability, i.e. the relative distance from the harvest period, as well as by some periodic events like annual holidays.*




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# 5. INSTITUTIONS AND SERVICES

## 5.1. Health services

For modern health services the people of Qile Obi have to travel to Tokkee Irensa, which is 7 kms away on the road to Nekemte, where there is a clinic run by the Baptist General Conference Mission (BGCM). Alternatively, they can go to Ambo Hospital, which is 37 kms away.

The value of health services was appreciated differently by men and women. Few male PRA participants mentioned any serious diseases, and most were satisfied with the existent health services. The women however, mentioned various diseases, most of them affecting children, such as internal parasites, pneumonia, glaucoma (eye disease), influenza, whooping cough, and others (see also the women's group report on Arfinjo Borodo). These diseases are most prevalent in the period directly following the main rains, i.e. October-November (see also figure 22). The women also mentioned the lack of delivery, and pre- and post-natal services. This was also mentioned by a few men in Qile Obi South, who recalled the recent death of a woman while giving birth. As there are also no traditional healers or TBAs in the village, this made women to put high priority on better health services.

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## 5.2. Education

The Qile Obi community uses the local primary school in Goro Solee (distance 1-2 km). According to PRA participants in Hurufa Aba Mosisa, every household sends on average three or four of their children to this school, which is about 50 % of the total number of children in the Qile Obi community. The other 50 % does not go to school, mainly because of economic reasons: school fees and materials are too costly to afford for all their children, and the cost will even be higher if the children want to continue their high school education in Tokee Irensa (7 kms) or Guder (25 kms).

Out of the elementary school attendants, about 90 % was said to pass to the Junior Secondary School (grade 7 and 8) at Tokee Irensa. For high school education above grade 8 (9-12) they should go further to Guder (25 kms) or Ambo (37 kms).

Both to the primary school in Goro Solee and the junior secondary school in Tokee Irensa the children of Qile Obi are walking every day. The senior secondary schools in Guder and Ambo can only be reached by public transport (bus), which is usually done only once a week, so that the children stay with relatives or friends in these towns.

The Goro Solee school gives education to 373 students out of which 221 are male and 152 are female. The school is run by a director and eight teachers. They only give day service.

## 5.3. Grinding mill and market facilities

To grind their grain most of the people in Qile Obi use the two diesel-powered private grinding mills in Goro Solee (1-2 km). There is also a small water-powered grinding mill in Qile Obi South, beside the Qile river. However, this mill breaks often and has a very small capacity. According to the people living nearby the mill, it does not fulfil more than 5 % of the community's needs.

The people of Qile Obi complained that the cost of grinding in Goro Solee is very high. They mentioned that sometimes they have to pay 2 Birr for only 7 kgs of grain. This is mostly during holidays and when there is shortage of diesel. The normal charge is said to be 15 Birr/qtl., but the above indicates that it can go up to 30 Birr/qtl.

The villagers usually go once or twice a week to Goro Solee to grind their grain. This is often combined with a visit to the open market, which is held on Wednesdays and Saturdays. It is there that they buy basic items like salt, soap and oil, and sell some of their agricultural products, like grain, butter, eggs or chicken.

For bigger business like sale of cattle, pack animals and purchase of clothes, the villagers go to Irensa (7 kms) or Babich (14 kms) on Sundays and to Guder (25 kms) especially on Monday.

Blacksmiths or other craftsmen are not available in Qile Obi itself. It was mentioned that there is one blacksmith in Qile Godeesa (a neighbouring PA), but most farmers buy their farm tools and household utensils at local markets.

## 5.4. Credit facilities

The villagers consider that at present they have no access to credit. They used to get fertilizers on credit basis through the Ministry of Agriculture and the Agricultural and Industrial Development Bank (AID Bank). However, this opportunity is closed down for 1995 due to the inability of the community to settle its debt. The main reason for this inability is crop failure in the last harvesting season due to hailstones and untimely cessation of rains.

The other credit opportunity rarely available is loan from local money-lenders. However, these lenders demand a minimum of 20 % interest per month, which is unaffordable for most local farmers.

## 5.5. Transport

Although Qile Obi is crossed by an asphalted road, access to transport facilities is limited. Cars or buses are needed to go to places like Guder, but they are often full.

The main means of transport to Goro Solee or Irensa and Babich is by foot or horse and donkey. However, pack animals are often attacked by a disease called *Biiche*, and therefore became scarce in the area. This is mainly a problem if people have to go urgently to the clinic or hospital.

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## 5.6. Administrative offices

The closest administrative structure is the Peasant Association (PA), whose office is in the middle of Qile Obi, alongside the main road. The PA is only used for official administrative purposes, i.e. when a meeting is called by the Chairman.

Qile Obi PA used to be part of a Service Cooperative of six PAs with its headquarters in Goro Solee. However, the Service Cooperative stopped working a number of years ago. EENGO is now using the previous SC office as their project office.

The main administrative office is the *Wereda* or District Office, which is located in Guder. However, the farmers hardly ever deal directly with this office.

## 5.7. Community-based organizations and local institutions

The most important institutions in Qile Obi are those run by the local people themselves, the so-called Community-Based Organizations (CBOs). These include traditional societies like *Iddir* and *Golobee*, which are mostly active during burials, weddings and other important occasions, as well as religious societies and conflict-resolving bodies.

The various levels of *Iddir* perform a very vital role for the community. They are mainly formed to organize mournings in case of death of a community member, but they also perform other social functions. The closest level is the *Golobee*, which consists of neighbours in a small village settlement (e.g. 80 members), and which provides security for members in case minor incidents happen (e.g. sickness, the death of an animal, localized crop failure, attack of wild animals); personal hardships are initially shared by *Golobee* members, e.g. when an ox dies, the other members collect money to replace the ox. Families who lose a relative are assisted by collecting firewood and bringing food during the mourning period (one week). The *Golobee* also collects regular contributions from members to buy coffee and other food for mournings, weddings and to help members in need.

The larger *Iddir* for the whole community of Qile Obi is called *Modi* or *Iddirii*. Its main function is mutual help during mourning periods, including the preparation of the burial place, transportation of the deceased to the burial place, financial and material assistance to the deceased's family, gathering of people to attend the burial and mourning ceremonies. It incorporates several *Golobees*.

*Jarsa Biya* is a group of elders (wise men) from the village as well as from other villages, who solve conflicts and will provide advice to those in trouble (e.g. in case of disputes).

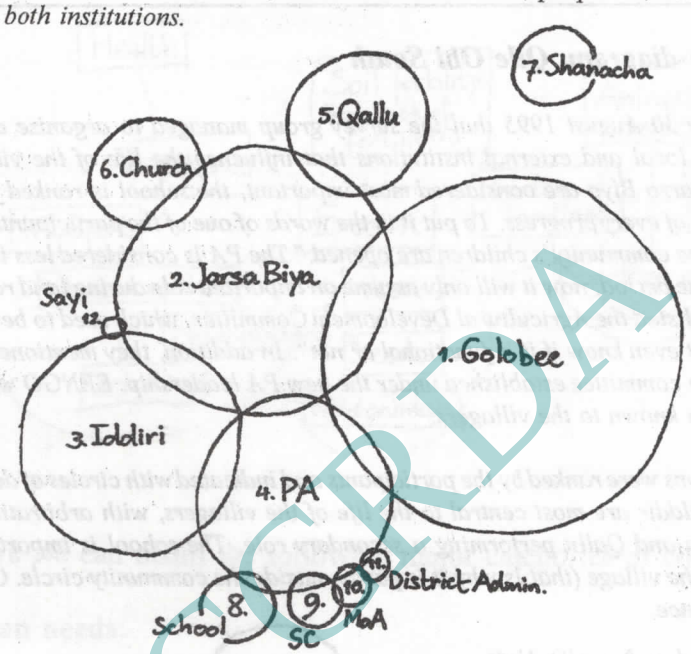
More important conflicts, e.g. those which involve murders, civil strife or ethnic conflicts, are handled by a clan-committee of elders called *Shanacha*, who work in consultation with leaders of the Oromo traditional religion. Most conflicts are handled in this manner; only few cases are presented to state judiciary organs.

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***Figure 26 - Venn-diagram, Qocha village, Qile Obi North***

*With about eight people in a house in Qocha (seven men, one woman, ages 18-85), we had a discussion about local institutions. Beyond any doubt they listed the Golobee as the most important organization, as "it is nearest to us and the first to help us." Similarly, Jarso Biya, Iddir and PA are ranked in descending order of being close to them. There was some disagreement about the position of the PA and the Qallu, the latter found more important by the woman in the group. The school was listed eighth, as it binds the people of the area together. "To have educated children is helpful for the whole family." The Service Cooperative (SC) is not anymore functional, but was appreciated because of the commodities and inputs it provided to them; they wish it could be revived.*

*After ranking the different institutions, their interrelationships were determined and put in a so-called Venn-diagram. Most connections indicated are legal connections, e.g. referral to another body. The Iddir and Golobee do not necessarily have to be connected; people do not necessarily have to be members of both institutions.*




The traditional religious leaders are called *Qallu*. Although the people are officially Orthodox Christians, the traditional religion is deep-rooted in the community. Most local people go to the *Qallu* if they want to confess something, in case they want personal advice or a forecast of the future, to get proof in absence of witnesses (those who have been done wrong call the wrongdoer to the *Qallu* and will hear the truth, as anybody who lies in front of a *Qallu* will be cursed), etc. The *Qallu* also play an important role on special holidays.

Although the traditional religion has deeper roots, the Orthodox Church is also an important local institution. There is one Church in Goro Solee where most local people go to on Sundays and on Christian Holidays. It serves seven PAs. A committee is in charge of collecting money for administration and development of the church.

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There is also a *Maabara* (or *Maheber*), an association of church followers who organize the celebrations at Christian holidays, i.e. the distribution of *talla* and *tej*.

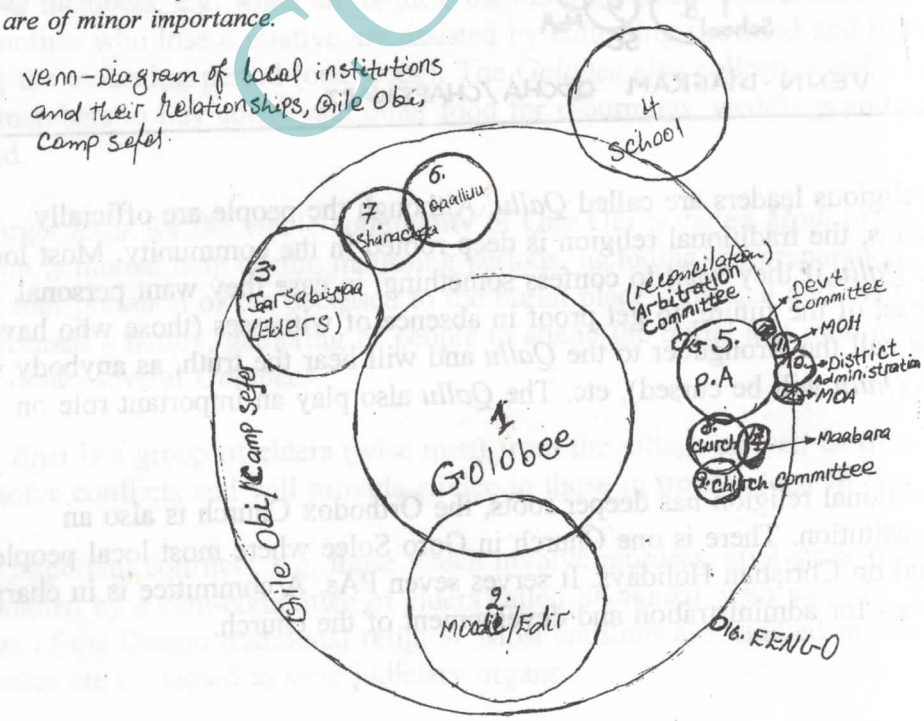
A final community-based institution found in Qocha village is the *Sayii*, an association for mutual help in case of animal or human death; members help those affected by working on their farm and sharing of oxen.

As can be seen in figures 26 and 27, the *Golobee* is the most important institution for the local villagers, followed by the larger *Iddir* or the *Jarsa Biya*. The official institutions like PA, District administration and District bureaux are much less important in the daily life of the villagers. The *Qallu*, Orthodox church and school are more important.

***Figure 27 - Venn-diagram, Qile Obi South***

*It was on Wednesday 30 August 1995 that the survey group managed to organize a group of six people to discuss on local and external institutions that influence the life of the villagers. While Golobee, Iddir and Jarso Biya are considered most important, the school is ranked fourth as it is considered the source of every progress. To put it in the words of one of the participants: "The school is where the eyes of the community's children are opened." The PA is considered less important now than during the Dergue period; now it will only assume an important role during land redistributions. The participants also listed the Agricultural Development Committee, which used to be important but now the people "don't even know if it is functional or not". In addition, they mentioned that there is an official arbitration committee established under the new PA leadership. EENGO was mentioned, but not yet very much known to the villagers.*

*The different institutions were ranked by the participants and indicated with circles of decreasing size. Golobee and Moodii/Iddir are most central to the life of the villagers, with arbitrating bodies like Jarso Biya, Shanacha and Qallu performing a secondary role. The school is important, but for a wider area than just the village (that is why it is partly outside the community circle. Official bodies are of minor importance.*



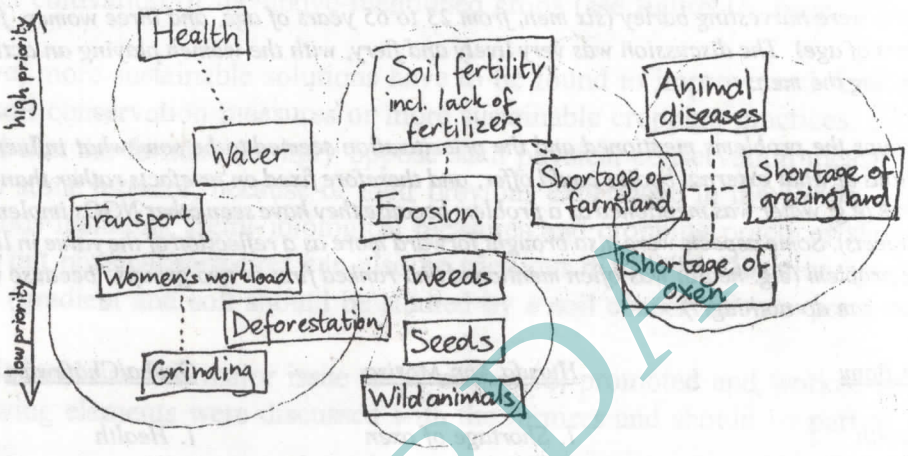

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# 6. NEEDS ASSESSMENT

## 6.1. Community priorities

During the PRA fieldwork both teams in Qile Obi have had discussions about the major problems and opportunities of their village. These problems were also ranked by the participants (see figure 28). Unfortunately the teams did not get a chance to discuss them in a wider forum during a final community meeting.

The problems arising from the exercises as reflected in figure 28, including their priorities and relationships can be visualized in a so-called "problem tree":




From this picture we can distill the following major categories of community needs:

* **Basic human needs**:

  health, water, transport, lack of fuelwood, women's workload and grinding mill cost;

* **Farming problems**:

  a) **Crop farming/land pressure** - declining soil fertility and lack of fertilizers, erosion, shortage of farmland, weeds, shortage of oxen, lack of improved seed, wild animals eating crops,

  b) **Livestock** - animal diseases and shortage of grazing land.

Although human health has received the highest overall priority, this seems to have been determined to a large extent by the value given to good health and possibly by expectation rather than by the need for improvement (see also Section 5.1). The interlinked problems of soil fertility, lack of fertilizers, erosion and shortage of farmland can possibly be regarded as the first and foremost problem of the area. Second to that are the problems of animal diseases, shortage of grazing land and shortage of oxen. Health needs and the

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shortage of clean water should however not be neglected, and should also be addressed by development agencies if they wish to make an impact. Other crop farming problems and basic needs can be listed as the fourth and fifth categories.

***Figure 28 - Pair-wise ranking of major problems***

*In Qile Obi South problem priority ranking was done with two groups at different places. One group consisted of only three men, while the other was bigger and consisted of six. The results were quite different.*

*In Qile Obi North, in Qocha/Chafewari, one ranking exercise was conducted with a big group of nine people who were harvesting barley (six men, from 23 to 65 years of age, and three women, from 40 to 60 years of age). The discussion was very lively and fiery, with the women playing an active role in convincing the men.*

*In all groups the problems mentioned and the prioritization seemed to be somewhat influenced by expectations of what external bodies could offer, and therefore fixed on artefacts rather than deeper constraints (e.g. water was mentioned as a problem because they have seen other NGOs implementing water projects). Some aspects were also brought forward more as a reflection of the value in life than as a real problem (e.g. health was often mentioned and ranked first in two groups "because without health you can do nothing!")*

*Hara Bonu*

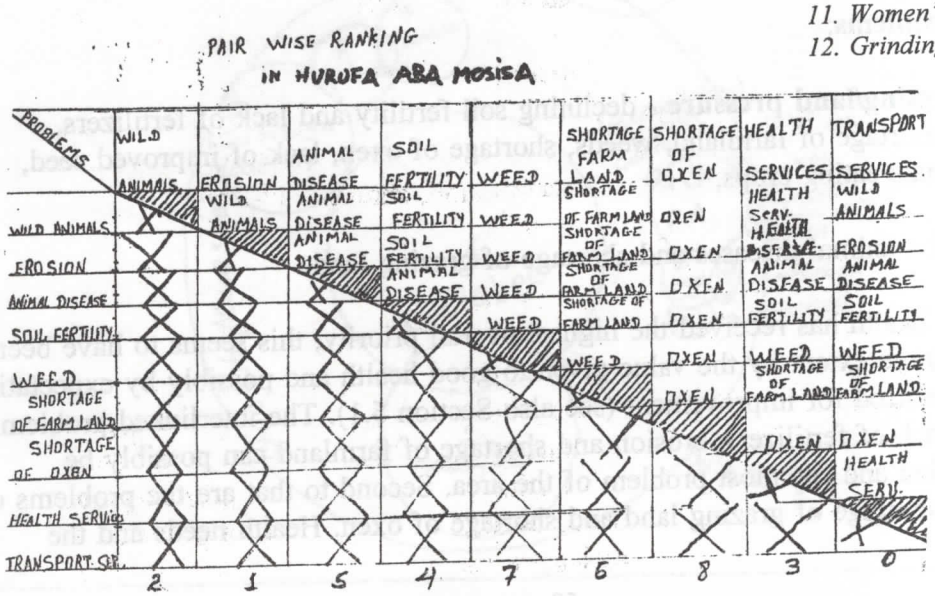
1. *Health*
2. *Soil fertility*
3. *Animal diseases*
4. *Wild animals*
5. *Shortage of clean water*
6. *Transport*

*Hurufa Aba Mosisa*

1. *Shortage of oxen*
2. *Weeds*
3. *Shortage of farmland*
4. *Animal diseases*
5. *Soil fertility*
6. *Health services*
7. *Wild animals*
8. *Erosion*
9. *Transport*

*Qocha/Chafewari*

1. *Health*
2. *Water*
3. *Lack of fertilizers*
4. *Grazing land shortage*
5. *Animal diseases*
6. *Cropland shortage*
7. *Weeds (herbicides)*
8. *Deforestation*
9. *Erosion*
10. *Lack of improved seed*
11. *Women's workload*
12. *Grinding mill cost*




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### 6.1.1. Soil fertility and land pressure

The local farmers often express this problem in the need for fertilizers. However, the increased need for fertilizers shows that the fertility of the soil has declined over time, which could in turn be attributed to increased pressure on the land (i.e. less fallowing, less natural fertilization - see also Section 2.1).

Chemical fertilizers are now necessary to get a good yield of especially teff, barley and wheat. However, they have become very expensive and unaffordable to pay or to repay the credit which was given to the farmers by the Ministry of Agriculture in the form of fertilizers in previous years. The farmers suggested to give them access to more affordable credit facilities, but these can hardly be made sustainable if the price of fertilizers is not structurally curtailed at a national level. The local farmers are therefore expecting a decrease in cultivation of the above-mentioned crops (see figure 16, page 32).

Alternative, more sustainable solutions have to be found to improve soil fertility, e.g. physical soil conservation measures or more sustainable cropping practices. However, it was found that the farmers strongly oppose such physical conservation measures as soil bunds and stone terraces, because of their previous experience in the 1980s. Therefore, new methods including (semi-)biological measures and cropping practices should be employed but physical measures can also be tried out if the right location-specific measure is applied (gradient and soil should be studied by a soil conservation expert).

Sustainable land use is a major issue to be addressed, promoted and worked out further. The following elements were discussed with the farmers and should be part of such a programme:

* Cropping practices like crop rotation, intercropping, use of crop residue should be used more and adapted as effective soil conservation measures. Nitrogen-fixing fodder crops could be introduced to improve soil fertility and animal feed sources.

* Grass strips and hedges could be tried out in combination with very meticulously selected physical conservation measures, e.g. on the fields of some willing farmers, after which others could see the advantage. It would be unwise to introduce a standard soil conservation measure such as soil bunds or terracing on a large or even medium scale before the farmers have realized and witnessed the advantage.

* Planting of soil-conserving trees on strategic places and in catchment areas to prevent landslides and erosion.

* Awareness-building on the need for soil conservation and afforestation should be a major component of any such programme; results can not be expected soon.

In addition, the pressure on the land should be relieved by e.g. providing alternative employment opportunities or population measures (family planning education etc.). These solutions did not come directly from the farmers themselves, and would therefore require further participatory analysis and planning (at least to create awareness). However, such issues are vital to a long-term solution of the main problems of the area.

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### 6.1.2. Livestock problems

Two problems are affecting one of the local people's major assets: animal diseases and shortage of grazing land.

The main animal disease is trypanosomiasis (*gandi*), which is caused by the tse-tse fly biting cattle and horses which are taken to the lowlands to graze. Immunization is available from the local veterinarian in Goro Solee, but it is expensive, especially since it has to be repeated every three months. The shortage of oxen, mentioned by one PRA group as the major problem, could also be partly attributed to trypanosomiasis and shortage of grazing land, which make the animals weak.

The spread of trypanosomiasis is linked to the shortage of grazing land. Because of this shortage, the cattle have to spend more time in the lowland valleys (Huru Gamo) and are more likely to catch trypanosomiasis. The grazing land shortage is caused by the increased cultivation in Qile Obi PA itself due to population pressure. (More about livestock conditions can be read in Section 3.4).

The obvious solution to animal diseases lies in the improvement of veterinary services. More sustainable solutions to the spread of trypanosomiasis have to be developed with the Ministry of Agriculture and the International Livestock Research Institute (ILRI), e.g. with traps for the tse-tse fly.

In addition, grazing resources should be developed in the highlands, so as to keep the cattle away from the lowlands and to improve their diet, e.g. by cultivating fodder crops or trees and by better pasture management on the Obi and Boke mountains.

### 6.1.3. Health and clean water

As mentioned before, the priority given to health care was most hotly defended by the women. While there are not too many serious health problems for adults, children suffer from diarrhoea caused by internal parasites, eye diseases, influenza, pneumonia and others. Pregnant women are also lacking modern care. For these reasons, the women emphasized the need for a local clinic. As many of the above-mentioned problems can be prevented through better preventive services (e.g. provision of clean water, early attention by Community Health Agents or trained Birth Attendants), this is an area that should be developed further.

Obviously, the need for clean water is linked to health problems. There is no lack of water sources in Qile Obi, except in some dry seasons, but most of them are shared with animals and lack cleanliness. The water is often of poor quality, so there is a need to protect and develop the existing water sources, and sometimes to bring them closer to the people, as water fetching causes hardship. (More about water sources can be read in Section 2.3).

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### 6.1.4. Other crop farming problems

One of the major problems with crop farming, apart from declining soil fertility and the need for fertilizers, is the spread of weeds. As can be read in Section 3.3.4, there are many weeds in the area. Most of these can be treated by hand, but because of the size of the farmland (2-4 ha), it is very difficult to weed everything manually. Therefore, the farmers would like to have better access to herbicides, which are expensive at present.

Some farmers have also complained about wild animals, e.g. baboons, eating their crops. This problem should be dealt with in an organized manner by the community and their associations (like *Golobee*), e.g. by appointing guards or attendants.

One fieldwork group came up with the need to get improved seed to improve production. The farmers said that they are not in a position to buy such seeds, as they are too expensive and not available on credit. The SG 2000 programme is addressing this issue.

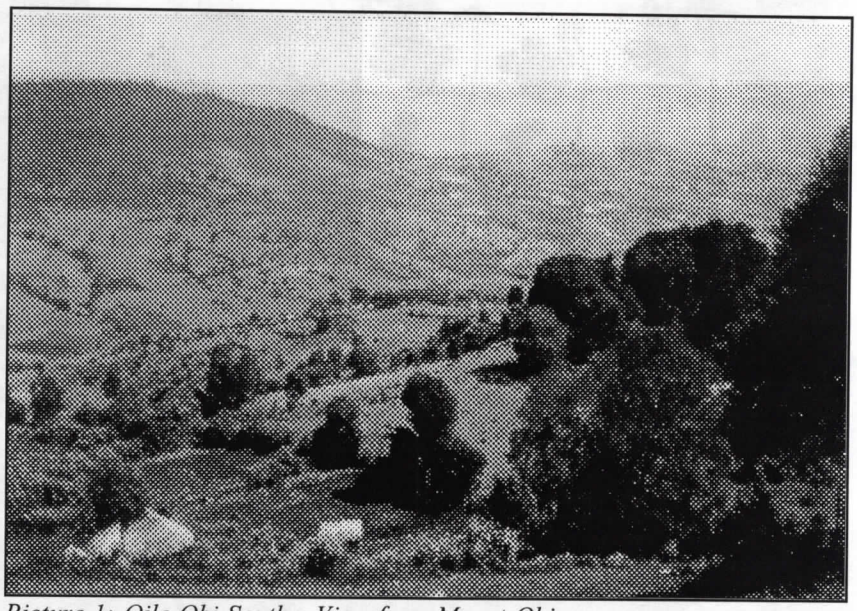
### 6.1.5. Other basic human needs

Some participants mentioned the need to get better transport facilities, e.g. for going to the market or the clinic. This could be promoted as an alternative employment opportunity for some younger villagers, by renting out horses or mules (possibly with carts).

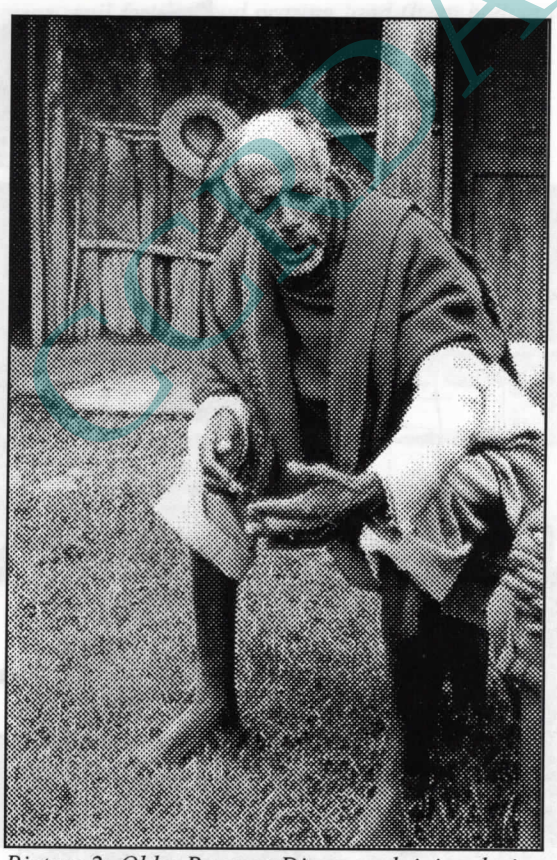
The workload of women should also be relieved, which can e.g. be done by providing more accessible water or more fuelwood sources. Deforestation was mentioned by one group as a problem mainly for lack of fuelwood and construction timber which is becoming scarcer and more difficult to collect (not for environmental reasons). This calls for the need to promote more tree planting and private woodlots, which can be encouraged through EENGO's tree nursery, private nurseries and extension services.

Although it was not felt there was a lack of grinding mills, the present mills in Goro Solee were found to be too expensive. A more regular supply of diesel or electrification would solve this, but there may also be an opportunity to improve and develop the water-powered mill in Qile Obi South (this could be addressed very quickly).

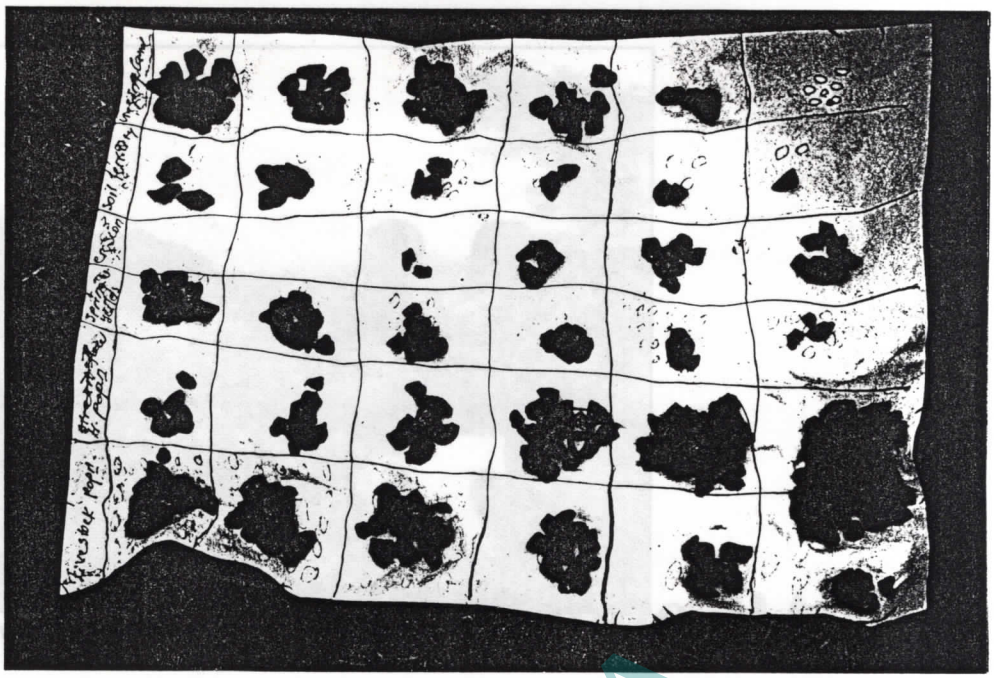
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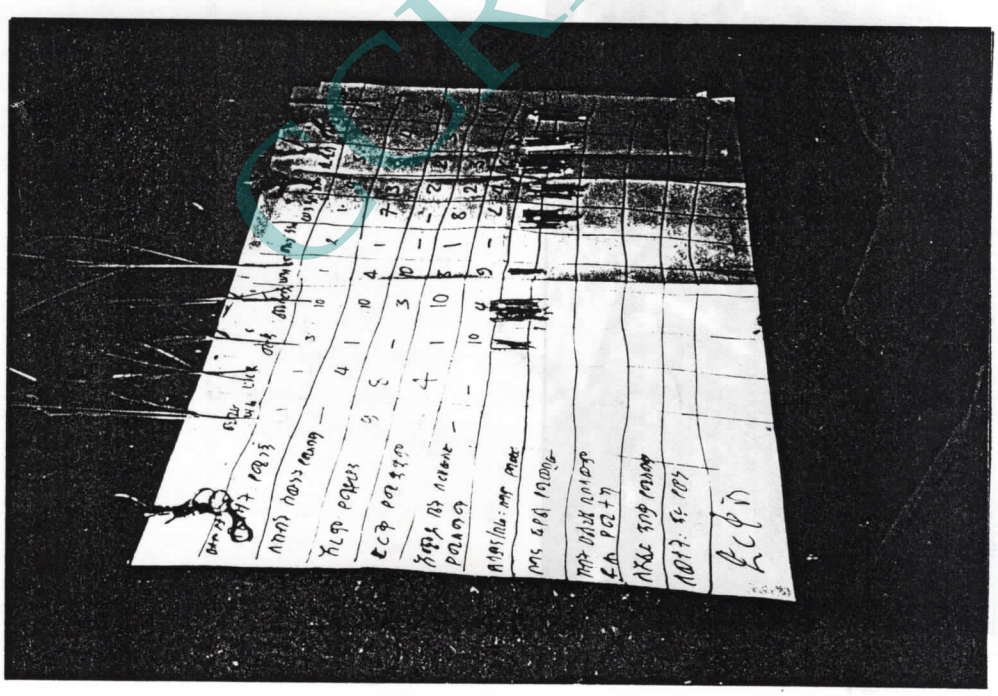
*Picture 1: Qile Obi South - View from Mount Obi*



*Picture 2: Obbo Beyensa Dinqa explaining during a trend line exercise*

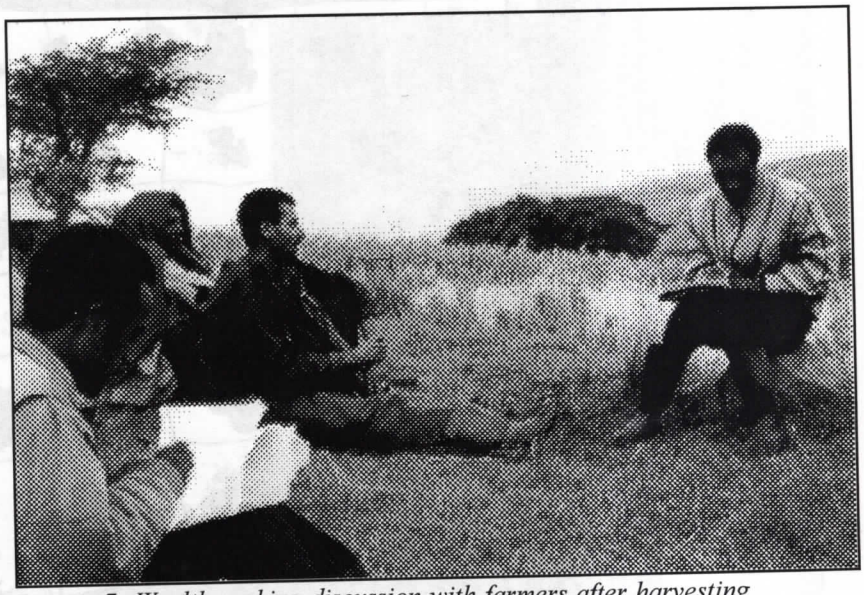


*Picture 5: Indication of trends in livestock population, human population, spring yields, erosion, soil fertility and grazing land (from bottom to top) with stones on flipchart paper*

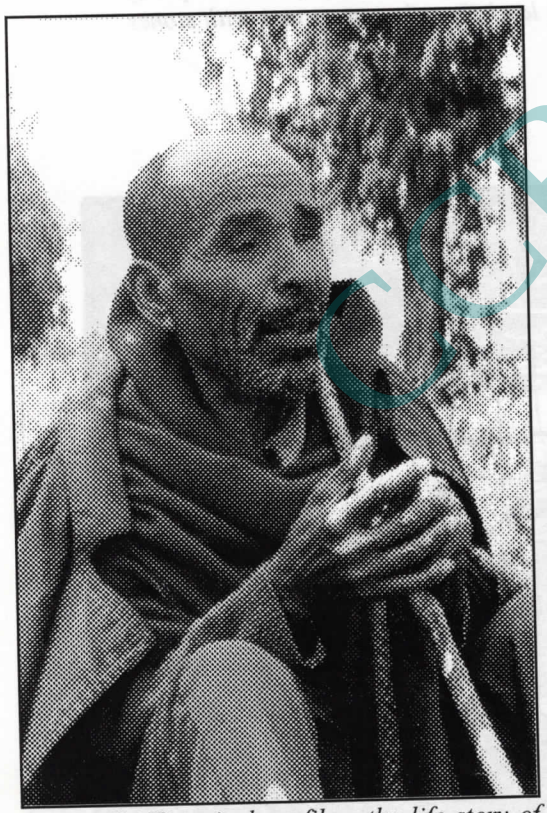


*Picture 6: Matrix scoring of grass types in Arfinjo Borodo*

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*Picture 7: Wealth ranking discussion with farmers after harvesting*



*Picture 8: Historical profile - the life story of Obbo Kitila Qixata*

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# part IV

# Arfinjo Borodo PA

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# 1. GENERAL PROFILE OF ARFINJO BORODO

## 1.1 Location and climate

Arfinjo Borodo is part of Goro Solee SC in Ambo Woreda of West Shoa Administration Zone. Most of the PA's land surface is located on the right side of the main Addis Ababa - Nekempte road immediately after Hamus Gebeya village which is 15 kms from Guder. It is surrounded by Korke Lencha, Deso Babso, Qile Obi and Jeldu and Agemsa PAs to the east, north, west and south respectively. The PA lies between 9.91 and 9.94 NL and between 3.49 and 3.55 EL, and the altitude ranges from 2,000 to 2,400 masl.

The area belongs to Woina Dega agro-climatic zone. Rainfall has a bimodal character with the major long rainy season extending from June to the beginning of September, and the short rains in March and April. January and February are usually the dry periods without any rain.

## 1.2. Population and settlement patterns

By the time of the survey there were 231 households in the PA. Out of this 99 households are on the eastern side of the Borodo river. According to information gathered, on average a household represents 7.5 individuals. Therefore the total population of the PA is estimated to be about 1,700. This information was gathered through social mapping exercises on which all the houses in the PA were drawn by groups of villagers (see figure 29).

The villagers indicated that there is a tremendous increase in the population of the area. During the Italian war the elders said there used to be only 8 households on the eastern side of Borodo river. At present the number of households has increased to 99. The return of ex-military personnel and presence of a large number of either school completers or drop-outs who have failed to get outside employment is said to have contributed to the pronounced increase of population as compared to Haile Selassie's time. For the future the trend was predicted to worsen as few off-village employment opportunities are likely to be created. Neighbourhoods are dominated by people who belong to the same parenthood. This may indicate the presence of limited out- or in-migration.

Age categorization of household heads done in the eastern side of the PA showed that 35 heads are above 60 years, 39 are 40-60 years and 26 are below 40 years of age. The small percentage of relatively younger family heads could be the effect of the absence of land redistribution in recent years. Those who got it before have remained with it and are growing older while a significant number of youth are without land.

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There are 24 women-headed families in the PA. Death of husbands is the major cause of the formation of women-headed families, followed by divorce.

The PA is subdivided settlement-wise into six zones: Balefu, Tutu, Borole, Kono, Biro Akababi, Abuyee and Qilxushishi. Most of the residents of Balefu, Kono and Biro Akababi still live in villages established during the Dergue era. There are indications that some of the households are gradually withdrawing to their former villages, and hence the villages are not to stay longer *in situ*. The villages of Kono and Biro Akababi are closer to the main tarmac road.

## 1.3. Infrastructure, housing and social factors

While the Addis Ababa-Nekempte main road passes along the south-western boundary of the PA, there is no access road into the centre of the PA. Previously the main road used to pass through the centre of the PA. However, it was re-routed and this old track is at present a footpath. During the rainy months the swelling of the Borodo river often halts communication between the two sides as there is no bridge on it. This impedes marketing, school attendance and other social commitments.

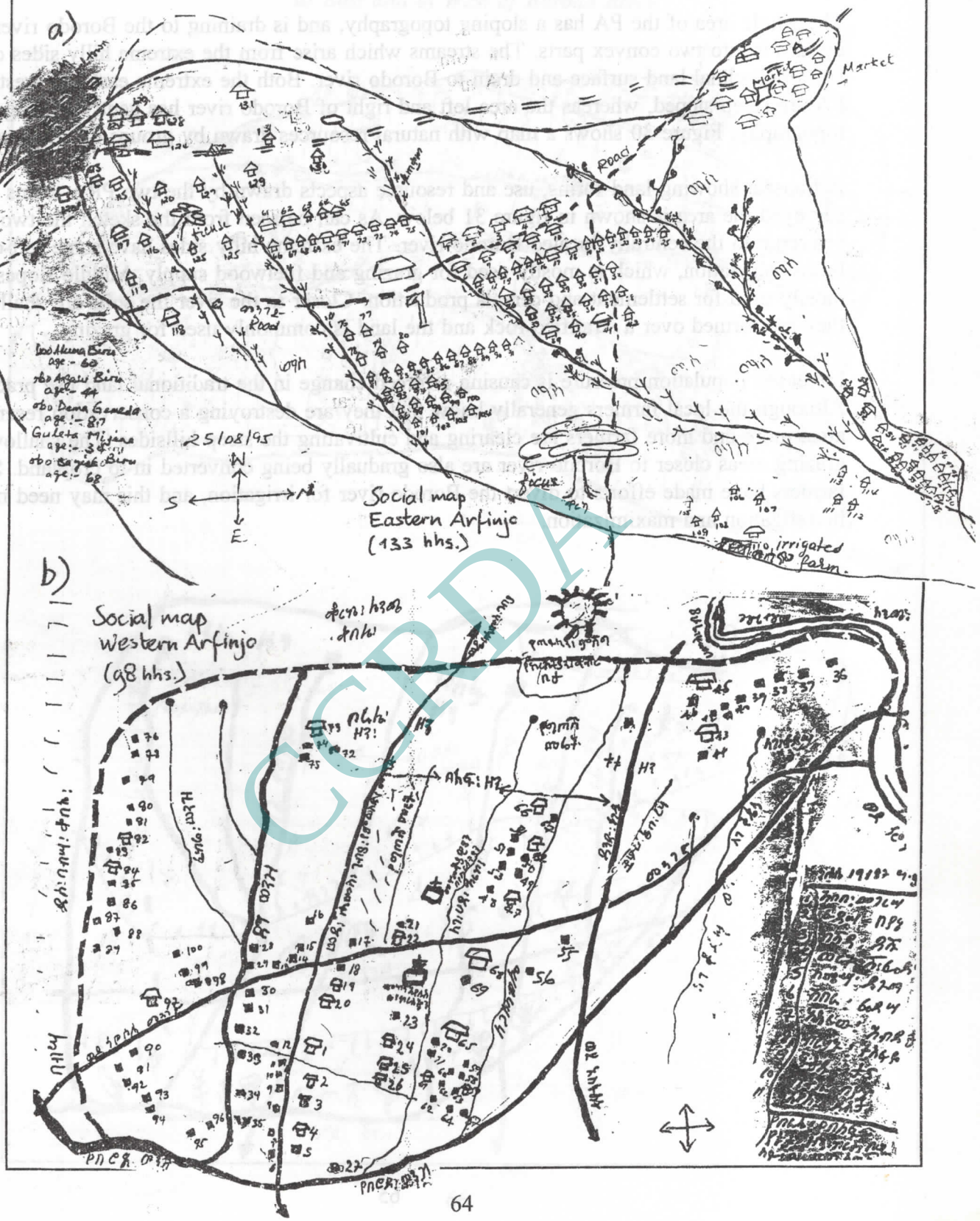
Like other areas in the Ethiopian highlands, grass-thatched wooden tukuls are the major residential houses in the PA. In this specific area the tukuls are well plastered and internally partitioned into at least a bedroom and a kitchen. On the other hand, 58 households have Corrugated Iron (CI) sheets covered roofs. Although it is a status symbol and it is more durable, these types of houses fail to accommodate some of the liked qualities of the grass-thatched houses like the warmth in the cold seasons. Owners of CI-roofed houses often cook in separate kitchens in order not to spoil the iron sheets by smoke. Thatch material (*hyprenea* grass) is becoming more scarce and farmers are in the process of making more use of wheat straw for thatching purpose.

All the residents of the PA are Oromos. While Oromifa is the major language, some of the grown-up men and the youth who have attended some form of school education are conversant in Amharic. On the western side of Borodo river nearly all the residents claim to be Orthodox Christians, but still a considerable number of them practice the traditional witchcraft religion (*Qallu*). On the eastern side of Borodo river there are two protestant churches (a Baptist and a Mekane Yesus church) which together have about 50 follower families (30 and 20 respectively) from within the same PA. The other 50 households are either Orthodox Christians complemented by traditional practices or the reverse.

The PRA team has learned that this variety of religious denominations in the PA actually has not resulted in disagreements. Rather we have found a compromising and accommodating situation. The presence of non-denominational mixed *Iddirs* in the PA is one such aspect displaying the accommodating situation in the area.

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*Figure 29 - Social map of Arfinjo Borodo, a) East and b) West of Borodo River*




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## 1.4. Land forms and land use patterns

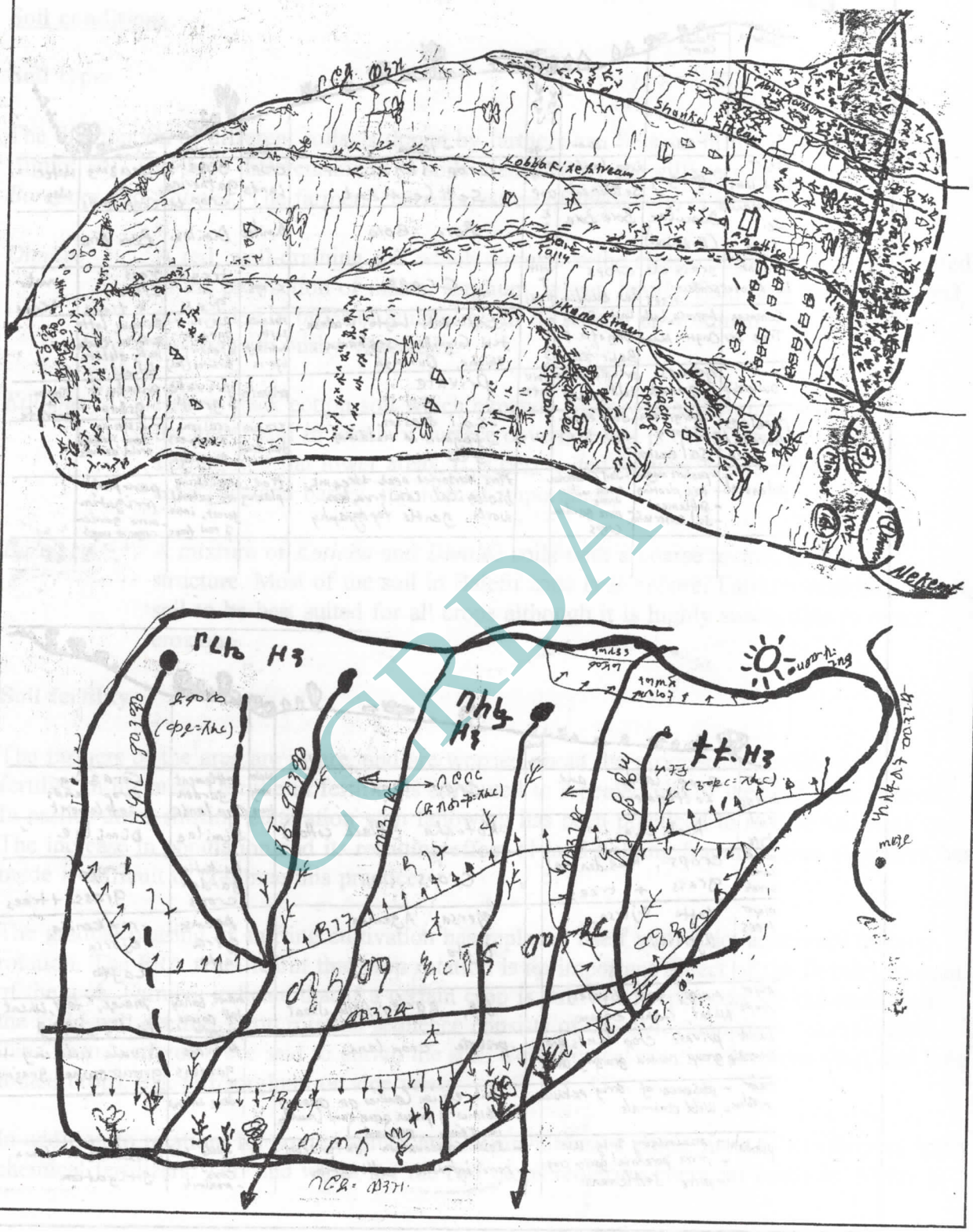
The whole area of the PA has a sloping topography, and is draining to the Borodo river which divides it into two convex parts. The streams which arise from the extreme hilly sides dissect the longitudinal land surface and drain to Borodo river. Both the extreme east and west of the PA are steep-sloped, whereas the area left and right of Borodo river has gently sloping topography. Figure 30 shows a map with natural resources drawn by groups of villagers.

A transect showing land forms, use and resource aspects drawn by the two PRA teams who surveyed the area is shown in figure 31 below. As can be seen from the sketch the two sides converge to the centrally located Borodo river. The extreme hilly sides have some left-over bushy vegetation, which is mostly used for grazing and fuelwood supply. Middle slopes are mostly used for settlement and cereals production. Closer to the river the soils are shallow for they are formed over a stratified rock and the land is commonly used for grazing.

Increased population pressure is causing a forced change in the traditional land use practices. Although the local farmers generally know that they are destroying a conservation reserve area, more and more farmers are clearing and cultivating the steep hillsides. The shallow-soil grazing areas closer to Borodo river are also gradually being converted in to cropland. Some farmers have made efforts to divert the Borodo river for irrigation, and this may need more investigation and maximization.

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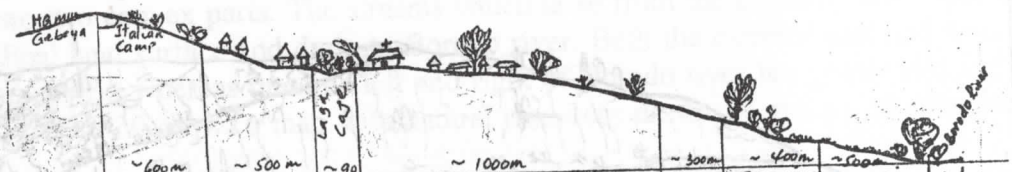
*Figure 30 - Resource maps of Arfinjo Borodo,*
*a) East and b) West of Borodo River*



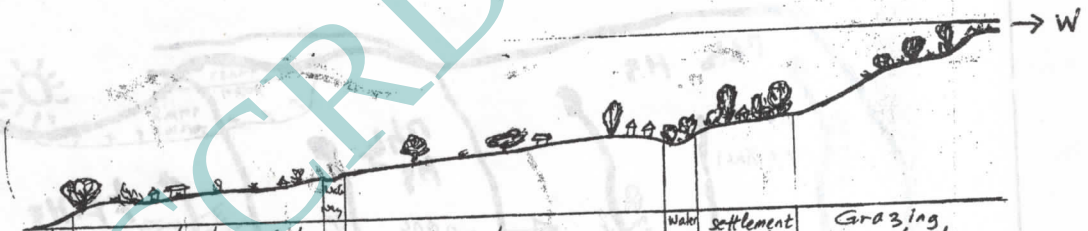

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## *Figure 31 - East-West Transect of Arfinjo Borodo*

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| | ~600m | ~500m | ~90 | ~1000m | ~300m | ~400m | ~500m | |
|---|---|---|---|---|---|---|---|---|
| Major Land uses | grazing | crop lands Settlement | water way crop | Crop lands + Settlement | crop lands | grazing gathering crop l. | grazing + Crop lands | Water way |
| common Soil type | Dimilae (Red soil) | Bore Bore | Koticha | Bore Bore | Dimilae | Dimilae | Bore Bore | |
| major Land cover | grass and scattered trees | crops Res. Buildings | water + trees | Crops | crops | trees + grass | grass + crops + trees | Water trees |
| Common Tree spp | Agemsa, Lafto Ongoto, Ataye | Lafto, Sombo Ongoto & Bahir Zaf | Ongoto | Bahir zaf, Lafto Wodesa. few Grevillia, sesbania. ebicha, Oumega | Makenisa Lafto, Bahir zaf Ejersa | Lafto Agemsa Ejersa Birbirsa (PN) | Bekenisa, lafto Birbirsa, Chele m.ti alelita lolichi | |
| Land Ownership | groups owned | private house hold owned | private | Private | private | private + group | private + group | Comm. + private |
| problems learned/ seen | - Overgrazing - Stony - Soil erosion | - Soil erosion - few trees | | - Soil erosion - fragmented holding - few trees | erosion few trees | - erosion (gullies) - Overgrazing | - distance from farmers - wild animals | |
| potentials | - pasture magmt - tree planting - settlement - Soil conservation | - Soil Conservation works with stone - more garden crops | | More nurseries near streams, biological conservation works, gentle topography | tree planting | enriching the natural forest, intro of new trees | - pumped irrigation - more garden crops + veget | |




| | | | | | |
|---|---|---|---|---|---|
| major land use | Crop lands and settlement | Crop Land | Water way trees | settlement garden Crop lands | Grazing Crop lands settlement |
| Soil type | Koticha | Koticha (Black cotton) | | Dimilae | Dimilae |
| major land cover | crops, Residential grass + trees | Crops | | Residential garden crops | Crops Grass + trees |
| major trees | Lafto, Ejersa, Agemsa, | Ejersa, Agemsa Lafto | | Agemsa ejersa lafto | makenisa, Ejersa Lafto |
| major crops | maize, teff, barley Wheat, Gesho, Banana.. | teff, Barley, Noug, Wheat | | maize, barley teff onions potato | maize, teff, Wheat barley, noug |
| Land Ownership | private crop lands and group owned grazing area | private Crop lands | | Private gardens | private holding + group owned grazing |
| major problems | - absence of Irrig. extension - Wild animals | - Soil erosion (gullies are common) - absence of proper access road (muddy in rainy period) | | - dense settlement | |
| Potentials | - maximizing Irrig. use - more perennial garden crops - more Settlement | - Soil Conservation extension - more intensive cultivation | | - Stable soil - more garden crops - proximity | - proximity to town - Irrigation |

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# 2. NATURAL RESOURCES

## 2.1. Soil conditions

### 2.1.1. Soil types

The distribution of different soils as drawn by farmers can be seen in the Resource Maps (figure 30). The three different kinds of soils identified by the villagers are: *Dimilee, Borebore* and *Koticha.* The farmers' characterization of these soils is as follows:

*Dimilee* — A red, well-draining soil which dominates the steeper hillsides. It is best suited to the production of maize, sorghum, wheat, lentils, flax, faba beans peas, teff and barley,in order of suitability. In its natural environment this soil is often coverd with bushy vegetation.

*Koticha* — Heavy black cotton soil which expands while wet and shrinks when dry. It is the major soil in terms of surface coverage and is often located on the gently sloping and flat lower areas. It is best suited to noug/nigerseed, vetch, teff, chickpeas and barley, in order of importance.

*Borebore* — A mixture of *Koticha* and *Dimilee* soils with a coarse texture and loose structure. Most of the soil in Balefu zone is *Borebore*. Farmers consider this soil to be best suited for all crops although it is highly susceptible to water erosion.

### 2.1.2. Soil fertility

The farmers of the area are aware, and are worried about the progressive decline of soil fertility in the area. Decline in fertility is attributed to repeated use of the land, and erosion. In earlier times shifting cultivation with fallowing has been practiced to restore soil fertility. The increase in population and its resulting effect of land holding fragmentation at present has made it difficult to continue this practice.

The gradual phasing of shifting cultivation has replaced itself with strict adherence of crop rotation. The PRA team learnt that crop rotation is an important aspect of the farming system of the area. Farmers indicate that if a certain crop is cultivated repeatedly on the same field the yield will decline. Crop rotation sequence consists of cereal/legume and/or cereal/cereal. Faba beans and vetch are said to enrich the soil. Cereal/cereal rotation involves short and long rooted crops, e.g. teff/sorghum or vice versa.

In addition to rotation, for some capital- and labour-intensive crops, most of the farmers apply chemical fertilizers. Teff and wheat are the two crops requiring chemical fertilizer. Maize is

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often planted at backyards and household organic refuse and manure is applied for fertilization.

The farmers of the area used to get chemical fertilizer through the Service Cooperative (SC). However, the Service Cooperative is not any more strong and currently they are not getting inputs on a credit basis. During the 1995/96 production year the farmers did not get fertilizer from the SC, and those who have cash money managed to buy it on a cash basis from the market. For the future some appropriate soil fertilization techniques like composting and maximizing the use of manure should be considered.

### 2.1.3. Soil erosion

As the PRA exercise was done in the rainy season, the team had the opportunity to learn by itself the extent of soil erosion in the area. Surface washes and rills are common in crop fields; field drains that have changed into gullies are also common; and the streams are highly silt-laden. Our informants were aware that the limited fertilizer applied to crop fields is often washed down slope to Borodo river. The clearing and cultivation of the steep sloped lands is said to have increased surface run-off.

Topography and land use practices are the major factors contributing to the high level of soil erosion and its eventual effect of decreasing fertility. As described in Section 1.4, the two parts of the PA converge into and form a V-shaped catchment.

### 2.1.4. Soil conservation

From informants and our observations we have learnt that only few types of conservation measures are intentionally applied in the area. During the Dergue era farmers were involved in the construction of soil bunds, mostly on communal holdings. The farmers did not replicate it, no proper care was given to structures made, and it later it silted up. At present no such a structure is seen in the fields of the farmers.

The two conservation measures which are known and practiced by all the farmers of the area are *boi* (field drains) and *kokobi* (cut-off drains). *Boi* is an across the slope drain within the crop fields which collects and drains excess water down-field, whereas *kokobi* is an across the slope cut-off drain above the fields. *Kokobi* is meant to protect the field from surface run-off coming from up-slope areas. Both are temporary structures, which only last one growing season. Every year during land preparation new *boi* and *kokobi* need to be prepared by repeated deep ploughing. The PRA team asked a group of farmers if they knew other soil conservation measures apart from *boi* and *kokobi*. Techniques of soil and stone bunding and dead-furrows between plots were mentioned and described by those who were present. After this discussion a matrix ranking of the different measures for different aspects was done by the farmers themselves. The aspects assessed by scoring for each measure were: effectiveness in arresting soil erosion, causing weed infestation, wasting land, maintenance requirement, labour requirement for construction, harbouring pests/rodents, presence of other non-

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conservation benefits and inconvenience for land preparation.

A maximum score of 10 was given by the farmers for the best positive or wanted quality of the specific measure. Descending scores were given for lesser qualities. No score was given for a quality which does not apply for the specific measure. Figure 32 shows the results of the scoring exercise. The final result shows that the traditional practice of *kokobi, boi* and dead furrows were most appreciated by the farmers.

***Figure 32 - Matrix scoring of soil conservation measures at Arfinjo***

| *criteria* | *stone terraces* | *soil bunds* | *boi* | *kokobi* | *dead furrows* |
|---|---|---|---|---|---|
| *effectiveness for soil conservation* | 4 | 10 | 7 | 8 | 1 |
| *least land wasting* | 7 | 1 | 8 | 10 | 4 |
| *causing least weed infestation* | - | - | 8 | 9 | - |
| *needs least maintenance* | 6 | 4 | - | - | 10 |
| *needs least construction labour* | - | - | 6 | 9 | 10 |
| *harbours least or no pests* | - | - | 10 | 5 | - |
| *having other benefits* | - | 10 | - | 9 | 10 |
| *easiest for ploughing* | - | - | 10 | 10 | 8 |
| ***Total score*** | 17 | 25 | 49 | 60 | 43 |
| ***Final Rank*** | 5 | 4 | 2 | 1 | 3 |

After this summary we asked whether the result can be interpreted to mean that they prefer the traditional soil conservation measures better than any of the others. The farmers confirmed positively. Then a second question was posed: "Why is soil erosion still a widespread problem in the area despite each farmer having those structures in their fields?". The informants felt that the rain and run-off of present days are too intensive and the resulting erosion is beyond the capacity of the structures. It was also mentioned that all the conservation reserves are cultivated which has contributed to increased erosion. Realization of the above situation by the participating villagers led to the suggestion that other techniques should be introduced and tried to contain the problem. The PRA team mentioned to them such techniques as grass strips and graded bunds.

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## 2.2. Trees and forest resources

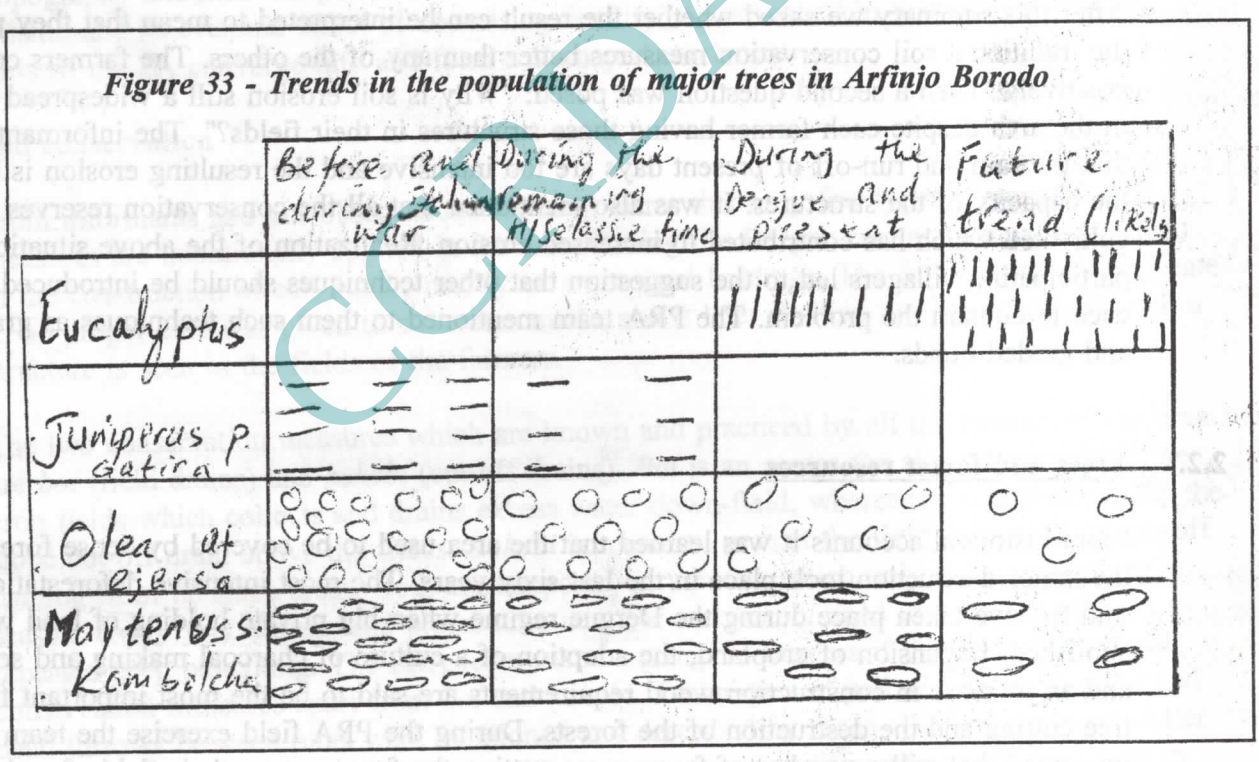
From historical accounts it was learned that the area used to be covered by dense forest, and the major destruction took place in the last sixty years. The most intensive deforestation is said to have taken place during the Dergue regime when big private holding of land was abolished. Expansion of cropland, the adoption of a culture of charcoal making and selling and an increase in construction wood requirements are said to be the most important factors of tree cutting and the destruction of the forests. During the PRA field exercise the team has witnessed that still a number of farmers are cutting the few trees on their fields for charcoal production.

At present there is not any land cover in the PA that can be classified as forest. The Community Forestry Development activities during the Dergue regime were concentrated on the enrichment of the remaining indigenous forest area on the slopes of Mount Lencha near Hamus Gebeya (in another PA).

Like the land, trees are privately owned. There is no extension support for either seedling raising or tree management. Only Eucalyptus species are raised in beds and are planted by the farmers. The other indigenous tree species are not accorded the proper management, and as a result are in the process of extinction from the area. Few stands of trees can be seen along the stream routes, around homesteads, in croplands and grazing areas. A simple name inventory of trees growing in the area was done with a team of youngsters and the team listed over 30 different species of trees. Nearly all of the species growing in the area are indigenous and include such important species as *Lafto (Acacia lahai), Ejersa (Olea africana), Birbirsa (Podocarpus gracilior), Gatira (Juniperus procera), Kombolcha (Maytenus senegalensis), Wodesa (Cordia africana).* Eucalyptus trees dominate the stands of trees around homesteads.

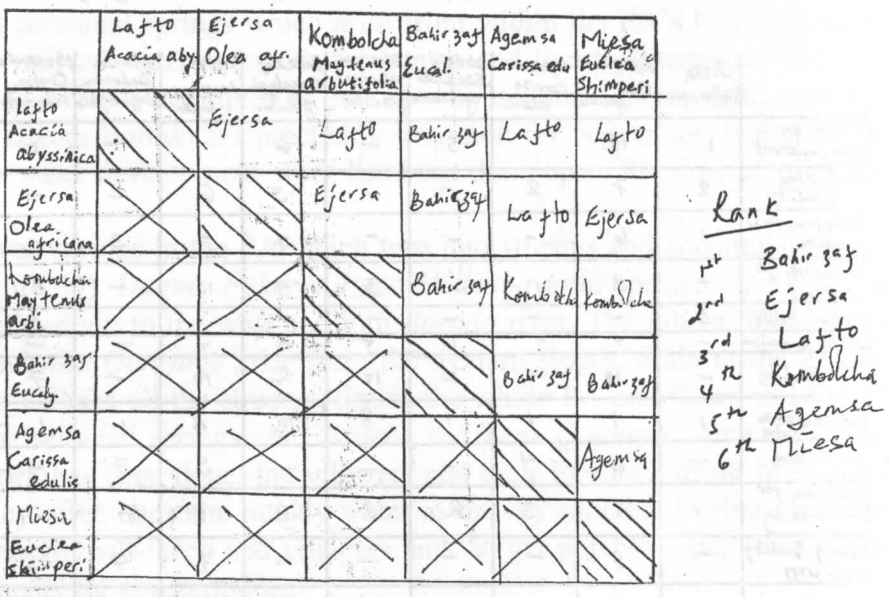
A trend diagram established with a group of informants (figure 33) indicated that the introduction of Eucalyptus to the area during the Dergue regime marked the near disappearance of Juniperus Procera (*Gatira*). Eucalyptus is increasingly used as a substitute to indigenous trees for some specific uses. However, the quantity of Eucalyptus raised and planted so far is by far less than the average requirements of the residents.

***Figure 33 - Trends in the population of major trees in Arfinjo Borodo***




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***Figure 34 - Pair-wise ranking of trees, Arfinjo Borodo***




A farmer's outlook on different tree species is often governed by assessment of his/her own user criteria. To learn more on such aspects the study team applied two PRA techniques (matrix and pair-wise rankings) with two groups of villagers on major tree species grown in the area. In the pair-wise ranking six species of trees were identified and ranked by the farmers (figure 34). In doing the preference ranking the farmers considered such tree qualities as: time to mature/use, competition with crops, strength and durability of timber, rooting behaviour and other effects. In the matrix ranking (figure 35) 11 species of trees were listed, and their qualities with respect to 11 aspects were relatively assessed and marked by the farmers. Tree qualities assessed during the exercise included: suitability for construction, fuel, soil conservation, mixing with crops and time requirement to maturity. In the matrix assessment the highest score of 10 points was given for the best quality, and no value was given for the use or criteria that does not apply at all. Figure 35 shows the result, based on which the following are the species with the most cumulative positive qualities in order of importance:

1. Olea africana (*Ejersa*)
2. Acacia (*Lafto*)
3. Eucalyptus globulus (*Bahr Zaf*)
4. Juniperus procera (*Gatira*)
5. Cordia africana (*Wodesa*)
6. Vernonia amygdalina (*Ebicha*)
7. Podocarpus gracilior (*Birbirsa*)

It is remarkable that the farmers preferred two indigenous species of trees, Olea and Acacia,

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***Figure 35 - Matrix ranking of major trees grown at Arfinjo Borodo***

| | Cheka Celtis africana | Ejersa Olea africana | Agemsa Carrisa edulis | Wodesa Cordyloes africana | Birbirsa podocarpus gracilior | Bahir zaf Eucalyptus globulus | Laafto Acacia lahai | Etacha Dodonea angustifolia | Bakanisa Croton macrostac. | Gatira Juniperus procera | Ethicha Vernonia amy. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| For use as farm implement | 1 | 10 | – | 5 | – | 6 | 1 | – | 1 | – | 1 |
| fuel wood quality | 2 | 7 | 2 | – | – | 3 | 6 | – | – | 3 | 2 |
| Construction quality | 1 | 6 | – | – | – | 7 | – | 3 | – | 10 | 3 |
| Suitability for Charcoal | – | 3 | 1 | – | 3 | 4 | 10 | – | 3 | – | – |
| Medical Value | 3 | – | – | – | – | – | | | 5 | 3 | 5 |
| Suitability for furniture | – | – | – | 10 | 7 | – | – | – | – | 3 | – |
| Shade quality | – | 10 | – | 10 | 10 | 2 | 10 | - | 7 | 4 | 5 |
| Soil conservation value | 1 | 1 | 1 | 1 | 8 | 10 | 4 | 1 | 1 | 3 | + |
| forage value | – | 6 | 4 | – | – | – | 5 | 7 | – | – | 8 |
| Suitability for fence making | 1 | 10 | 3 | 2 | 2 | 6 | 1 | 7 | – | 10 | 8 |
| Mixing quality with crops | – | 5 | – | – | – | – | 7 | 4 | – | 6 | 7 |
| Early maturity | 6 | 4 | – | 8 | 4 | 9 | 10 | 1 | 7 | – | 8 |
| Total score | 15 | 62 | 11 | 36 | 34 | 47 | 54 | 23 | 24 | 42 | 35 |
| Rank | 10 | 1 | 11 | 5 | 7 | 3 | 2 | 9 | 8 | 4 | 6 |
| availability | 7 | 5 | 3 | 11 | 9 | 4 | 1 | 2 | 6 | 10 | 8 |

above the usually planted exotic Eucalyptus tree. At present there are no stands of Juniper in the PA. With this result in mind, we asked why the farmers are not planting and taking care of the indigenous species which have some better qualities than the Eucalyptus. Some of the farmers said that they don't have the culture. Others said that these trees are meant to grow by themselves in the fields, and there is no need to cultivate them. Following this we discussed whether they will be willing to learn raising such seedlings if someone demonstrates it to them. The participants replied that they are interested to learn how to plant and take care of the indigenous trees. To start with, the team advised the villagers to start taking care of the existing species in the fields.

We asked the farmers to rank the different trees in terms of availability and learned that *Laafto* (Acacia Lahai), *Etacha* (Dodonea Angustifolia), *Agemsa* (Carissa Edulis), Eucalyptus and *Ejersa* (Olea) are found in decreasing quantity in the PA.

The availability-preference interaction shows that Juniper (*Gatira*) which is the fourth most wanted species has nearly disappeared from the village. The farmers told us that whenever a farmer gets *Wodesa* seedlings, he or she gives it maximum care. From the matrix scoring exercise we have learnt that most trees have their own specific qualities for which they are used; therefore, the value of figure 35 is more in the assessment of trees per criteria than in the overall total it generated.

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## 2.3. Water resources

Seasonal and perennial springs which arise from within the PA's land area turn into streams and form the utilized water resources for human and livestock consumption. No effort of tapping ground water is attempted so far. Few households (about eight) who have land closer to the major stream Borodo are practicing irrigation for vegetables, fruits and seedling raising purposes. No water development work has been done up to the time of our fieldwork.

There are seven springs in the PA which turn into streams and accumulate into the Borodo river (see figure 30). *Dagno, Fakaree I* and *Hadeaba Erko* springs arise from the slopes on the eastern side, drain to the west and join *Borodo* river. The others, *Walda, Chancho, Fakaree II* and *Aba Qonsoree* arise from the western slopes, drain to the east and join Borodo river. Borodo collects all the streams, drains the whole PA and flows to Desso Babso PA to the north. The seasonal springs are *Chancho* and *Lege Qophesa*. Since no water development/ protection work has been done, the villagers and their livestock drink from the same place, and hence they often consume muddy water in the dry months. During the rainy season the streams are heavily silt-laden and villagers have to get potable water from CI-sheet covered house catchments for consumption.

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# 3. AGRICULTURE

## 3.1. Land tenure

Cultivated plots form the major land use of the area. Depending on the type and quality of the soil nearly three quarters of the land surface is cultivated. Grazing areas and settlement are the second major land use categories.

Like most rural areas in Ethiopia, all the land in the PA is owned by small-scale farmers. Ownership size ranges from one to eight hectares. The last land redistribution was done in 1990. Since then only small plots were allocated to ex-soldiers who have undergone the re-orientation course. In eastern Arfinjo Botodo about 200 grown-up youth and ex-soldiers are surviving without officially getting land from the PA. Farmers who do not have land, and those who want more land are practicing contract farming and sharecropping. Contract holding is in reality unofficial sale of the land, whereas sharecropping involves leasing one's land to another farmer who will cultivate and take for himself 50 % of the yield for one season and leave the rest to the owner as a service charge. Because of the tremendous increase in population most households are facing problems related to land holding.

Fragmentation of holding is another remarkable aspect of farming in the area. Nearly all the farmers of the area have fragmented holdings. Rather small plots are owned, here and there, at different distances from the residences. Frequent land redistributions, holdings inherited from families, and the desire of having plots of different soil types suited to different crops seems to have contributed to the fragmented type of land holding. For example, Obbo Geleta in Balefu zone was found to have six separate parcels/plots of lands at different distances and directions from his residence (see figure 38).

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## 3.2. Crop production

### 3.2.1 General

As mentioned earlier, cereal crop production is the major occupation of all the residents of the PA and its surroundings. The culture of vegetables, fruits and other tree cash crops production is not that much developed. The area's major black cotton soils are not very suitable for the production of these varieties of crops. But, a growing interest was reflected from various community groups regarding these crops.

Because of the rainfall pattern there is only one production season in which crops are cultivated either at the same time or in short intervals, depending on the moisture regime. The crops that are suited to the PA's agro-climatic conditions are found to be: teff, noug, sorghum, maize, barley, wheat and flax (*telba*). The farmers of the area have been producing cereals for a long time as learned from the different varieties of indigenous and introduced seeds used and known by the villagers since a very long period.

The farmers in the PA do not often make use of selected quality seeds that come through the MOA structures. However, farmers do know the benefits of using these improved seeds and other inputs. The decision as to which crops to grow, where, and on how much area remains the sole responsibility of the farmer based on local circumstances. Nevertheless the farmers communicate with each other on such issues and make comparisons between the different cereals grown under different circumstances.

***Figure 36 - Varieties and descriptions of common cereal seeds in Arfinjo Borodo PA***

| *Crop type* | *Variety name* | *Description* |
|---|---|---|
| *Wheat* | *Beteja* | *- A variety introduced from Bacho long before the Italian war, later overtaken by Gollee.* |
| | *Gollee* | *- Introduced during the Italian war and still cultivated.* |
| | *Dashen* | *- Introduced during the Dergue era, but later rejected for it changed its performance.* |
| *Maize* | *Orome* | *- The local variety which was there for a long time and is still grown. As compared to other varieties its taste is sweet.* |
| | *Seffi* | *- A variety introduced during the Dergue era by a District Administrator called Bekele Tolessa.* |
| | *Magna* | *- Introduced by Ras Mesfin Sileshi some 25 years ago. Tall crop stands, which is even difficult for smaller wild animals like foxes and porcupines to damage. With its introduction, field production (away from residence) of maize was started. Still produced.* |
| | *Shashemene* | *- A variety introduced by Bekele Tolessa. Short, stout and early maturing variety.* |
| *Teff* | *Muri-tolose* | *- Early maturing, indigenous teff, needs only two months to mature.* |
| | *Koldimesa* | *- Indigenous variety, white, fine grain and the colour of its straw differentiates it from the other varieties.* |
| | *Bunisee* | *- Indigenous white teff, early maturing, two months to mature.* |
| | *Manjare* | *- White teff introduced by Ras Mesfin.* |
| | *Magna* | *- White teff, big grain size and best market value and suited to Dimilee soils.* |
| | *Baldimesa* | *- Local variety suited to low lying areas.* |
| *Sorghum* | *Anchor* | *- Indigenous variety, good for Injera.* |
| | *Gebabe* | |
| | *Daloche KoreDera* | |
| | *Bochole* | |
| | *Woketena* | |
| | *Kegne* | |

### 3.2.2. Crop preference

With a group of farmers the PRA team did a matrix scoring of different cereals with respect to different criteria. Teff, sorghum, maize, barley, wheat and noug were first identified as the most important crops. These crops were then subjected to relative assessment of their food and market value, yield, disease/pest resistance, labour requirement, impact on soil fertility and soil erosion. Then the participants were told to give a maximum of 100 points for the best

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positive quality of the crops, and a minimum of zero for the extreme negative quality. The result of this exercise is shown below in figure 37.

***Figure 37 - Matrix ranking of six cultivated cereals in Arfinjo Borodo***

| *Criteria* | *Teff* | *Sorghum* | *Maize* | *Barley* | *Wheat* | *Noug* |
|---|---|---|---|---|---|---|
| ***General preference rank*** | ***1*** | ***3*** | ***2*** | ***5*** | ***4*** | ***6*** |
| *Household food value* | *40* | *25* | *20* | *6* | *7* | *2* |
| *Market sales value* | *60* | *10* | *10* | *5* | *5* | *10* |
| *Yield per hectare* | *15* | *40* | *20* | *10* | *8* | *7* |
| *Disease/pest resistance* | *40* | *10* | *10* | *7* | *3* | *30* |
| *Low labour requirement* | *5* | *20* | *15* | *10* | *10* | *40* |
| *Upgrading soil fertility* | *5* | *-* | *10* | *20* | *5* | *60* |
| *Erosion protection effect* | *10* | *35* | *30* | *6* | *4* | *15* |
| ***Sum of scores given*** | ***175*** | ***140*** | ***115*** | ***64*** | ***42*** | ***164*** |
| ***Rank according to above*** | ***1*** | ***3*** | ***4*** | ***5*** | ***6*** | ***2*** |

According to this assessment in overall aspects, Teff has more cumulative positive qualities than the rest, followed by Noug and sorghum. Wheat has more of the negative qualities assessed in the format, and hence probably can be judged to be the least wanted crop amongst the five. The ranks made based on the cumulative qualities does not coincide with the general preference ranks established by the farmers prior to the criteria assessment. The typical preference deviation concerns Noug which was the least preferred in the general voting and appeared second after assessment of criteria. Apparently farmers select crops initially on basis of such factors as taste, food and market value, on which Noug scores low, whereas it scores high on fertilizing effect and labour requirement. The farmers' knowledge of the positive fertility effect of such crops as Noug is an interesting aspect of this cereals farming exercise.

Apart from cereals there appear to be a growing practice of vegetables and other cash and garden crops production. Kale, cabbage, carrots, onions, beetroot, *anchote*, haricot beans, sweet potatoes, pepper, Gesho, sugar cane and Inset are some of such crops grown for cash and home consumption. Haricot beans were introduced some three years ago and are becoming increasingly popular with the farmers. Since it was introduced in a decentralized way the crop management aspect is not properly understood by the villagers; e.g. although in most parts of the country haricot beans are intercropped with other crops, this is not practiced in Arfinjo. *Anchote* is recently introduced and its management aspect is not clearly known.

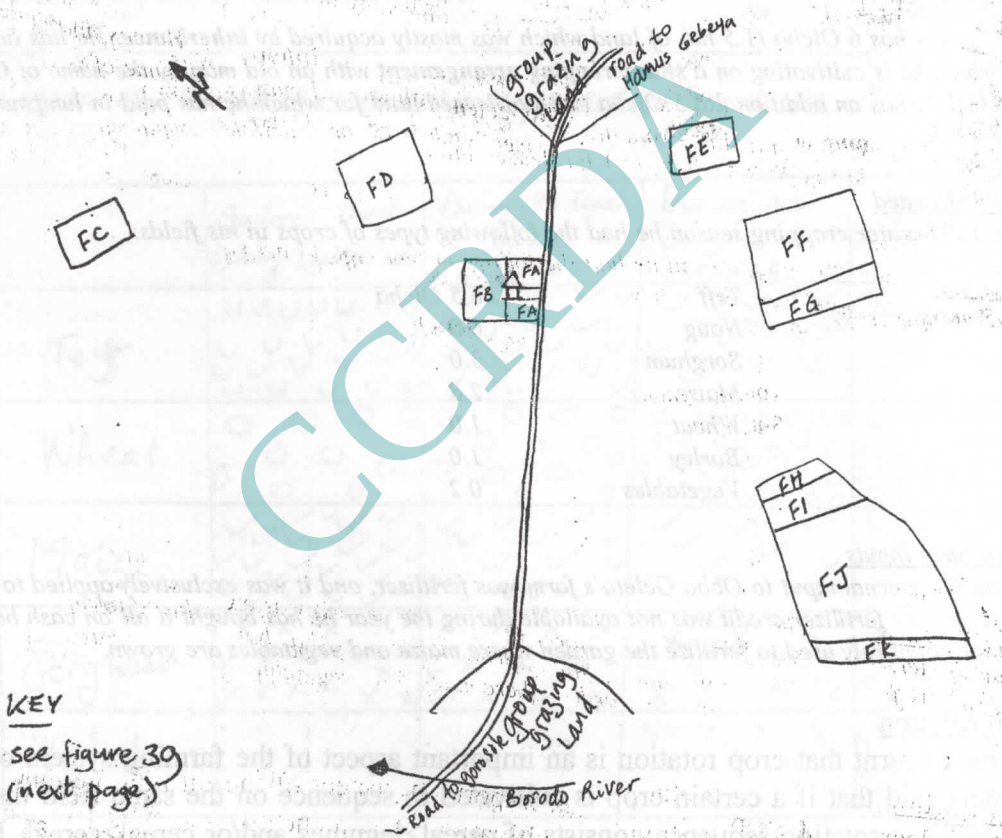
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### 3.2.3. Cropping practices

As mentioned in Section 3.1, the farmers of the PA have fragmented and scattered land holdings under different forms of ownership. Such fragmentation of holding can be viewed in some aspects positively: e.g. risk is minimised (failure/damage on one plot can be compensated by harvest from other fields), different varieties of crops can be cultivated on different soils. On the other hand this makes crop protection, fertilization and other regular farm activities difficult.

Figure 38 gives a sketch of the crop fields of Obbo Geleta (living in Balefu zone of Arfinjo Borodo) relative to his home and other villagers' fields. The table derived from the discussion with Obbo Geleta (figure 39) shows that manure is only used to fertilize the two land units which are closer to his home. Obbo Geleta appreciated the difficulty of transporting the manure to the other fields and suggested provision of wheelbarrows as one method of solving the problem.

***Figure 38 - Farm Sketch of Obbo Geleta, Balefu Zone, Arfinjo Borodo PA***




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*Figure 39 - Summary of Obbo Geleta's farming practices*

| Land Unit | FA | FB | FC | FD | FE | FFG | FGH | FH | FI | FJ | FK |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Size in Olcha | ~0.2 | ~2.8 | ~1 | ~2 | ~2 | ~3 | ~1 | ~0.5 | ~1 | ~6 | ~1 |
| Type of Ownership | private | private | private | private | share cropping | share-cropping | share cropping | contract holding | contract holding | contract holding | contract holding |
| Distance from home | garden | garden | ~1000m | ~250m | ~800m | ~500m | ~500m | ~700m | ~700m | ~800m | ~800m |
| Soil type | Borebore | Borebore | Dimillee | Dimillee | Dimillae | Koticha | Koticha | Koticha | Koticha | Borebore | Borebore |
| Current land use | Vegetables | maize | teff | teff | teff | Sorghum | Wheat | teff | Barley | Noug | teff |
| Inputs used | Fertiliz and manure | manure | – | fertiliz | fertiliz | – | fertiliz | fertiliz | – | – | – |
| Sources of inputs | market Livestock | Livestock | – | Market | Market | – | Market | Market | – | – | – |
| Bye-products | Some. residue | maize stalk | Straw | straw | Straw | Sorghum stalk | Wheat straw | teff straw | Barley straw | Noug Stalk | teff straw |
| Bye-product use | Soil fertiliz | fuel feed | feed plaster | feed plaster | feed, plastering | HH fuel & construct | roof thatch feed | feed | Soil fertility (burn) | Soil fertility | feed |
| Next likely crop | Vegetables | maize | teff | Sorghum → beans | Sorghum | beans → teff | maize | teff | Vetch | teff | Sorghum |

*Land holding*

*Obbo Geleta has 6 Olcha (1.5 ha) of land which was mostly acquired by* ***inheritance****. He has another 6 Olcha of land which he is cultivating on a* ***sharecropping arrangement*** *with an old man by the name of Obbo Bitima. Obbo Geleta has an additional 8.5 Olcha (2.1 ha)* ***leased land*** *for which he has paid in lumpsum for defined usage.*

*Crops cultivated*

*In the 1995 major cropping season he had the following types of crops in his fields:*

| | |
|---|---|
| *Teff* | *6.5 Olcha* |
| *Noug* | *6.0* |
| *Sorghum* | *3.0* |
| *Maize* | *2.8* |
| *Wheat* | *1.0* |
| *Barley* | *1.0* |
| *Vegetables* | *0.2* |

*Agricultural inputs*

*The major external input to Obbo Geleta's farm was fertilizer, and it was exclusively applied to teff and wheat production. As fertilizer credit was not available during the year he has bought it all on cash basis. Manure from livestock is entirely used to fertilize the garden where maize and vegetables are grown.*

## Crop rotation

We have learnt that crop rotation is an important aspect of the farming system of the area. Farmers said that if a certain crop is cultivated in sequence on the same field the yield will decline. The rotation sequence consists of cereal>legumes and/or cereal>cereal. Faba beans and vetch are said to enrich the soil, i.e. crops cultivated after these will give a good yield. Cereal>cereal rotation involves short and long rooted crops, e.g. teff>sorghum or sorghum>teff.

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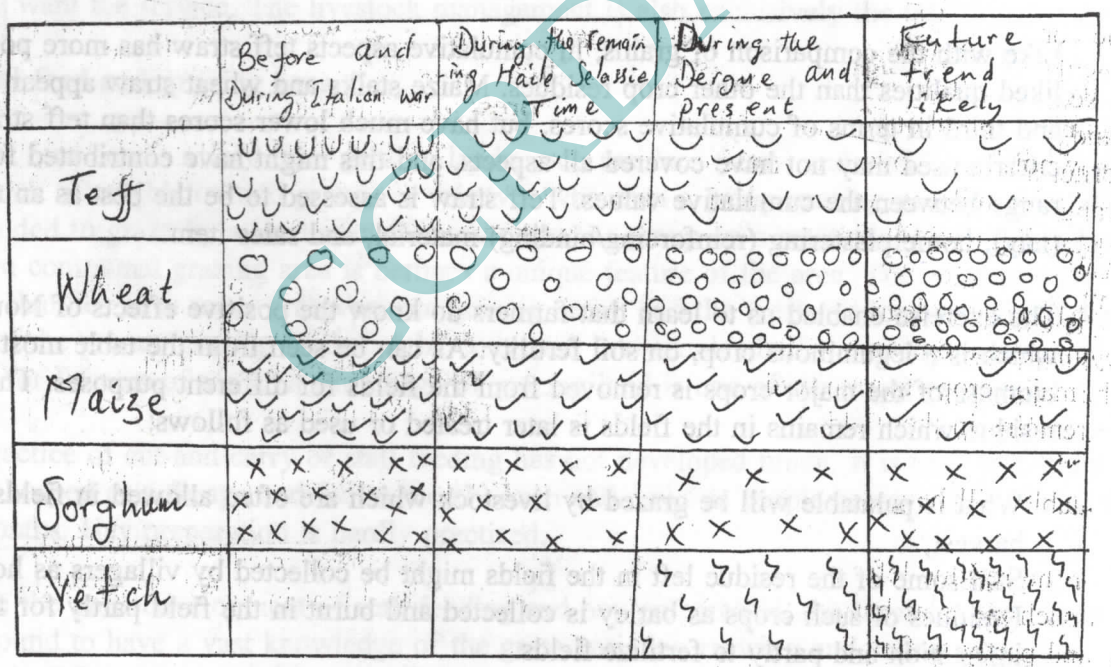
By-product use

The by-product of teff straw except for the stubble is used as animal feed during the dry periods, and hence is transported to the homestead and stored as hay. Left-overs of long stalked crops (maize and sorghum) are usually used as fuel, for temporary construction (fences) and for livestock feed in dry months. The stalk of these crops and others is not preferred to be ploughed into the land because of possible termite infestation and subsequent damage of following crops. As a result, before land preparation left-over crop stalk materials are often collected and burned in the field.

### 3.2.4. Trends of cultivated crops

Figure 40 below shows the trends in the production of the common cereals. The production of teff, maize and sorghum has not shown a significant increase, but the cultivation of wheat has increased because of the introduction of improved seed. The same is expected in the future. Vetch was introduced during the Dergue era. Previously nobody liked it for its negative psychological effect. Its limited land preparation and moisture requirement as well as its tolerance to blight (*wag*) has made it a good substitute for peas and faba beans. Its production is expected to expand further in the future.

***Figure 40 - Trends of cultivated crops in Arfinjo Borodo PA***




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### 3.2.5. Crop residue use

Apart from the grain the residue of different crops have different uses by the farmers. Usually residue/straw is either left in the fields or collected and taken to residential areas for different uses. Another matrix ranking of different uses and values of different crop residues was done with a group of farmers (see figure 41 below). Residues of teff, sorghum, maize, barley, wheat and noug were assessed by the farmers for their value for forage, sales, fuel, construction (as wall material) and roof thatching purposes. The following table shows the results of the exercise done at Balefu village.

***Figure 41 - Matrix scoring of crop residue uses*** *(scores ranging from 0 to 100)*

| *Use characteristics* | *Teff* | *Sorghum* | *Maize* | *Barley* | *Wheat* | *Noug* |
|---|---|---|---|---|---|---|
| *Animal feed value* | 70 | 3 | 5 | 20 | 2 | - |
| *Upgrading soil fertility* | 5 | - | 10 | 20 | 5 | 60 |
| *Sales* | 100 | - | - | - | - | - |
| *Roof thatching value* | - | - | - | 25 | 75 | - |
| *Household fuel* | - | 25 | 75 | - | - | - |
| *For wall/ground plastering* | 85 | - | - | 15 | - | - |
| *Sum of scores* | 260 | 28 | 90 | 80 | 82 | 60 |

Like with the comparison of grains, in cumulative aspects teff straw has more positive or liked qualities than the other crop residues. Maize stalks and wheat straw appear to be second and third in terms of cumulative scores, but have much lower scores than teff straw. The criteria used may not have covered all aspects, and this might have contributed for the big range between the cumulative values. Teff straw is assessed to be the best as animal feed (hay), home plastering (reinforcing/binding) material, and sales item.

The exercise enabled us to learn that farmers do know the positive effects of Noug residue, which is a leguminous crop, on soil fertility. As can be seen from the table most of the biomass of the major crops is removed from the fields for different purposes. The little residue which remains in the fields is later treated or used as follows:

- What is palatable will be grazed by livestock which are often allowed in fields after the harvest,
- Still some of the residue left in the fields might be collected by villagers as household fuel,
- Residues of such crops as barley is collected and burnt in the field partly for fear of termite infestation and partly to fertilize fields.

It is after all these subtractions that some part (mostly the root part) remains in the soil and contributes something to soil fertility.

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## 3.3. Livestock production

### 3.3.1. General

Like most rural areas in the country, ownership and management of livestock is an integral part of the farming system in Arfinjo Borodo. Cattle, sheep, goats and donkeys are the common livestock owned by farmers in the area. Oxen are considered to be the most important to the farmers for traction purposes. Cows are kept for milk production and reproduction. Sheep, goats and even chicken are reared by the farmers mostly for income generation from reproduction and sale. All the livestock reared are of the indigenous breeds and uncontrolled reproduction is practiced. Exotic or cross-breed animals are not known in the area.

The livestock ownership size is directly proportional to wealth status of the household. The rich have more of each variety, whereas the poor have only few of the small ruminants and chicken. An average family in Arfinjo Borodo has a pair of oxen, two cows, a donkey and two to four sheep/goats. The PA's territory is not a *tse tse* infested zone. However, during the dry months when the villagers move their livestock to the lowlands in search of grass, their livestock gets trypanosomiasis. Other common livestock diseases in the PA are black leg, bloating, tick-induced skin infection and anthrax. Since the veterinarian assigned to the PA does not make regular visits to the villages, farmers have to take their animals to Goro Solee if they want the service. The livestock management is also exclusively the traditional one.

### 3.3.2. Animal feed and grazing area

Animal feed comes solely from grazing lands, crop residues (straw and stalk) and weedings. Livestock of neighbourhood groups or relatives who own a group grazing area is collected and tended to graze by a herdsman from amongst the group on a rotational basis. The absence of open communal grazing area is perhaps a unique feature of the area. The economically strong families have more group/private grazing areas, and the weaker ones have the opposite. Most of the private grazing lands can be converted into croplands if the need arises. As a result, for farmers of the area, shrinkage of grazing land is one of the major problems.

The practice of cut-and-carry or stall feeding has not developed much. It is only teff straw that is heaped as a forage and fed to mostly oxen and cows as supplementary feed during the dry months. Hay preparation is hardly practiced.

Despite the underdevelopment of stall feeding and hay preparation, the farmers of the area were found to have a vast knowledge of the grass varieties growing and suited to their livestock. With a group of farmers the PRA team identified 11 varieties of grass growing either in most grazing areas or in crop fields as weed. We discussed with those present about the different qualities of grass and the result of the exercise is shown in figure 42.

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***Figure 42 - Matrix scoring of major grass types in parts of Arfinjo Borodo***

*(scores ranging from 0 to 10)*

| | Migira Sared *Pennisetum spp.* | Serdo *Agrostis cynodon d* | Muja *Sagwdenia polystachya* | Chekorsa *Eleusine jaegeri* | Senselet *Hyparrhenia rufa* | Marga Gogori *Delphinium wellbyi* | Sandabo *Setaria verticillata* | Kelo *Coreopsis borariana* | Sidisa *Trifolium spp* | Balemi *Andropogon dumaerti* | Migira *Pennisetum schimperi* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Availability | 1 | 1 | 3 | 10 | 1 | 2 | 1 | 4 | 5 | 4 | 7 |
| Nutritive value | – | 4 | 1 | 10 | 4 | 1 | 7 | 3 | 8 | 4 | 6 |
| Least weed quality | 9 | 8 | – | 3 | 10 | – | – | 2 | 2 | 3 | 10 |
| Drought tolerance | 2 | 4 | 1 | 10 | 8 | 1 | 8 | 2 | 3 | – | 10 |
| Suitability for cut & carry | – | – | 10 | 4 | 9 | – | 2 | 4 | 6 | 10 | – |
| Suitability for cattle | 2 | 3 | 3 | 10 | 3 | 4 | 7 | 6 | 10 | 9 | 7 |
| Suitability for small ruminants | – | – | 2 | 10 | 4 | 4 | 6 | 1 | 4 | 4 | – |
| Resprouting quality | 4 | 8 | 3 | 10 | 3 | 2 | 3 | – | 5 | 5 | 7 |
| Soil conservation effect | 9 | 7 | 2 | 9 | 8 | 1 | 2 | 1 | 4 | 4 | 10 |
| effect on milk production | 4 | 6 | 2 | 9 | 4 | 3 | 3 | 7 | 9 | 6 | 4 |
| Suitability for hay making | – | 6 | – | 10 | – | – | – | – | 8 | 7 | – |
| Sum of scores | 31 | 47 | 27 | 95 | 54 | 18 | 39 | 30 | 64 | 56 | 61 |
| Rank | 8 | 6 | 10 | 1 | 5 | 11 | 7 | 9 | 2 | 4 | 3 |
| General preference | | 3 | 5 | 1 | | | 4 | | 2 | 6 | |

Based on this assessment *Eleusine jaegeri (Chekorsa)* appeared the best, with *Trifolium spp (Sidisa*) and *Pennisetum schimperi (Migira)* taking the second and third positions respectively. The scoring result and general preference established earlier coincided for the best two. However, the grass preferred in third and fourth places got a rank position of sixth and seventh. Such a result indicates that possibly the criteria were not covering all aspects and were not weighed. Nevertheless, the table gives information about what is considered the best quality of a grass as feed for livestock.

### 3.3.3. Trends of livestock population and grazing land

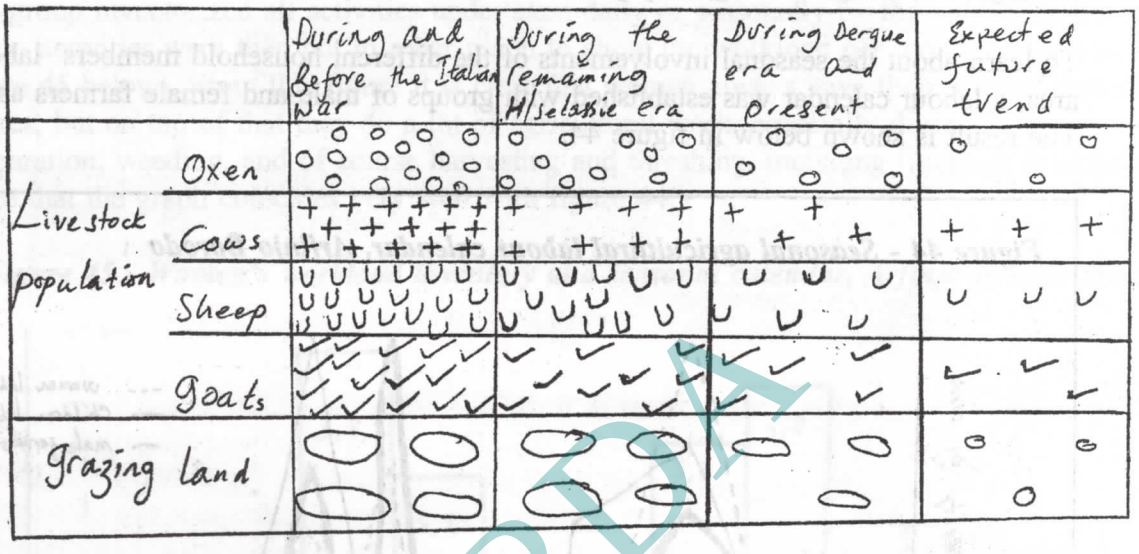
From a trend diagram drawn by a team of villagers (figure 43) the PRA team has learned that despite the tremendous contraction of grazing area, the population of livestock as such did not change that much over the last 50 years. According to the informants, during the Haile Selassie regime and earlier, livestock grazing area was not a problem. During the Dergue time a vast area of grazing land was transformed into cropland, and the problem was felt since then. At present the available land is owned by either groups or individuals, and hence there is no communal grazing land. During the dry seasons, some farmers are moving to the

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lowlands in search of grazing area. However, such movement often leads to infection of animals by trypanosomiasis, and with the rising cost of medication people prefer grazing the available resource in the villages.

Livestock production (cattle, sheep and goats) has gradually declined due to the shrinking grazing area. The number of livestock owned by households has also declined.

***Figure 43 - Trends of livestock population and grazing land in Arfinjo Borodo***




## 3.4. Agricultural extension and veterinary services

Some three years ago there were agricultural extension agents who used to visit and give advice to the farmers on different aspects of farming. At present there is no any extension service to the PA. The veterinary assistant assigned some two years ago to the Service Cooperative is not providing the necessary service and he does not often visit the different villages. Moreover, the cost of medication of livestock has soared and diseases are killing more animals. Black leg, trypanosomiasis, rinderpest and internal parasites are said to be common diseases of animals in the area. The absence of regular agricultural extension advisors is related to failure to get fertilizer credit this year. Adoption of new technologies is also affected by this situation.

Except for EENGO's tree nurseries at Tsemey and Goro Solee there are no community nurseries or organised private nurseries from where the villagers can get tree seedlings. Obbo Magarsa Enjeta and Obbo Gamachu Enjigou are the two skilled farmers in raising of seedlings of trees and fruits.

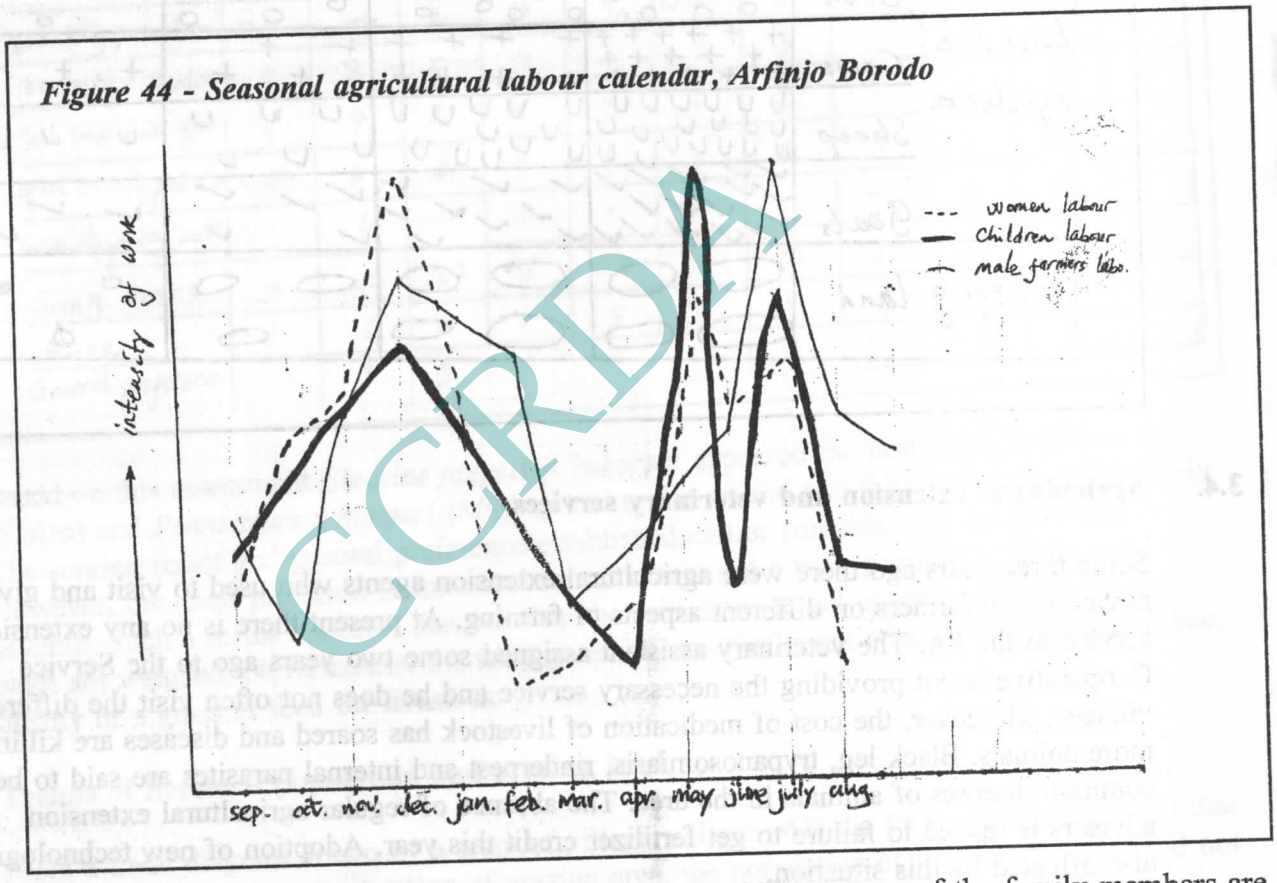
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## 3.5. Agricultural labour, men's and women's labour

Household family labour, draught and pack animals provide the major farm power in the area. Those farmers who are rich by local standards make use of hired labour for the work in their fields during peak agricultural seasons. Like other areas in the Ethiopian highlands the male household head is responsible for coordinating efforts, specifically field cultivation. To run the field activities he uses his wife's and children's labour as needed. The wife in addition to the household management responsibility supplements her husband's work in the field during harrowing, weeding, harvesting and transporting produce to their residence. Children above seven years of age are also assisting the family in water and firewood collection, cattle rearing, harrowing, weeding, crop protection (from birds and wild animals) and transportation.

To learn about the seasonal involvements of the different household members' labour in the area, a labour calendar was established with groups of male and female farmers and youth. The result is shown below in figure 44.

***Figure 44 - Seasonal agricultural labour calendar, Arfinjo Borodo***




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The interpretation of the graph indicates that peak working seasons of the family members are not exactly coinciding as we may expect:

- **For children** - May is the peak month as they have to intensively work in harrowing and weeding maize and sorghum fields. August is often a slack period for the youth.

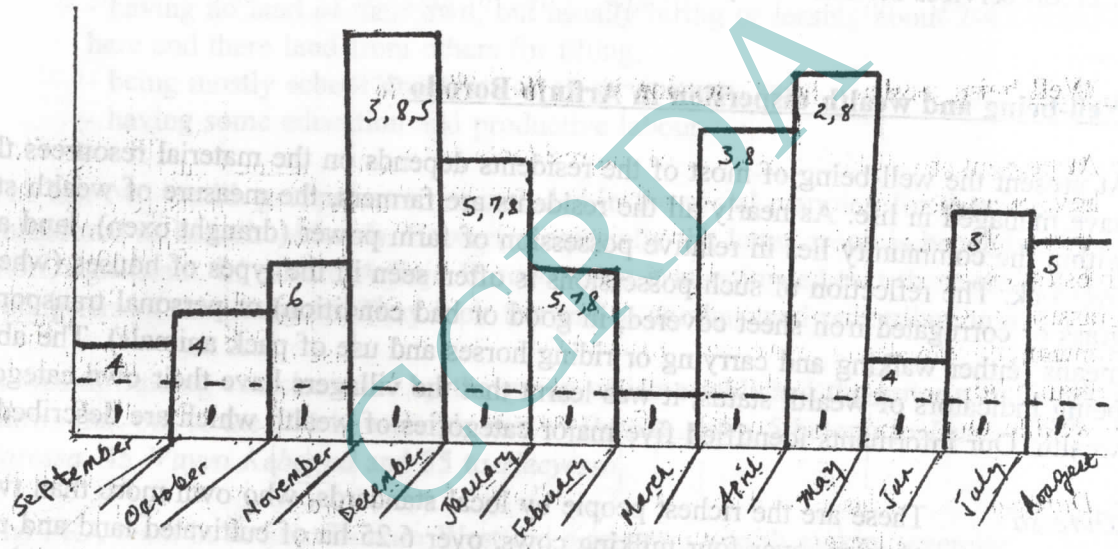
- **For men** - July is the peak working season as they have to do repeated ploughing and sowing teff and wheat as it rains. March is relatively the slack period.

- **For women** - December is the peak work season as they are required to transport the harvested produce from the different plots to the residence. February is relatively the slack period.

Generally speaking March appears to be the shared slack period for all the family members.

On the western side of the PA a group of women alone were approached by the women PRA facilitators and discussed on issues of particular concern to women. As one of the exercises this group inventorized all activities undertaken daily or seasonally by the women in the area. These activities were then put in a bar-graph to show the workload per month of the year (see figure 45 below). From this figure it is clear that women always have their regular household chores, but on top of that they do a lot of agricultural work, especially during land preparation, weeding, and of course harvesting and threshing, including livestock management (note that the graph coincides very well with figure 44!)

***Figure 45 - Women's workload inventory and seasonal calendar, Arfinjo Borodo West***




1. ***Routine tasks***
   - *preparing meals and washing*
   - *fuel wood collection*
   - *fetching of water*
   - *taking care of children*
   - *transporting grain to grinding mills*
   - *barn cleaning, dung collection and baking.*
2. *Hoeing of fields for maize and sorghum planting*
3. *Harrowing of teff, maize and sorghum fields*
4. *Weeding of maize and sorghum fields*
5. *Harvesting and transportation of crop stalks and grain to threshing grounds and then to residential.*
6. *Harvesting beans, peas, lentils, linseed and flux*
7. *Preparing threshing ground*
8. *Keeping cattle on grazing land*

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# 4. HOUSEHOLD ECONOMY AND FOOD SECURITY

## 4.1. Means of livelihood

Small-scale crop production is the major occupation of nearly all the residents of the area. Production is nearly subsistence and involves mostly field crops. Animal draught and family labour constitute the major farm powers used.

Apart from the involvement of some families in retail trading of consumable commodities like petrol, salt, sugar and coffee, and selling of beverages (*araqee* and *tella*), few other income-generating activities are practiced. The intensive use of women labour in farming (harrowing, weeding and transporting) may be one of the reasons for this. Few farmers have specialized skills such as carpentry and wood carving, and practice them as a means of extra income-generation. Despite the presence of a high number of landless youth, at present none of them is involved in petty or wholesale trading activities. This was mainly attributed to the absence of credit services for starter capital.

## 4.2. Well-being and wealth dispersion in Arfinjo Borodo

At present the well-being of most of the residents depends on the material resources that they have managed in life. As nearly all the residents are farmers, the measure of wealth status within the community lies in relative possession of farm power (draught oxen), land and livestock. The reflection of such possessions is often seen in the types of houses (whether grass or corrugated iron sheet covered, in good or bad condition) or personal transportation means (either walking and carrying or riding horses and use of pack animals). The above being indicators of wealth status, it was learnt that the villagers have their own categories of wealth. Our informants identified five major categories of wealth which are described below:-

*Duressa* These are the richest people by local standards, who own more than two pairs of oxen, over four milking cows, over 6.25 ha of cultivated land and up to 2 ha of private grazing land. They often have over 10 sheep/goats and make use of hired labour. Since their income is high they often have well built corrugated iron sheet covered houses and separate tukuls. They make use of horses and/or mules for personal transportation and often have more than one donkey for goods/produce transport.

*Soressa* The well-off, characterized by: ownership of two pairs of oxen and up to four milking cows, 20-25 *Olcha* (5-6 ha) of cropland and 6 *Olcha* (1.5 ha) private grazing area. They usually have well kept CI-sheet covered houses and tukuls. They also have a horse for riding and a donkey for transportation.

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*Wayo Kebegna* The average farmers, literally meaning "those who can win their daily food". This category of people owns one pair of oxen, two milking cows, 10-15 *Olcha* (2.5-4 ha) of cropland and up to 0.5 ha private grazing land. They live in good quality tukuls and have 3-7 sheep/goats.

*Heeyessa* Those considered as the poor and are characterized by ownership of 10-15 *Olcha* (2.5-4 ha) of cropland. They own one ox or cow, less than three sheep or goats. Since they don't have draught animals they often lease out their land on *Kite* (contract), *Erbo* or *Yeesa* arrangements.

*Deega* The poorest category of people who neither have land, livestock nor houses of their own to reside in. As a result they are living by selling their labour to the richest farmers. In non-peak labour demand seasons they usually migrate to other areas in search of work.

The local people also identified the **dependent young farmers** as a separate wealth category. This recently formed group of "new poor" consists of grown-up children of the farmers of the PA. They are characterized by:-

- having no land of their own, but usually hiring or leasing about 2-4 *Olchas* of land here and there land from others for tilling,
- being mostly school drop-outs or ex-servicemen, and
- having some education and productive labour.

The last two wealth groups were not included in the social mapping for they are not considered as household heads. However, especially the latter group is becoming more and more significant. In eastern Arfinjo Borodo alone it is estimated that there are about 200 youngsters of this category. They look forward to another land redistribution to get plots.

A wealth ranking exercise done by the group which established the criteria and categories shows that out of the 100 households east of Borodo river, 5 belong to *Duressa*, 15 to *Soressa*, 45 *Wayyo Kebegna* and 35 to *Heeyessa*.

The PRA team in Arfinjo Borodo West did a separate wealth ranking exercise. The villagers identified four categories: rich, middle, poor and the poorest. The characteristics of each is are as follows:-

The rich own more than 2 oxen, a mule, 1-2 donkeys, more than 10 cows, the same number of sheep and goats, more than 20 chicken and over 20 *Olcha* of land.
The middle own 2 oxen, 4-10 cows, 2-10 goats, 2-10 sheep and 8-20 *Olcha* land.
The poor own 2-8 *Olcha* of farmland, no livestock but 1-5 chicken.
The poorest who even do not have chicken.

Using these criteria the group randomly selected sixty families from the social map and 30,

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20, 45 and 5 percent of the population fell in the poorest, poor, middle and rich categories respectively.

A group of women separately did a wealth categorization and ranking exercise of women-headed families. The women identified four wealth categories which are described below:

| | |
|---|---|
| The rich: | Those who have a CI-covered house, 1-1.5 ha of land, ten or more cows, ten to 15 sheep and/or goats. |
| Medium: | Those who have a big tukul, up to 2 *olcha* (0.5 ha) of land, an ox, two cows and two to four sheep. |
| The poor: | Those who have a small tukul to live in, and a small plot (about one *olcha*). |
| The poorest: | Those who have neither land nor a house of their own, and as a result work as a daily labourers for others, collecting and selling fuelwood. |

From these criteria it can be learned that women-headed families have much less land ownership than the regular households in the corresponding categories. They depend more on cattle ownership, especially milking cows. A ranking exercise based on the above criteria showed that out of 17 women-headed families, 3 are "the poorest", 6 are "poor", 7 are "medium" and 1 is "rich".

## 4.3. Household food security, income and expenditure

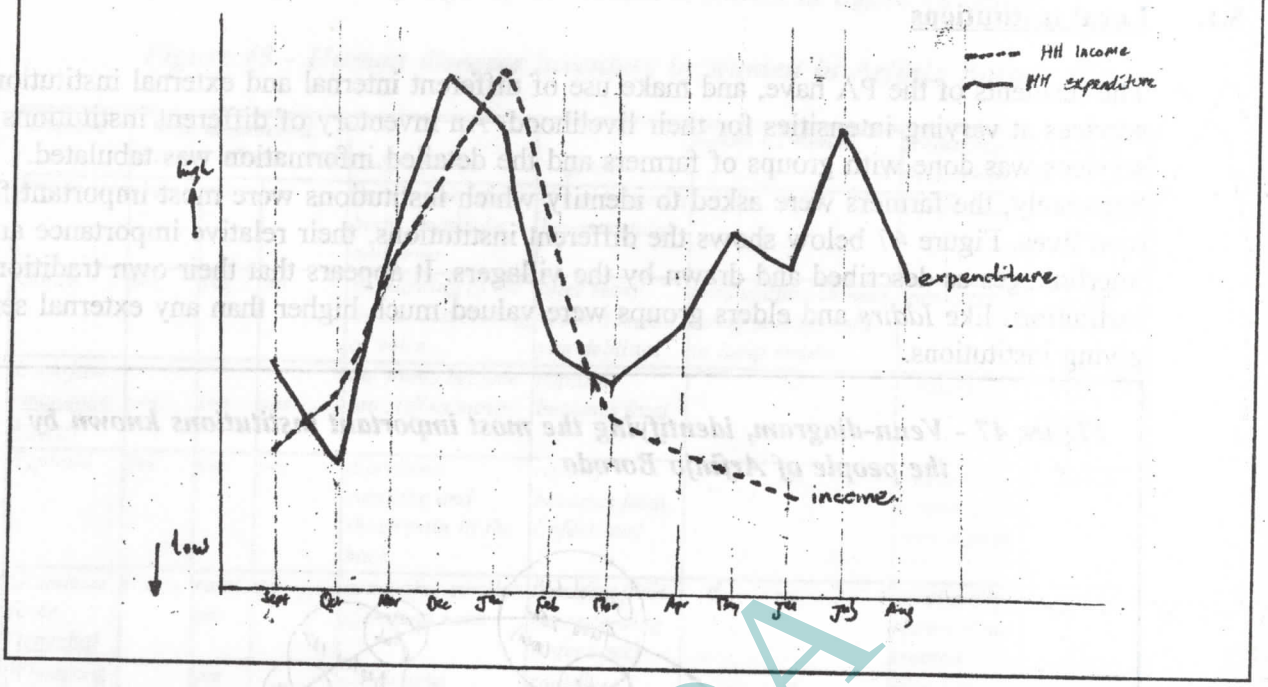
The major and obvious household cash income source is sale of grains. Sale of livestock (sheep and goats) occasionally supplements income. Some of the farmers are also used to getting some income from sale of honey. With the introduction of toxic herbicides no more beekeeping is practiced. Sale of vegetables and green maize also create some cash income. The household income and expenditure seasonal calendar drawn with groups of farmers is shown in figure 46 (see next page).

Seasonal income starts ascending in November when farmers start selling legumes (peas and beans), barley and oil crops (flax and noug). In December and January the farmers' income reaches its peak with income from sales of the major cereals teff, wheat and maize. After January incomes of most families descends sharply with the depletion of the saleable crop reserve. From March to June farmers sell small portions out of their own food reserve in order to meet some household needs. Our informants indicated that from June to September most farmers do not have any cash income at all. Rather it is the time of negative income where villagers have to borrow money.

The income realized from the farmers' sale of farm produce is used for inputs purchase (fertilizer and oxen), or credit repayment, clothing, tax, medication, social requirements (wedding or funeral), school stationary and others. December and January are the two months where farmers often pay government tax and fertilizer credit. Although total expenses are

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*Figure 46 - Seasonal income-expenditure calendar of families in Arfinjo Borodo*




lower in February, a lot of celebrations are held in this month, on which still quite some expenses are made. Preparation of food and drinks for villlagers' group work (*debbo*) in May consumes some financial resources reserved. Following this comes the sowing season in July and a farmer spends his remaining resources on purchase of fertilizer, seed and herbicides.

The seasonal income expenditure graph drawn shows that the times of peak income and of peak expenditure do not coincide. The peak expenditure arrives before the peak income. This situation may have contributed to farmers being indebted in December and then sell in a hurried condition all the produce when the price is low. Perhaps extension and project interventions could be identified to create a better balance between the income- and expenditure graphs. Credit service coupled with improved grain storage techniques could help to level out the peaks and extend an average income season.

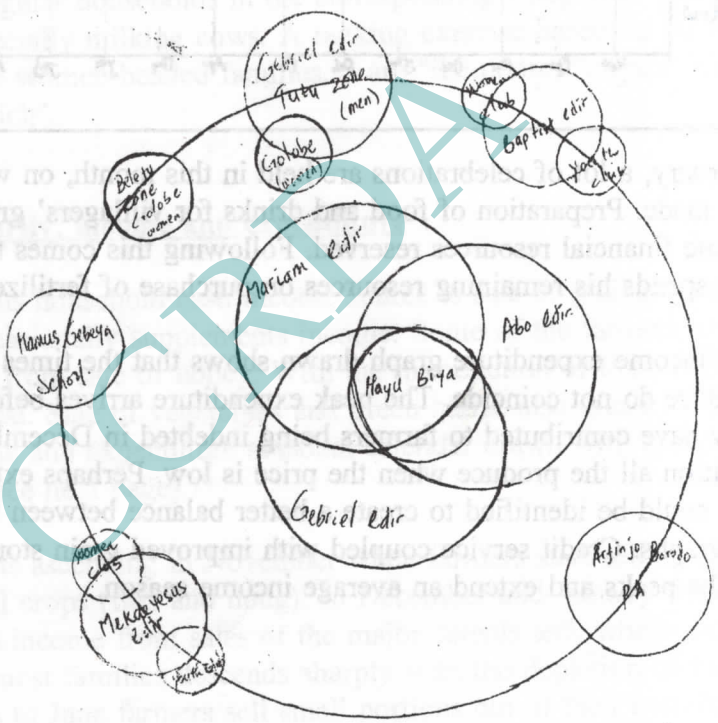
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# 5. INSTITUTIONS AND SERVICES

## 5.1. Local institutions

The residents of the PA have, and make use of different internal and external institutions and services at varying intensities for their livelihood. An inventory of different institutions and services was done with groups of farmers and the detailed information was tabulated. Separately, the farmers were asked to identify which institutions were most important for their own lives. Figure 47 below shows the different institutions, their relative importance and interlinkages as described and drawn by the villagers. It appears that their own traditional institutions like *Iddirs* and elders groups were valued much higher than any external service-giving institutions.

***Figure 47 - Venn-diagram, identifying the most important institutions known by the people of Arfinjo Borodo***




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## 5.2. Human diseases and health services

Pneumonia, whooping cough (*tik tik*), typhoid, glaucoma, tuberculosis, glandular fever (*tenecha*) and teeth infection are common diseases in the area. Many of these diseases are either caused by cold climate or by unsafe water. A description of the conditions of some of

these diseases as explained by a group of women is shown in figure 48 below.

***Figure 48 - Human diseases inventory by women in Arfinjo Borodo West***

| Disease | Who is attacked: Women | Child. | Men | Symptoms | effects | Local treatment | frequency of occurence | where to be treated |
|---|---|---|---|---|---|---|---|---|
| Pneumonia | yes | yes | no | pain in the whole body, headache and fever | if not treated it becomes fatal | no | repeatedly | Ambo |
| Goitre | yes | yes | no | swallowing of the throat and closing of voice | after many years it makes you debilital | acupuncture in neck using needles held in lamp smoke | not common | Ambo |
| Lock-jaw (mangaga koleef) | yes | yes | yes | the joints become too stiff to move | rapidly becomes fatal | no | rarely | Tokkee or Guder |
| Typhoid | yes | yes | yes | diarrhoea, vomiting and sharp pain in the back | rapidly becomes fatal (infectious) | no | frequent epidemic once a year | Ambo |
| Glandular fever (tenecha) | yes | rarely yes | no | headache, swollen glands in neck | transfers from breastfeeding (infectious) | no | continually recurs if not treated | Ambo |
| Whooping cough (tik tik) | | yes | | continuous coughing & vomiting | rapidly becomes fatal after blood vomiting | no | frequent | Ambo (if worse to A.A.) |
| Glaucoma | rarely | yes | rarely | painful and discharging eyes | blindness after many years | no | recurs if not treated | Ambo or Guder |
| Tuber-closis | yes | yes | yes | dry coughing, tiredness, slimming and thinning hair | eventually fatal, if treatment is not completed | no | during cold time occurs frequently | Ambo |
| Cutting on arm (etimura) | yes | | yes | dizziness and heavy headache, muscle seizure can't relax or walk | eventually fatal | bleeding the patient (cut artery in arm) | recurs even after local treatment | Tokkee (often local treatment) |
| Tooth ache | mostly | rarely | mostly | painful gums, swelling and decay of teeth and headache | chronic, not fatal, but infectious by breathing | acupuncture on gums | common | Tokkee or Guder (for tooth extraction) |

Tokkee Irensa and Guder are the two towns where farmers go for clinic services. Tokkee is more frequented for proximity and satisfactory services, but the cost of medication has recently gone up and some families are finding it difficult to cover the cost. For less complicated health aspects farmers on the western side of the PA are making use of the services of traditional healers/herbalists which are cheaper and closely available. Obbo Dafar Jikona, Obbo Alamu Debissa and Obbo Abara Dasalegne are the three farmers consulted for human and livestock medication. Aade Soboke Workena is the only experienced traditional birth attendant. Another lady trained by the clinic at Tokkee has died.

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## 5.3. Education and literacy

It was mentioned in Section 1.3 that school enrolment is relatively high in the area. There are two elementary schools, one at Hamus Gebeya and another at Goro Solee, which are attended by most of the PA's children. Children from villages closer to Goro Solee go to the school at the town, whereas those coming from Borole, Balefu and Tutu zones go to the nearest school at Hamus Gebeya (3-4 kms). Some of the village children are sent to Tokkee Irensa (8 kms to the west) for junior secondary school education, but the majority are usually sent to Guder (19-23 kms) for secondary school education. In the PA there is a significant number of school drop-out youth (often after grade six). The villagers attribute this to absence of employment opportunity even to those who have completed high school education. This coupled with the growing cost of educating children in towns (house rent, transport, clothing etc.) has contributed to a declining interest in educating children.

By usual Ethiopian rural standards, the literacy level in Arfinjo Borodo appears to be high. Every family sends nearly all of its children to school. Further we were told that even the elders have properly followed the basic literacy campaign during the Dergue era. As a result we have found that a significant number of people including the adult men and women can read and write in the Amharic script. The Latin script is not yet rooted in the village as farmers often volunteered to write in Amharic script. The protestant churches are still running their own basic literacy courses, and it is logical to assume that they have contributed to the improvement of the literacy level.

## 5.4. Self-help and credit services

*Golobees (Iddirs)* are the major self-help service institutions that can be found in the area. The Service Cooperative at Goro Solee was supposed to facilitate and provide agricultural inputs on a credit basis, but it is not functioning accordingly and remains very weak. The Development Bank (the former AID Bank) has availed credit for fertilizer purchase through the District Administration and Agricultural Bureau, but few farmers have used the opportunity.

*Golobees* or *Iddirs* are voluntary local organizations which are mostly established to share labour and resources during times of death of a person from the village or neighbourhood. Villagers organize labour for burial and contribute food and labour for a bereavement period, which may include work in fields of the affected family. Apart from the above, the *Iddirs* have started to play roles in village administration issues and even oxen replacement credit provision.

At Arfinjo Borodo three different forms of *Iddirs* are identified: church based, non-church based and women *Iddirs*. Followers of Baptist and Mekane Yesus churches have their own *Iddirs* each to share hardships and joys amongst themselves. Since the followers are few the *Iddirs* are smaller in capacity. On the other hand the non-church based *Iddirs* (not in a strict

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sense, as they are attached to the Orthodox Church) are the strongest ones with big memberships and their own tents, benches and utensils. All the villagers belong to one or more of such *Iddirs*. There are five such established *Iddirs* which give service to the residents and some people from the neighbouring villages.

Women *Iddirs* are literally wings of the main men's *Iddir* and are formed by neighbourhood groups of women for the coordination of contributions of food, water and firewood during bereavements. The protestant church followers have women and youth wings for self-help initiatives.

## 5.5. Marketing facilities and services

There are no formal shops or kiosks within the PA. However, some villagers purchase such consumables as kerosene, salt and sugar, and sell it in retail quantities to other villagers. Farmers transport and sell their produce and/or buy inputs and goods from the following places as per their marketing interest:

**Goro Solee market** - Wednesdays and Saturdays, 1-5 kilometers away. For minor marketing and purchase of household inputs. The villagers have mentioned that the market place is becoming too crowded and cannot accommodate all the people coming on market days.

**Hamus Gebeya** - Thursdays and Sundays (1-8 kms away), the service is the same as in Goro Solee.

**Tokkee Irensa** - Tuesdays and Sundays (8-13 kms away), for purchase of livestock and cheap agricultural products.

**Guder** - Mondays, a major market where farmers go for bulk sale of grain, purchase of clothing, draught and pack animals. It is not frequently visited by the farmers as it is some 20 kms away on average from the PA.

On market days nearly all the adult and grown-up people go to the markets and few people can be found in the villages. Apart from sale and purchase of products people use marketing days to meet each other for conflict resolution and entertainment while they buy and enjoy some drinks.

## 5.6. Craft-based services

Craft-based services are not so much developed in the area. Few weavers and potters are present in the PA. Blacksmiths are only available in the neighbouring PA, requiring up to 10 kms of walking. The same for leather works. For civil construction works either Ato Gutu

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Megersa from within the PA or other carpenters from Goro Solee should be contracted. Ato Beksisa Bedada is known for producing wooden farm implements. Tailors are available at Goro Solee, Hamus Gebeya, Tsemey or other bigger urban centres. In addition, most of the women do traditional basket works for their own use and sometimes for sale.

## 5.7. Spiritual services

Nearly all the residents are Christians, although of different denominations mixed with some traditional Oromo practices. The Orthodox Christian residents go for regular prayer and burial services to Goro Solee (St. Gabriel) and Hamus Gebeya (St. Giorgis) churches whichever is closer. At Balefu zone there are Baptist and Mekane Yesus churches which provide spiritual services to their followers. They have a separate burial ground within the PA. The big group of traditional practitioners go for meditation to the *Qallus* or *Qalichas* located in the villages. Two ladies are groomed to be *Qallus* in the near future.

## 5.8. Security and arbitration

The PA Management Committee is officially responsible for the security of the residents. However, the major role of arbitration and conflict resolution is handled by village elders. Elder tribunals are of two kinds: *Shanachas* are groups of village elders who assume their position based on their achievements in life. *Jarsa Biya* on the other hand are clan elders and arbitrate on within or between clan members issues. During the field survey a joint PA Management and village elders tribunal effort was observed in an attempt to resolve a conflict. Matters which are not resolved by the village tribunals are taken to the District Court at Guder where the National Law is applied.

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# 6. MAJOR PROBLEMS AND OPPORTUNITIES

## 6.1. Major socio-economic problems as identified by the community

Towards the end of the field survey with three groups of villlagers; one women and men's group west of Borodo River and another men's group east of the river discussions on major problems which affect the life of the community were held. Problems related to farming (inputs supply, shortage of land, soil erosion or weeds), livestock production (grazing area and diseases), services (credit, crafts, health care, potable water, grinding mills and absence of saving culture) were raised by the different groups. A group of women on the western side of the PA with women facilitators separately discussed their own account of problems.

The problems listed by those present at both sides of the PA, were evaluated further during a pair-wise ranking exercise in which the most important problems were prioritized. The exercise is reflected in figure 49 (next page). The results can be summarized as follows:-

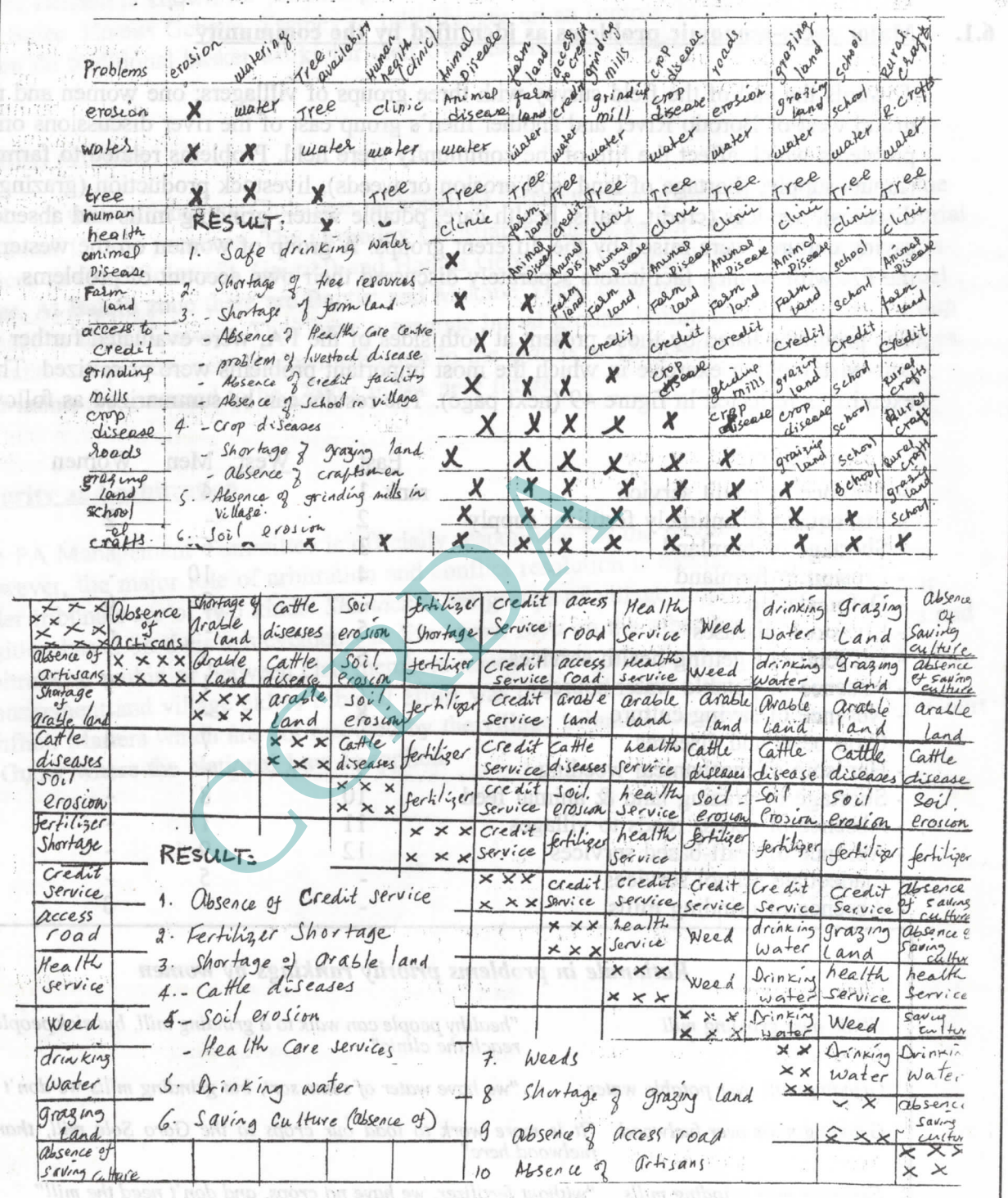
| | East | West: Men | Women |
|---|---|---|---|
| - Absence of credit service | rank 1 | 4 | - |
| - Inadequate & untimely fertilizer supply | 2 | - | 2 |
| - Shortage of farmland | 3 | 6 | - |
| - Erosion in farmland | 4 | 10 | - |
| - Deforestation | - | 2 | 6 |
| - Livestock diseases | 5 | - | - |
| - Difficulty of getting health services | 6 | 3 | 1 |
| - Absence of potable water source | 7 | 1 | 5 |
| - Absence of saving culture | 8 | - | - |
| - Crop pests and diseases | - | 7 | 4 |
| - Hardship of mechanical weeding | 9 | - | - |
| - Shortage of grazing land & animal feed | 10 | 8 | - |
| - Absence of access roads to villages | 11 | 11 | - |
| - Absence of craft-based services | 12 | 9 | - |
| - Inadequate school services | - | 5 | - |
| - Absence of grinding mills | - | - | 3 |

***Rationale in problems priority rankings by women***

| | |
|---|---|
| *Clinic over grinding mill* | *"healthy people can walk to a grinding mill, but sick people can not reach the clinic"* |
| *Grinding mill over potable water* | *"we have water of some sort, but grinding mills we don't have"* |
| *Grinding mills over fuelwood* | *"It is more work to load our crops to the Goro Sole mill, than to find fuelwood here"* |
| *Fertilizer over grinding mills* | *"without fertilizer, we have no crops, and don't need the mill"* |
| *Grinding mill over herbicide* | *"we can always weed by hand"* |

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***Figure 49 - Pair-wise ranking of problems in Arfinjo Borodo: 1. East, 2. West***




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## 6.2. Development opportunities

From fieldwork observations the PRA team has identified the following to be good opportunities for development in the area:

- The residents of the area are so far exposed to little NGO or external support, therefore do not have an aid-expecting attitude.
- As compared to other rural areas, the literacy level in the area is relatively better, and this perhaps can be tuned to the development needs of the area.
- There is a culture of decentralized introduction and adoption of new crops in the area. This provides a good opportunity for crop diversification efforts. Furthermore, the presence of some bush lands here and there presents a starting point for agroforestry promotion efforts.
- The area has underutilized surface water resources, which if exploited can contribute to improved food security.
- The location of the area with regard to proximity to the main road and the capital city provides a positive opportunity for maximization of production and marketing.
- The practice of private or group-owned grazing area management provides an opportunity for forage extension.

## 6.3. Community discussion on development options

On the last day of the PRA study, community leaders and elders were invited to be briefed about the PRA findings and to discuss and suggest possible interventions to address the problems and to develop the area. 21 elders, mostly PA authorities and respected individuals, appeared and participated in the meeting. After the PRA team presented its findings, the following consensus was reached.

**On credit services**

Credit may be needed for the following purposes:

- Farmers can buy the proper agricultural inputs at the right time for better yields.
- Farmers can use credit to meet their financial needs when the price for agricultural products is low, so that they can reserve their produce for sale when the price has improved.
- Credit can contribute to reducing the pressure on land as the younger generation could use credit to engage in non-farm income-generating activities.

The PRA team suggested to the community that development agencies (government or NGO)

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provide a revolving capital fund for the community to reach the different categories. On its part the community should cooperate in proper targeting, and ensuring repayment of the credit for a prolonged effect.

**On the issue of fertilizer supply**

The progressive increase in the price of fertilizers has made fertilizers inaccessible to a great number of farmers of the area. Because of their inability to repay fertilizer credit, the community of Arfinjo Borodo did not receive fertilizers through MOA in the 1994/95 production year. Provision of credit by NGOs could partly be a means to address the problem. However, considering the sustainability aspect of chemical fertilizer use, alternatives like maximizing manure use and other technologies should be demonstrated and popularized by development agencies so that farmers can learn from it. The community in this respect should participate in trying out the new techniques and assessing them.

**On soil erosion**

From the field exercises we have learnt that soil erosion is one of the problems that is progressively affecting agricultural production in the area. The two conservation measures presently undertaken by all local farmers are field drains and cut-off drains (*boi* and *kokobi*). From a matrix ranking exercise we learnt that farmers prefer these measures, while they have bad experiences with soil bunding, which was undertaken on a large scale in the Dergue era. We asked the farmers if they have known measures like grass strips, and they replied they do not have any knowledge of them, but are interested to learn about the measures.

Therefore, the group suggested to have development agencies introduce measures which have worked in similar circumstances elsewhere, and demonstrate their effectiveness. It is not advisable to introduce soil bunding and terracing without properly discussing with the farmers and showing them some experiments. The community would have to participate in trying and assessing the techniques.

**Health services**

Part of the PA's population does not have easy access to health services at a close distance from their residences. To alleviate the problem, development agencies (GO and NGO) should help to establish community-based health services in the area. Establishing health posts could be one component, but also upgrading existing traditional skills and training of few of the residents (e.g. the traditional healers and traditional birth attendants) could be another. The community on its part should contribute its affordable resources for obtaining such services.

**Potable water**

Compared to other areas in the country, drinking water is not a severe problem in the area. At least there are streams and springs that flow year-round. The problem is that no proper water

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protection work is done so far. As a result during the dry periods water quality deteriorates especially because of livestock trampling of the sources. To this end the community should contribute its labour for construction. A development agency (GO or NGO) can cooperate in the provision of locally unavailable resources like cement, sand and technicians for the construction, so that the water situation can be improved. The community can assist in selecting the proper site, and thereafter manage the developed resource for sustained effects. In addition, possibilities of using protected or unprotected water for nursery development and vegetable gardening should be considered.

**On the poor saving culture of the community**

Education and awareness-building is the major solution to this problem, but this could be combined in a savings & credit scheme, so that people can learn by doing. Best effect could be realized if this is channeled through accepted local institutions like *Iddirs*, elders and religious groups. The community and its elders should strive to improve this aspect of life in the area.

**On grazing land and livestock feed shortage**

With the increasing fragmentation of farmland and the need for more cropping areas, there is a likely trend that even some of the existing grazing areas could be converted into croplands. However, the PRA clearly revealed the importance of livestock in the farming system of the area. Therefore, the PRA team suggests that step-by-step aspects of improved animal husbandry should be adopted by the residents. Introduction of forage and grass species, cut-and-carry system, establishment of forage plots and improved pasture management practices need to be promoted by development agencies. The community should cooperate in the coordination and assessment of efforts to deal with the problem.

**On tree resources**

The PRA exercises on the value and preference of different tree types shows that the availability and preference of trees do not coincide. There is a scarcity of the preferred trees because of deforestation. Except for Eucalyptus, no other tree variety is planted and cared for. To this end the following type of joint intervention can be done by the community and development agencies.

Development agencies like EENGO should increase their efforts in raising seedlings of preferred indigenous trees of the area. If efforts are encouraging and the community gets interested a strategy of promotion should be worked out. The community on its behalf should cooperate in this endeavour by participating in the assessment and contributing resources required for realizing the objective. Equal attention should also be given to the remaining tree resources through education and control.

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## New crops and crop production

The recent introduction of new crops to the area is mostly done by individuals. For example, the District Administrator introduced two varieties of maize and wheat, which were subsequently named after him. The recent introduction of haricot beans and *anchote* (*Coccinia abyssinica*) is also attributed to individuals. Due to this, it was found that farmers did not acquire proper knowledge of planting or harvesting, storage or consumption of these varieties. Therefore, a development agency can do on-farm adaptation and planting time trials for those and other potential crops that may suit to the area. The community will be participating by providing land for trial and showing willingness to assess the efforts and learn from them.

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# V. OVERALL SUMMARY AND CONCLUSIONS

## V.1. Summary of findings

This PRA study examined local conditions, resources and farmers' practices in two PAs in EENGO's Tokkee-Goro Solee project area, one PA to the west of Goro Solee (Qile Obi) which has a steeply sloping topography, and one to the east of Goro Sollee (Arfinjo Borodo) which is relatively lower in altitude and has mostly a gentle topography.

Although relatively small in surface area (compared to other PAs in Ethiopia), both PAs have at present populations of around 1,700 each. Population increase is said to have been very high, which can be deducted from the relatively large family size of 7-10 members. This has resulted in an increasing pressure on land, and a relatively large number of young farmers without land of their own, because there have been no land redistributions since 1991. In Arfinjo Borodo, there is a significant group of unemployed youth, including ex-soldiers without land or other income sources.

Those farmers who have land still have an average of 2 to 4 ha cropland, and smaller pieces of private grazing land. In addition to private grazing land, there are group grazing areas managed by neighborhood groups or relatives (especially in Arfinjo Borodo). During part of the year, the cattle is taken to a valley in Huru Gamo PA where there is still enough grazing land, but where they are exposed to trypanosomiasis infection transmitted through the *tse-tse* fly. In both PAs, the average farmer has about 2 oxen and 2 cows as well as some small ruminants and pack animals. Women-headed households (10-15 % of all households) depend more on livestock production than on crop production.

While resource ownership is unequally divided, there are a number of arrangements made to share land and resources, e.g. sharecropping, contract farming and various labour arrangements. Another remarkable feature of the area is the extreme fragmentation of land holdings: farmers often have up to six different small plots at different locations and altitudes, sometimes even in other PAs.

The increasing pressure on land has resulted in croplands encroaching into the hillsides which are covered by forest (in Qile Obi) and bushes (in Arfinjo Borodo) used for fuelwood collection and grazing. This new land use practice, in addition to depleting or minimizing the fuelwood and grazing reserves, is resulting in a serious soil erosion problem on farm lands. Although the soils in this area are still much richer than for example those in the northern highlands of Ethiopia, there are clear indicators of a process of rapid soil fertility decline in the area. Chemical fertilizers are being applied widely now, although the rising price of fertilizer is forcing farmers to refrain from cultivation of teff and wheat, which require chemical fertilizer for good yields. Farmers have been using crop rotation and field/cut-off drains to contain soil fertility and erosion. While realizing the need for soil conservation

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measures, the local farmers have very negative experiences with terracing and soil bunding, which were enforced on the local population during the Dergue period.

Although the area is being deforested quickly, there is still a wide variety of indigenous trees on the hillsides and scattered around the streams and in some of the farmlands. Eucalyptus is not as common as in other parts of the country, and indigenous trees like Olea and Acacia are preferred above Eucalyptus. There is scope for afforestation, both of Eucalyptus and indigenous trees, and introduction of improved agroforestry practices, although the land shortage is an inhibiting factor.

Both PAs are intersected by rivers, the Qile river in Qile Obi and the Borodo river in Arfinjo Borodo. Several small streams, usually from springs on the mountain slopes, drain into these rivers. As a result, there is no lack of surface water, but it is not developed for domestic use nor for irrigation. Some water sources are dirty due to trampling by livestock and require protection to improve hygiene.

The main crops cultivated in the area include teff, sorghum and maize in the lower zones, barley and wheat in the higher zones, supplemented with beans and other pulse crops as well as some oil crops (noug, flax). A number of varieties have been introduced by individual farmers, without proper extension. However, there appears to be a keen interest amongst farmers to try out new crop varieties and farming practices. As mentioned, the farmers practice crop rotation widely and are well aware of the soil-enriching qualities of certain crops.

Part of the households living in the area experience food shortages during the rainy season. With the continued absence of land redistributions, it is likely that the poorer farmers will depend more and more on the richer farmers to obtain extra income out of labour or leasing out their land. Poorer farmers are forced and accustomed to sell part of their crop when prices are low. Therefore, especially in Arfinjo Borodo it was agreed that there is a need for flexible credit and promotion of a savings culture.

Health problems in the area are mostly related to cold spells in the climate and to unsafe water. Although the BGCM clinic in Tokkee Irensa provides satisfactory services, for some acute diseases or e.g. for birth complications the clinic is too far. There is a lack of trained Birth Attendants and there are no community-based health services.

*Iddirs* and village-specific *Golobees* are very strong local institutions which provide mutual help to villagers in times of need. Their traditional role as "burial societies" has expanded to include other roles. In addition, the community elders (*Jarsa Biya*) play a significant role, and have to be consulted if development activities are to be undertaken in the area. Regarding seasonal activities, February to April and September/October are the relative slack months during which community activities could be undertaken.

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## V.2. Conclusions and recommendations

Based on the above findings and the discussions with villagers about the major needs of the area (see Chapters 6 of both PA report sections), an integrated rural development programme for the Tokkee-Goro Sollee project area should focus on "sustainable land use", incorporating the following components:

* **Agriculture:** Promotion of sustainable agricultural practices, including improved crop rotation, intercropping, relay cropping etc. and introduction of nitrogen-fixing fodder crops, including extension and on-farm trials.

* **Soil conservation:** Experimentation with grass strips, hedge rows and physical soil conservation measures selected on basis of careful surveying of soil conditions, slope and drainage patterns, e.g. on the fields of some willing farmers (a more specific survey should be done by soil conservation experts, including on improvement of the existing field and cut-off drain systems). Massive introduction of soil bunding or terracing is not advisable in view of the farmers' previous experiences.

* **Agroforestry:** Tree planting for soil conservation, fuelwood and construction wood supply, agroforestry including improvement of fodder availability should be promoted through central or private/group nurseries with the appropriate extension support. Experimentation with rehabilitation of remaining natural forest fields (including enclosures), nursery raising of some of the endangered indigenous tree species and introduction of multipurpose trees should be attempted. Awareness-raising on the value of forest resources (e.g. at schools) should be included in the programme.

* **Livestock development:** Introduction of organized cultivation of fodder crops, pasture management, cut-and-carry, and improvement of veterinary services, e.g. by the introduction of vet posts combined with training of paravets from the community, with an improved accessibility to trypanosomiasis medicines. Introduction of cross-breed dairy cows could also be systematically attempted.

* **Savings & credit:** A savings & credit programme for all farmers, in order to assist them in harmonizing or balancing the seasonal household income to expenditures, and a small credit scheme for unemployed youth, ex-soldiers and women, in order to increase income-generating possibilities outside agriculture. These programmes could build upon existing institutional structures like *Iddirs/Golobees*.

* **Health:** Community-based health services, i.e. training of CHAs and TBAs from the community (preferably traditional healers and birth attendants), establishment of health posts, including promotion of family planning (as an additional means to contain the increasing problem of land pressure).

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* **Clean water supply:** Improvement of some existing drinking water sources (spring development).

* **Irrigation development:** Some of the stream water can be used for irrigation.

* Possibly the improvement of the water-powered **grinding mill** in Qile Obi South and/or the introduction of more water-powered grinding mills.

* **Training** of farmers or villagers (e.g. through the *Iddirs/Golobees*) in organization of input supply (e.g. fertilizers, herbicides, tryps drugs), tackling of common problems and generally in sustainable land use management. This could go together with training for savings & credit.

The PRA showed that all these issues are interrelated and therefore have to be tackled in an integrated manner. Lessons can be learnt from other agencies who have integrated the above aspects in similar programmes.

Some of the above components still require further study into specific conditions, and all have to be worked out further before they can be included in a programme proposal. This PRA report already provides a lot of information which can be used to design specific interventions.

Apart from the information and a set-up for a second phase integrated development programme, we believe that the PRA has:

- provided EENGO staff and other participants with skills that can be used for further identification and planning of community development projects/programmes,

- motivated the communities of Qile Obi and Arfinjo Borodo to analyze their own problems and work for their own development.

Although the PRA has covered a more or less representative variety of environments in EENGO's Tokkee-Goro Sollee project area, EENGO could decide to repeat similar surveys in other PAs of the project area, or to employ a selection of techniques to survey some specific issues. Similarly, EENGO could use the acquired skills in other project areas.

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Annex

## GLOSSARY AND ABBREVIATIONS

| | | |
|---|---|---|
| *Aade* | = | Mrs. (in Oromo language) |
| *Ato* | = | Mr. (in Amhara language) |
| *Bara* | = | period (in Oromo language) |
| CI | = | Corrugated Iron |
| CRDA | = | Christian Relief & Development Association |
| Derg/Dergue | = | military regime, led by Mengistu Haile-Mariam (1974-91) |
| EENGO | = | Ethiopian Environmental Non-Governmental Organization |
| *gandi* | = | Trypanosomiasis (sleeping sickness in cattle, transmitted by the tse-tse fly) |
| *Gasha* | = | 40 hectares (old Ethiopian land measure) |
| *Golobee* | = | Oromo version of small-scale traditional burial society |
| ha/has | = | hectare/hectares |
| hh/hhs | = | household/households |
| *Iddir* | = | traditional burial society |
| *Kebele* | = | (in rural areas:) Peasant Association, lowest administrative level |
| km/kms | = | kilometer/kilometers |
| LDA | = | Local Development Agent |
| masl. | = | meters above sea level |
| MoA | = | Ministry of Agriculture |
| NGO | = | Non-Governmental Organization |
| noug/nigerseed | = | oil crop |
| *Obbo (Ob.)* | = | Mr. (in Oromo language) |
| *Olcha* | = | traditional Oromo land measure (0.25 ha.) |
| PA | = | Peasant Association |
| PRA | = | Participatory Rural Appraisal (see page 3) |
| *Qallu* | = | traditional Oromo religious priest |
| qtl. | = | quintal (100 kgs.) |
| RRA | = | Rapid Rural Appraisal |
| SG 2000 | = | Sasakawa Global 2000, high-input agricultural extension programme |
| TBA | = | Traditional Birth Attendant (midwife) |
| *teff* | = | Ethiopian staple grain |
| tukul | = | round hut, made of wood, mud and grass |
| *Wereda* | = | Administrative District (Amh.) |
| *Weyna Dega* | = | mid-altitude highland (Amh.) |
| *Wzt.* | = | Ms. (in Amhara language) |

Some Oromo pronunciation rules

ee = prolonged "e" (English equivalent "ae")
Q = "K"- glottalized (explosive/guttural)
X = "T"- glottalized (explosive/guttural)

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