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ACRONMYS

DA	Development Agent
GDP	Gross Domestic Product
GO	Governmental Organization
FGD	Focus Group Discussion
HH	Household
HHS	Household Survey
IFAD	International Fund for Agricultural Development
IWUA	Irrigation Water Users Association
Masl	Meter above sea level
M&E	Monitoring and Evaluation
NGO	Non-Governmental Organization
OIDA	Oromia Irrigation Development Authority
OWWDSE	Oromia Water Works Design and Supervision Enterprise
SPSS	Statistical Package for Social Science
SSI	Small Scale Irrigation
TVET	Technical Vocational Education and Training
WSSIP	Worbate Small Scale Irrigation Project

Executive Summary

Worbate Small Scale Irrigation Project (WSSIP) is a micro dam which is planned to implement in Gomole district, Abunu kebele, specific site Worbate. Accordingly; the feasibility study of the project is mainly focused on socio-economic study in order to identify the existing social infrastructures, constraints, opportunities and development potentials that encourages or hinders the implementation of the proposed project. And, also it identifies the administrative boundaries and the beneficiary households examine attitude and willingness of the community for proposed project and forecast impacts and cost benefits of the project. Hence, the study identifies the detail socioeconomic conditions of the area like, social services, existing infrastructures and basic livelihood system of the target community with main constraints, and existing agricultural system, potentials, and constraints in the area. The study was conducted through identifying existing primary & secondary data through deploying various data collection methods like, HHS, FGD, community consultation and field observation with focal persons, and secondary data from district sector offices reports. In addition to these, discussing with the target community on proposed irrigation project, its positive/negative impact, their feelings towards the project, and what they will contribute and how & when to participate for its realization, and finally, they agree and approving for accepting the project by signing on general meeting minute. Based on the data obtained from the district respective sectors and project kebele; there was limited social infrastructures and the existing one was poor in service provision. Mainly the community in the project area was based on livestock production and rarely exercising crop production. The proposed project planned to implement 205.5ha net command area and will benefit 411HHs, based on 0.5ha per HHs scenario, and it would address a total of address 2877 peoples based on seven (7) average family sizes.

There is also, the existing customary institutions through which they manage the communal resources were assessed and other organization & management system of the IWUA is proposed for the planned project. Finally, as the proposed project has positive impact for the area, it is also might be negatively affect them, and to minimize risks due to the project what to be done is recommended.

1. Introduction and Background of the Study

1.1 Introduction

In Ethiopia, as well in Oromia under the prevalent rain-fed agricultural production system, the progressive degradation of the natural resource base, especially in highly vulnerable areas of the lowlands coupled with climate variability have aggravated the incidence of poverty and food insecurity. The major source of growth for the country as well for the region is still conceived to be the agriculture sector. Hence, this sector has to be insulated from drought shocks through enhanced utilization of the water resource potential of the country, (through development of small-scale irrigation, water harvesting, and on-farm diversification) coupled with strengthened linkages between agriculture and industry (agro-industry), thereby creating a demand for agricultural output. In line with the above, efforts have been made by the government and NOG's to improve the situation in the region in areas of domestic water supply provision, irrigation development, watershed management, etc.

In order to alleviate the situation of food insecurity in lowland areas of the region that resulted from shortage of Rainfall & recurrent drought, the region have no choice but to aggressively switch development endeavors towards effective and efficient use of the existing natural and human resources. A development strategy that could help is the use of the water and land resource endowments. As a result, development of different irrigation schemes (small- to large-scale) can play a major part not only in solving the current food insecurity, but also in enhancing the economic development of the region as well the country through the earning of more foreign currency and the creation of employment opportunities.

Accordingly, the regional government planned the feasibility study of small scale irrigation projects that will contribute in problem alleviation due to shortage of rainfall/ drought in lowland areas of the region that affected the production and productivity of the peoples, which exposed to food insecurity. Based on these; Oromia Irrigation Development Authority (OIDA) has proposed Worbate Small Scale Irrigation project (WSSIP) to develop micro dam irrigation in Abunu kebele of Gomole district, which is financed by International Fund for Agricultural Development (IFAD). And the Clint (OIDA) has signed an agreement with consultant Oromia Water Works Design and Supervision Enterprise (OWWDSE) for detail feasibility study. Thus;

the report focused on detail socio-economic study of Worbate Small Scale Irrigation Project (WSSIP) in Borena zone, Gomole district in Abunu kebele.

1.2 General Background of the Study

Among the 14 districts of Borena zone; Gomole is the newly established one that separated from Yabelo district in 2009 E.C. whereas; the district is administratively constitutes 14 kebeles. The district is located at 40km before getting Yabello (zonal town) to the North direction on the asphalt road Yabello to Finfinne, consequently found at 525 km from Finfinne on the way from Finfinne to Yabello asphalt road. The district generally, as well as the project kebele (Abunu kebele) characterized by short and erratic rainfall, and the area has affected by drought. In related to this the effect of drought would hardly affect the major livelihood system of the people in the district through affecting livestock feed/grazing area, water availability & deteriorating the livestock & crop production become less in its production and productivity; and not enough to feed the community. Due to this reason, a lot of peoples have needed aid to survive, and not all, but many of the community members have provided aid from government & other funding agencies (NGOs).

Pastoralism provides both a living and a way of life to millions of people in Ethiopia. It makes a significant contribution to the national economies both in terms of supporting their own households and in terms of export earnings of live animals and animal products (meat, hides and skins).

To overcome the problems of the pastoral community in the region regarding to accessibility of water for domestic consumption & for livestock, and further for irrigation development; Oromia Irrigation Development Authority has playing its role in improving the life of this people through the development of small scale irrigation projects in the region. Of these proposed projects, Worbate Small Scale irrigation project is one of them which is planned in Abunu kebele of Gomole District, Borena zone.

1.3 Project Rational

Poverty remains particularly intense in the arid and semi-arid areas in terms of low income, reduced food consumption and high vulnerability for the risk of drought. Due to their vulnerability and limited capacity to manage risks, and are often trapped in a downward spiral of food insecurity. Successive years of shocks are triggered by droughts, diseases and conflicts over resources, etc.

Agro-pastoral/Pastoralism is the predominant economic base and source of livelihood for Gomole district as general and for Abunu kebeles particularly, but production and productivity from these sector become decline from time to time as the data from district respective office shows. Due to a lot of constraints namely; shortage & erratic rainfall /long term drought, population growth, over grazing, land degradation, poor management of resources, inadequate technical support, market problem, etc. as a result their livelihood become worsen, and difficult to secure social & economic demands. Hence, the peoples in the kebele have relay on food aid for long time to survive.

Therefore, developing such micro dam small scale irrigation projects is an option to improve people's livelihood through efficient utilization of the available resources like, water for domestic & livestock consumption, land & others like for small scale irrigation development. The system can encourage the community to access water for livestock, water supply, and they can produce 2-3 times a year and it would improve the livelihood, and become assure their food security. And also, create job opportunity for the community and surplus irrigated crops available at market for non-beneficiaries.

1.4 Description of the Project Area

1.4.1 Location

Worbate Small Scale irrigation project (WSSIP) is a micro dam which is located in Borena Zone, Gomole district, Abunu kebele. The project site is located at 48 km from Surupha town (district town) to the South -East direction on the asphalt road (18km) until Haro-Bake, then turn to left direction while coming from Surupha at Haro-Bake on the dry weather road which is about 30km until the project site which is the road is hardly challenged, and it needs construction to access the project Abunu kebele; and totally Worbate small scale irrigation (WSSIP) is located at

48km from district town (Surupha), and 52km from Yabelo zonal town; and also found at a distance of 573 km from Finfinne.

Gomole district is administratively shares boundaries with Dugida Dawa district in North direction, Yabelo district in South, Arero district in East, and Elwey district in West directions. Whereas, the project kebele/ site (Abunu kebele) shares boundaries with Dambala kebele (in Yabelo district) in East direction, Arbora kebele in West, Tola Wayu kebele in North, and Dambi kebele in South directions have share boundaries with the project kebele. Worbate Small Scale irrigation project (WSSIP) is a micro dam which is proposed to harvest the runoff water during the rainy season and planned to irrigate the net command area of 205.5ha, and will benefit about 411HHs (0.5 ha per HH) assumptions.

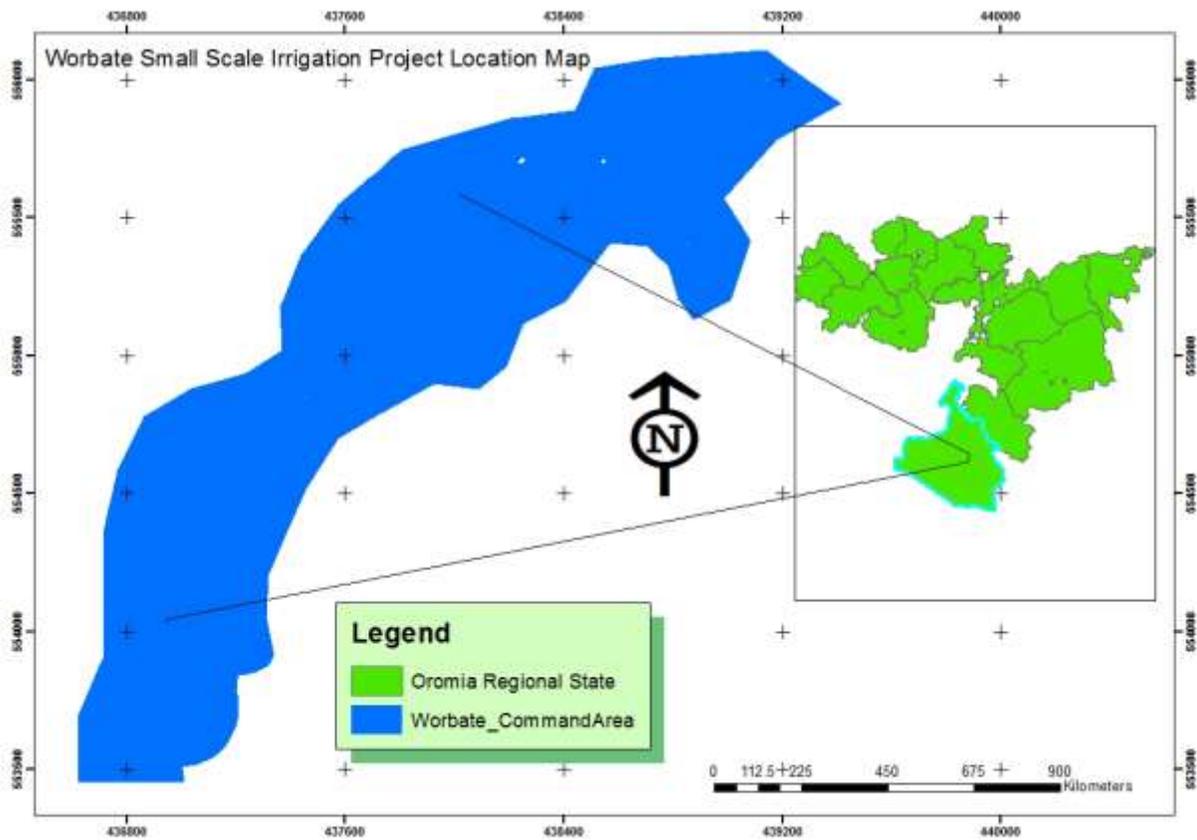


Figure 1 Worbate Small Scale Irrigation Project Location Map

1.4.2 Climatic condition of the District

Based on data from district socioeconomic profile and district respective sectors shows, the district has the annual range of rain fall is 11.9 mm – 188.3 mm, and it is bimodal rain fall

system which is from March to May is “*Ganna*” and from September to end of November is “*Hagaya*”, i.e. even if it is not constantly available on the schedule as its trend in the district shows; and it is erratic & unevenly distributed throughout the district. As the data from the district shows, the temperature ranges in between 12.7 °c – 29.3°c. The district is mainly characterized by low land agro-ecological zone.

1.5 Objectives of the Project

1.5.1 General Objective

To assess existing socioeconomic conditions of the project area, identifying the administrative boundaries and the beneficiary households, examine attitudes and willingness of the community for proposed project and forecast impacts and opportunities of the project.

1.5.2 Specific Objectives

- Describe the current socioeconomic condition of people living in the project area,
- Investigate attitudes and reactions of community to the proposed development project,
- Anticipate the possible impacts of the proposed irrigation project on the would be beneficiaries and surrounding communities,
- Propose recommendation for tuning the project to its social context for the attainment of effectiveness and sustainability,

1.6 Scope of the Study

Worbate Small Scale Irrigation project (WSSIP) is proposed to implement in Borena zone, Gomole district, Abunu kebele. The scope of the study confined within the district and project kebele, where the beneficiaries’ of the project found. The study has limited to conduct on major aspects of socio-economic conditions of the area, which is mainly focused on economic (livelihood system), social services, infrastructures, institutions, land use pattern, livestock production, and farming systems problems & opportunities of the study area. In addition to this, it tries to provide adequate information regarding the project and its surroundings for decision makers. On the other hand lack of previews study documents regarding the project area and unavailability of reliable district sector data may the limiting factors for this study.

2. Approach and Methodology

The approaches and procedures adopted in acquiring data to conduct the socioeconomic situation of the project area; there was adopted some methods and data collection instruments. The process of data collection and type of data to be collected has includes both primary and secondary data source; qualitative and quantitative data type were collected, through applying various data collection methods like Household survey, community consultation, Focus Group Discussion (FGD), Key Informant Interview (KII), and field/ project site observation were used for socioeconomic data collection process.

2.1 Sampling Design

There are various types of sampling designs exist, but for this study we were decided purposively the number of households to be interviewed for the survey would be 30 sample households to conduct the survey, and to get the number of households selecting from the list of household in the project area available at kebele through using simple random sampling method; and conducting household survey by using questionnaires. In addition to this, the other data collection methods like FGD, community consultation, field/ project site observation also applied to collect the qualitative and quantitative data that essential for the study.

2.2 Method of Data Collection

In order to generate the essential lessons, two major sources & types of data were used in the socioeconomic study; primary and secondary data sources, and it might be quantitative or/and qualitative data types were collected through different methods and procedures.

2.2.1 Primary data

The type of data which is directly gathered from the beneficiaries regarding the proposed small scale irrigation project is considered as primary data. This type of data was collected through household survey, Focus Group Discussion (FGD), project site observation, and community consultation. Through these data collection techniques; detail socioeconomic conditions of the community that focused on general livelihood system of the area, the existing social & public infrastructure, constraints and challenges available in the project area etc. were assessed& addressed.

2.2.1.1 Household Survey

Household survey is the data collection methods we were employee to collect the essential basic data on household's socio-economic and demographic structures through interviewing the randomly selected sample house hold heads. The survey was conducted by using district irrigation development authority experts as enumerator/ data collectors through training them. The proposed project aimed to benefit communities around the project community in Abunu kebele, and they have a homogeneous living style with in the same agro ecology and mainly respect to the same ethnic group & religious composition, cultural and socio economic characteristics.



Figure 2 Sample Household survey conducted at project site (Abunu kebele)

Accordingly, as we have described above; purposively decided to take 30 sample households and select them randomly from the list of households those who were participated on community consultation (85 male and 85 female, total 170) at kebele center. Consequently; through this procedure the essential basic household socioeconomic conditions, challenges that the community have encountered at the area that related to the proposed small scale irrigation to full fill the study and other necessary information was gathered.

2.2.1.2 Community Consultation

In most cases the peoples not feel happy and could also be reluctant to allow studies to be executed over their lands. They may feel that their lands will be taken and given to others leading

to losing their livelihoods. This directly affects geological, soil and topographic surveying works which are not related with social studies. Thus, experts involved in different engineering related and non-engineering surveying works have to make sure that the people are informed and are volunteer the work to proceed. In order to avoid confusion and make them understand, every expert participating in the study of the project has first to be certain that the people are consulted before entering into the study areas. This awareness is to be given formally by district level officials, kebele level administration and development workers. On top of these, the expert involved in the study of socio economics has to explain to the concerned bodies in order to receive people's support and involvement.

Therefore; the community meeting appointed and held with the expected beneficiary communities of the project kebele. This public consultation was facilitated and pre-arranged by kebele leaders, DA and district concerned bodies. The participants drawn from different groups of the community from the kebele like, elders, women, & youths in order to brief about the project and know attitudes, opinions and reactions of the community toward the proposed project, and also identifying major socioeconomic conditions, impact of the project, land use system, and cost recovery for loss of resource, etc. has also discussed. In most cases, women are not participate meeting with men and not clearly express their feelings due to cultural impacts. To manage such problems we were separately discussed with women in the area. Furthermore, project site observations were made in the project area to grasp an overview of the existing socio economic & command area situation in collaboration with the community.



Women participants on general meeting



Figure 3 Community Consultation at project kebele (Abunu kebele)

2.2.1.3 Focus Group Discussion (FGD)

A focus group discussion (FGD) is a good way to gather information from group of people from similar backgrounds or experiences to discuss a specific topic of interest. The groups are to be selected in consultation with kebele administration office as well as development workers. These groups of people are required as a source of information for the history of settlement and permanency, availability of other water users, availability of historical, archeological and important places within the project area, the overall economic status of the community and the importance of irrigation project, negative and positive factors which the project has to consider in planning the project and related issues. In addition, the groups serve as a source of data that will be used for socio economic condition of the area for the study. Accordingly, in collaboration with the kebele administration we have discussed with about ten (10) focus groups of the community on major socioeconomic conditions of the area, trends & existing livelihood status of them, attitudes of the community towards the proposed project, social infrastructures, trends of community participation on development projects, and what challenges& constraints that exist in the area, and other issues that related to proposed small scale irrigation project were assessed.



Figure 4 Conducted FGD at Project site (Abunu kebele)

2.2.1.4 Key Informant Interview (KII)

Key informant interview is a qualitative in-depth interview with people who know what is going on in the community. The purpose of key informant interviews is to collect information from a wide range of people including community leaders, professionals, or residents who have first-hand knowledge about the community in relation to the proposed project. Therefore; we arranged the proper person from district irrigation authority that have enough knowledge about the project areas of current situation and conduct the interview. This method for gathering more information to cross check the collected data from other sources that help us to be more confident to generate the report.



Figure 5 Conducted Key Informant Interview with district respective officer

2.2.1.5 Field observation (Transect walk)

Transect walk/ field observation is across the various project places could be made with a support of kebele administration, DAs, and knowledgeable persons of the area and others. In this task, project site (dam/reservoir, command area), relevant physical observations and pictures of the settlement, economic activities, land use pattern, and other relevant issues could be taken. Therefore; we have travelled to the project site with respective bodies and gathering the essential information to fully fill the study.



Figure 6 Project Site Observation with study team, & concerned bodies

2.2.2 Secondary data

The other data source is secondary data which is collected from district level concerned sector offices' reports, study documents, proclamations, & other different relevant data from district and kebele level, that concerns socioeconomic conditions, livelihood systems etc. related to the project were collected through developed checklists to enrich and cross checking the data to more confidence. Consequently, the secondary data collected from about fourteen (14) relevant district sectors to enrich the study.

2.3 Data Analysis

The two sources of data for small scale irrigation project (SSIP) socio-economic study are primary and secondary sources. Both primary and secondary data need to be checked for its validity. It is crucial to take care when we use secondary data for our socio-economic analysis. The data collected through different methods and from various sources were analyzed and interpreted qualitatively and quantitatively. The data analysis was carried out using the Statistical Package for Social Science (SPSS), Excel, etc. The quantitative data were first recorded and organized in a Microsoft Excel spreadsheet. Simple descriptive statistical methods such as average, percentage, and frequency distribution were used. The qualitative data analysis was used to see the relationships between the variables and it was then analyzed through systematically organizing the information and giving attention to local situations, socio economic conditions, opinions, perceptions and attitudes of households towards the proposed project in an area, and then report would generated.

3. Result and Discussion

3.1 Demographic Features

General

The major types of demographic characterization that would be collected at the feasibility stage are Average Family Size, Age Composition, Sex Composition, Composition of Religion, Ethnic Composition, Language Composition, Educational Status, Marital Status, Occupational Category, vulnerability and Average Income of the people. The identification and study of existing demographic features helps to investigate and analyze the possible future interaction that will take place between the project and the people. It also helps to identify the sources of data and information that would be used for the different types of socio economy study elements.

3.1.1 Population size of the district and Project kebele

The population number is to be identified from the results of the census survey. Based on 2007 (1999 E.C.) population & housing census projection made; 2010 E.C. total population of Gomole district is 67,797 (male 34,903 and 32,894 female); from this, there are about 10,044 household heads (6,923 male & 3,121 female) in the district. Consequently; based on kebele administration data, the total population of Abunu kebele is about 4,971 (2,805 male, and 2,166 female) with about 2.9 average growth rate. In addition to this, there are about 643 households in the kebele; from this 429 male & 214 female household heads. Abunu kebele population accounts 7.3% of the total Gomole district population.

Table 1 Population Size of Gomole district & Project Kebele (Abunu)

S/N		Gomole District		Abunu Kebele	
		Total Population	Household head	Total Population	Household heads
1	Male	34,903	6,923	2,805	429
2	Female	32,894	3,121	2,166	214
	Total	67,797	10,044	4,971	643

Source: Gomole district Finance & economic cooperation, and Abunu kebele administration, 2019

3.1.2 Family size, Age composition, Sex composition

3.1.2.1 Family size

The number of persons in a household influences the amount of labor the household can expend on agriculture and the amount of food consumed. Based on the available data gathered from various sources and the results of the household survey indicated; the average family size of the project kebele was estimated. The minimum and maximum family size for the project area ranges 1 to 14 members of family size and the averages family size at the project area estimated to be seven (7) family sizes which are greater than the regional average of 4.8 persons (with 5 persons for rural areas and 3.8 persons for urban areas). According to the household survey result, sample household shows, more than 50% of the respondents' family sizes were greater than an average (seven) family size of the project area. As available data from the project area and discussed with the community; the factors that contributing for the high population growth are:

- Community attitudes towards having many children is acceptable,
- Low educational status and high social value for children,
- Low health extension in effective family planning and attitudinal change,
- Traditional perception and customs of polygamy/more than one wife, etc.

This indicates that, the concerned body to be work with health extension support and other intervention measures, family size and population growth at project area anticipated to decline/control and recommend strengthening the health extension service, in order to due attention on the available natural resource in which it is declining in alarming rate from time to time.

3.1.2.3 Sex composition

Sex composition of a population is important as it provides useful information like reproductive potential, gender mainstreaming, labor resource, education converge, benefit share and participation by sex, etc. According to the data obtained from kebele level about 56% of the total kebele population was male and the rest 44% were female, and this indicates the sex proportion of the area is quite different from regional sex proportion.

3.1.2.4 Age Composition

Age is one of the basic demographic characteristics of a population and useful for demographic analysis, determine availability productive age and other socio-economic developments planning. The age and sex structure of a population is usually the effects of past fertility, mortality and migration.

Based on the data obtained from the sample households’ survey 87% are the age group in between 15-64 years, 13% are the age greater than 65 years.

As indicated, the highest percentage of the sample age group is in between 15-65; which is considered as economically & socially an active & productive age group of the population; but about 13% is a non-active and dependent age group of the population at the area.

3.1.3 Ethnic, Language and Religious composition

Based on the data obtained through HHS, and other kebele data, the ethnic group of the kebele is totally belongs to Oromo ethnic group which accounts 100% and all are primarily speaking Afan Oromo language. Regarding their religion, from the total populations in the kebele about 93% of them were “*Waqefata*”, and the rest 7% were followers of Protestant religion.

Similarly, the target communities for the proposed project belong to Oromo ethnic group in which almost more than 93% of them are “*Waqefata*” and some of them are protestant religion followers, based on data obtained from house hold survey and other sources.

3.1.4 Marital Status

The marital status of the study should take the classification of the CSA which are termed as single, Married, Divorced, Separated, Widow / Widower. The Marital status has to be provided for households of both sexes found within different project components.

Regarding the marital status of the respondents, 90% of the samples HHs were married, 6.7% were widowed, and the rest 3.3% were single.

Table 2 Marital status of the households

S/N	Marital status of the respondent		
	Description	Frequency	Percent
1	Married	27	90
2	Widowed	2	6.7
3	Single	1	3.3
4	Total	30	100

Source: Household survey, 2019

3.1.5 Education Status

Based on the rest from households survey result indicates, about 93.3% of the respondents were not attended school and are illiterate, whereas 6.7% were can read and write. It is believed that educated farmers are more aware of technological inputs, early adopt than others, more utilization rate, and risk management. But, the project kebele specifically, and the district as a general, its educational status were very low relative to the regional status. Thus, to solve this problems attention due given in development of social infrastructures like schools & related structures.

Table 3 Educational status of Respondents

S/N	Educational status of sample households		
1	Education Level	Frequency	Percent
2	Illiterate	28	93.3
3	read and write	2	6.7
	Total	30	100

Source: Household Survey, 2019

3.1.6 Occupational Category of the project site Area

Occupational categories refer to the types of occupation which serve as major and secondary source of livelihood income. The lists of the occupations for the specific SSIP are identified from the data collected from the community through household survey. A major occupational category in the project area was pastoral mode of system relay on livestock production, which was more than 93.3% of the respondents based on this agricultural system; whereas secondary occupations are very rare at the area, but in few cases there was crop production activities were done.

3.1.7 Agricultural Density

The measurement of agricultural density seems more meaningful in evaluation of the concentration of people per unit area of cultivated/ grazing land rather than population density. In other words it is an indicator to population pressure over the existing land resources i.e. cultivated, grazing land within the delineated area of the project. As shown below the agricultural density of the district is 54; this means 54 person settled per square kilometer (54 km²) of the land, and it indicates there is a wide range of land as compared to the population in the district, but it is more than Borena zone density which is 19 persons per square kilometer (19

km²). On the other hand, as compared to the regional agricultural density, it is very low, since the district is agro-pastoral/ pastoral farming system in which the people settled sparsely and there is a wide land area as compared to the size of the population.

3.1.8 Settlement Patterns and Population Dynamics

Settlement patterns refer to the types and permanency of settlements; while population dynamics deals with annual population projections estimated based on population growth rate.

3.1.8.1 Settlement Pattern

Permanency of Settlement is one of the objectives of small scale irrigation projects (SSIP) is to benefit the local people by assisting them to produce marketable surplus crop production and promoting diversified socio economy development. These objectives can be achieved if irrigation projects are implemented within permanently settled communities and thus, one of the enabling environments to achieve the stated objective of producing marketable surplus crop production is availability of permanent settlement. The settlement patterns could either contribute or hinder the development of the project. Therefore, the settlement patterns of the people that could have influence over the different project phases need to be clearly identified and investigated ahead of time.

Mainly; settlement pattern in the rural areas is influenced by historical background of the community, environmental and ecological, socio-cultural, political and economic conditions of the area. As well, the outcomes and reflections of various factors, also affect the settlement pattern of the district and also the project kebele. Basically, the people in the pastoral areas mainly depend on livestock production, and they are move from place to place in search of pasture and water for livestock, due to this reason they were not settled permanently. But, the project kebele community settlement pattern were clustered where the community settled but when we see its distribution, it is dispersedly/ scatter distributed within the kebele. Therefore; the community in the project kebele is permanently settled at the area.



Figure 7 Settlement pattern of the project area

3.1.8.2 Population Projection

Population Projection is made for existing eligible population found under households around the command area. Annual rural population growth rate of the specific region established by CSA are to be applied. The projection is made for the corresponding analysis period of a project.

Population Projection of the given area is very essential for understanding of food demand in the project life. The rate of increase in food supply should meet the rate in population growth. As stated above; population projection is based on annual average growth rate determined by Central Statistics Agency (CSA) for Oromia Region which is 2.7% for rural area is adopted. The current population based on past census is used as a base population. The life span of this small scale irrigation project would supposed to be twenty (20) years, and it will serve the community within Abunu kebele, and the projected population of the kebele would be 8,469 (4,779 male, & 3,690 female), as shown below;

Table 4 Population Projection for Project kebele (Abunu)

S/N	Growth rate	Population Projection			
		Year	Male	Female	Total
0	Base Population	2010	2,805	2,166	4,971
1	1.027	2011	2,881	2,224	5,105
2	1.05	2012	2,959	2,285	5,243
3	1.08	2013	3,038	2,346	5,385
4	1.11	2014	3,120	2,410	5,530
5	1.14	2015	3,205	2,475	5,679
6	1.17	2016	3,291	2,541	5,833
7	1.21	2017	3,380	2,610	5,990
8	1.24	2018	3,471	2,681	6,152
9	1.27	2019	3,565	2,753	6,318
10	1.31	2020	3,661	2,827	6,489
11	1.34	2021	3,760	2,904	6,664
12	1.38	2022	3,862	2,982	6,844
13	1.41	2023	3,966	3,062	7,028
14	1.45	2024	4,073	3,145	7,218
15	1.49	2025	4,183	3,230	7,413
16	1.53	2026	4,296	3,317	7,613
17	1.57	2027	4,412	3,407	7,819
18	1.62	2028	4,531	3,499	8,030
19	1.66	2029	4,653	3,593	8,247
20	1.70	2030	4,779	3,690	8,469

3.2 Existing Economic Base and Livelihood System of the Area

Existing economic conditions refer to major economic activities and the level of incomes which are the basis of livelihood of the people found within the project area. The economic activities consist of primary (main income generating economic sector) and secondary income generating activities. In order to analyze the economic conditions of the project areas from primary income generating activities, identification of existing land use patterns, the types of economic activities taking over those places, the level of outputs, the types and quantity of inputs usage and other income sources are required to be identified and analyzed as shown below.

Therefore; as the data from various source shows; the primary source of livelihood of the people in the project kebele mainly generated from livestock production, and very rare crop production also exercised at the project area. Even though, livestock production & little crop production

were the economic bases for their livelihood sources, its production & productivity is declining from time to time due to a lot of challenges, like shortage of rainfall, long term drought effect, poor management, market problem, lack of infrastructures, inadequate technical support, etc.

3.2.1 Land use and Tenure System

For a land based economy, identification of existing land use patterns is an initial step that has to be known for analyzing the existing economic conditions of the people of the project areas. The source of information for land use aspects of the project command area is the study of Soils and lands suitability the project under study. However, as the mentioned study focuses at the command area, the socio economy study should make its own land use assessment for other project areas of quarry sites, camp places, access roads, main canals and headwork sites. The data and information that would be used for classifying the land use patterns of these project places are focus group discussions, kebele level administration office, development workers of the kebele and project experts. In addition, physical observation by the study expert helps to ascertain the land use aspects. The major classification of project lands in accordance to their economic use are farming, grazing, residence, tree & perennial crops, free/ idle or others. The land use patterns could also take different patterns and thus, the study expert shouldn't be restricted only to those mentioned types.

Principally, land-holding system for rural people is not simply an economic issue; it is very much intertwined with the peoples' culture and identity. This partly explains why land-related issues usually generate strong emotional reactions. Clearly, for rural residents of the area, land is the primary means of production used to generate a livelihood for a family. It is also the main asset that farmers have to accumulate wealth, and what they can transfer in the form of wealth to their generations.

In general speaking, the land in pastoral and agro-pastoral areas communal land use system is the dominant one than private ownership. Consequently, the major available land in the project kebele was considered as communal land and collectively managed, except less hectare of land owned privately for backyard & few crop productions. Similarly, the lands at the project site/ command area, reservoir site were communal grazing areas.

Even though; the major existing land was a communal land covered with bushes & shrubs, the community in the project area owned averagely 1ha privately including their backyard.

Regarding land use and management activities such as forest conservation, soil and water conservation, in the project area is very weak; that need the close follow up and technical support from the concerned body. In general; the land use pattern in the kebele and command area consists of cultivated land, grazing land, bushes & shrubs, residential places, etc. as shown below.

Table 5 The Major land use types of Gomole district

S/N	Land use types	Area (Ha)	Proportion (%)
1	Cultivated land	1,165	1.6
2	Cultivable land	1,866	2.6
3	Grazing land	25,345	34.9
4	Forest land	3,482	4.8
5	Bush and shrubs	10,580	14.6
6	Degraded land	19,751	27.2
7	Settlement	10,500	14.4
	Total	72,689	100

Source: *Gomole district Pastoralist Development Office, 2019*

3.2.2 Crop production

Based on the data from district and kebele level shows and field observation the crop production activities at the area is very few as compared to the other agro-pastoral areas in the district. However; on the availability of rainfall in the area, the people have growing few crop types, but it is full of challenges. The main cropping season is from March to May, whereas the small rainy season cropping extends from September to early November as the data from respected sector indicates, that cultivated land constitutes only 1.6% of the total land area of the kebele whereas grazing land and settlements constitute 34.9% and 14.4% of the total land area, respectively. Nearly all of the interviewed households indicated that, they are currently practicing livestock production as main economic base. The main crops grown in the area includes Teff, maize, haricot bean, etc.

The ecological crisis in the area has made it difficult for the pastoralists to rely on livestock alone for food. Growing of crops is a response to food insecurity. More of, crop failure is a common feature of the area due to unreliable rainfall and frequent drought. As we were consulting the community; have an interest and positive opinion towards the proposed project & generally to shift from pure pastoral mode of production to agro-pastoral agricultural system to secure their livelihood system. Thus, livestock production remains to be the mainstay of their livelihood.

Table 6 Production & Yield data for crops produced by rain fed agriculture in Gomole district

S/ N	Crops	2008/2009			2009/2010		
		Area (ha)	Yield (qt./ha)	Production (qt.)	Area (ha)	Yield (qt./ha)	Production (qt.)
1	Maize	246	16.5	4059	575	16.5	9487.5
2	Teff	210	8.0	1680	277	8	2216
3	Haricot bean	206	7.5	1545	208	7.5	1560
	Total	662		7284	1060		13263.5

Source: Gomole district Pastoralist Development Office, 2019

3.2.2.1 Constraints of Crop production

Even though; the crop production trends of the district as general, and specifically at the project kebele is insignificant as compared to the others, the existing crop production is full of challenges & constraints. Generally, the area is more characterized by short and erratic rainfall; and crop failure is a common feature of the area due to unreliable rainfall and frequent drought. In addition to this, the crop production of the area, like inadequate supply of agricultural inputs such as short season improved crop variety, fertilizers & agrochemicals, poor management, inadequate technical support from concerned body, the community not fully engaged/ shifted to the sector from pastoralism system (a negative interaction between crop and livestock production), crop diseases & pests, market problem, seasonal migration in search of water & pasture for livestock, etc.

Due to these all and other constraints the community has exposed to serious food shortage in various times as the community indicates, and respective sector data shows.

3.2.3 Livestock Production

Livestock production is one of the most important and basic economic activities of the area as 93.3% of the survey respondents replied. In addition to its economic contribution, it is also contributing for crop production by supplying drought power. The community also benefited from sale & consumption of its products such as butter, meat, milk, egg, etc. As a result its contribution in the households' economy is important. As data obtained from district and kebele level, the livestock resource of the kebele categorized in to major classification viz. cattle, sheep, goat, equines, camel, and poultry shown below.

Table 7 Types and number of Livestock in Gomole district and Abunu kebele

S/N	Type of Livestock	Gomole district No. of Livestock	Abunu kebele livestock no.	Remark
1	Cattle	166,132	12128	
2	Goats	185,147	13516	
3	Sheep	99,707	7279	
4	Horses	98	7	
5	Mules	703	51	
6	Donkeys	6,798	496	
7	Camels	47,820	3491	
8	Poultry	18,264	1333	
	Total	524,669	38301	

Source: Gomole district Pastoral development office, and Abunu kebele, 2019

3.2.3.1 Livestock Production Management

The Livestock management in the pastoral and agro-pastoral area is quite different from that of mixed agricultural areas. Accordingly, different livestock types are managed separately based on its use, type, age, and other class characteristics. Cattle are normally herded separately from camels and small ruminants while donkeys could be grazed together with cattle. Camels are also managed separately and small ruminants (sheep and goats) are managed together. The indigenous range management system includes semi-sedentary camps where the elderly, children, women and milking animals are maintained. In addition to these milking animals, includes the young and weak animals that cannot travel long distances, while the other herds includes the adult animals (male animals, non-milking female, pregnant animals and the young) that can be taken to distant places in search of feed and water when there is shortage feed and water around the settlement areas. Thus the grazing lands surrounding their settlement/ semi-sedentary camp sites used for lactating cows, calves, weak animals and oxen have a priority over the other classes of animals in the use of the standing hay (*Kaloo/Marga*) reserved for the dry season.

The main feed resources used for livestock in the area are natural pastures (herbaceous vegetation composed mainly of grasses and forbs and browses (shrubs, tree leaves and pods). In addition to the leaves, Acacia pods are also used as important sources of feed during the dry season when the availability and quality of the natural pasture becomes very low. Crop residues, particularly maize & sorghum straw and teff, are also used as animal feed after the crop is harvested in the areas; further they move to other areas where feed and water available, it is one

of the coping mechanism in the area. For instance, the communities at the project kebele seasonally migrate to adjacent districts like Arero. The situation is further aggravated when the dry season is prolonged. Thus when dry season is prolonged or during drought years animals become unproductive, they lose condition and market value and eventually die due to inadequate feed and water supply and the very low nutritive value of the available feed. The over mature dry grasses are characterized by low nutrient content, high fiber content, low digestibility and low voluntary intake by animals.



Table 8 Overview of grazing area covered with bushes & shrubs / encroaches (Abunu kebele)

3.2.3.2 Constraints of Livestock production

However, livestock production remains to be the mainstay of livelihood for peoples of the project area & for the district; the sector has faced a lot of challenges & constraints that hamper its production.

Mainly water is the most essential resource in the area, but hardly available as compared to its demand. Especially, during the drought season they are highly suffer to get water, and travel long distance with livestock in search of water for both domestic and livestock consumption, and it also considered as one of coping mechanisms in the area. As depicted below on the picture, the community pond found near to the project site and it was dried while we conduct the study.

Therefore; the proposed project will an opportunity not only for irrigation agriculture, but also reducing problems in relation to water shortage for all purpose.

Primarily, lack of feed, water, especially during the dry/ drought season and disease are the main constraint affecting livestock production in the area as the majority (80%) of the survey respondents replied. Shortage of rain and the frequently recurring drought in the area is a major cause for reduced forage production and quality. Shortage of feed and water and the harsh climatic condition of the area seriously affect the health and productivity of animals. Bush encroachment is exacerbating the problem of feed shortage. Encroachment of the rangeland by some undesirable plant species such as Acacia (*Miciree/ tusee*) reduces accessibility of forage / grass leading to reduction of effective grazing areas.



Figure 8 Grazing land invaded by encroachments/thorny

In general; shortage of livestock feed and deteriorating pasture/ feed availability due to frequent and consecutive drought hazard and triggering factors such as eroded traditional systems of range land management, the availability of feed for livestock is decreasing from time to time contributing to reduction in livestock holding size and decreasing productivity. This is directly linked to increased livelihood insecurity and income from livestock market. In the absence of adequate feed for livestock in severe drought events, the pastoralists move their livestock to remote and more inaccessible areas as one of the coping strategies thereby exposing the livestock

to long distance travel, separation of some of the household members (women, children and the old) from food sources.

The prolonged dry season and drought are the causes for high mortality rate. Diseases such as PPR, Bovia Pastrollosis, Black Leg, FMD, CBPP, LSD, CCPP, Anthrax, Tripanosomiasis and others also have a significant effect on the health and productivity of animals. Thus, incidence of livestock disease outbreak followed by deterioration of livestock body condition and resultant decline in livestock market price, reduced productivity. While these challenges and constraints happened in the area; the community have undertook various coping mechanisms to overcome the problems. Among these coping strategies are collecting ponds & leaves, conserve hay, aid from government & NGOs, migrate to other places where feed/ hay & water available, and destocking the number of livestock's, etc.

3.2.4 Income from Off-Farm Activities

Off farm activities such as trading, carpentry, weaving, serves as one means of income source for communities engaged in farming activities. The income levels from these activities are to be estimated from a household survey and also by collecting reference figures from the kebele and development workers. It is also important for improving the purchasing power of rural households and addressing food security. It has also described as “petty trading”, daily labor work, and others has become one of the sources of off-farm income in the study areas.

3.2.5 Agricultural Labor availability

Labor availability is the key for all activities to perform in the area whether the rain fed agriculture, livestock production, and in the future for irrigation practice. Basically in rural areas; family members are the source of labor for various activities, and in some context hiring a daily laborer.

Irrigation project is labor intensive and availability of labor is important during construction and operation and management of the scheme. As shown above, the average family size of the respondents is seven (7) people per household, and from the total about 50% of them is within 15-64 age groups; this shows that the availability of economically active labor in the area.

3.2.5 Household Income and Food Security Issues

Household economy is explained by the difference between income and expenditure of the farming community in general. The analysis is done at farm level of the command area in general. The household economy is the summary of income provided under the different income sources identified at various income making activities and expenditures. The expenditures consist of farm level as well expenditure for domestic consumption use. Farm level expenditure consist of variable farm inputs i.e. labor, oxen power, fertilizers, transporting and packing materials, land taxes and miscellaneous. Domestic consumptions include costs incurred for food, school, health, transportation, and miscellaneous. The main reason why household economy should be conducted is due to its significant importance to explain the economic status of the people under consideration. Knowing Household income helps for;

- ↻ Comparison of the economic status of the people under with and without the project conditions;
- ↻ Identifying various income making activities underwent within the community and to assess the effect of those income making activities on the proposed irrigation project;
- ↻ Assessment of those burdens of households that cause for undesirable expenditure;
- ↻ Judging the economic utilization of financial and material resources of households ; and
- ↻ Preparing a bench mark data to be consumed in the evaluation of the project effectiveness on economic and social conditions of the community in the post - implementation period.

Based on data obtained from household survey indicated; the average household income from different source were less than their annual expenditure for various purpose, and even not match. These shows, the income they earn from various sources were not enough; and the communities were exposed to food insecurity problems.

Food security is a country wide problem that challenges nations from time to time, the government also tries through developing a lot of policies& strategies to assure food availability of a citizen, but, it is difficult to attain due to various natural & man made problems. The project area is classified as food insecure district; because of erratic and irregular rainfall, the livestock production & productivity decreased, and their bodies become deteriorated and duly low market price. As a result; a lot of peoples have needed aid for survival. Hence; government & other funding agencies have supplied an aid. As data obtained from Gomole district Disaster Risk

Management Commission shows, almost all the peoples with in the kebeles of the district has need an aid, and provided, but not addressed for all. As data from this sector shows while we were conducting this assessment 42,145 peoples (21,979 male & 20,166 female) were provided with aid. From this figure about 1,817 (1,443 male, 3,260 female) is from project kebele (Abunu). These all problems & others led the community to food shortage. Therefore; the proposed small scale irrigation project in Abunu kebele will have great contribution in reducing food shortage problem that challenges the people at the area.

3.3 Basic Social Services and Public Infrastructures

The major issues that need to be investigated are water supply, health, education, CBO, public supporting institutions, and transport and communication infrastructures, energy and current rural electrification coverage, Market centers, religious and community service centers, etc. of the SSIP area.

3.3.1 Water Supply and Sanitation facilities

Water supply aspect is one of the basic project components that have to be considered in the study of the command area. The data required for discussing the water supply aspect is types, and number of water sources for domestic consumption (drinking, cooking, washing, sanitation) and livestock watering purposes; yield levels of the sources; quality of the water; water charges if there are any; future programs; distance of water sources in terms of distance and round trip walking distance, responsibility of water fetching tasks between male, female and children; the capacity of the water sources to fulfill established daily water consumption rate standards; water supply coverage; means of water transportation; types of storage & transportation containers.

Supply of safe drinking water is a crucial prerequisite for human beings. According to the data obtained from district & kebele level, major sources of water for various purposes are traditional well “*Eela*”, ponds. In most cases availability of water from ponds would determine by the availability of rain, and also affect the amount of water from “*Eela*”.

3.3.1.1 Water supply for domestic consumption

Water is prioritized as big problem in the targeted project kebele. The lack of safe and adequate water for both human and livestock populations is one of the major persistent features of the community in the area. The sources of water that exists are mostly seasonal and for short period exposing the pastoralists to desperate position in the long and persistent drought period due to extreme shortage of water . Water accessibility in the long critical dry season is hazardous and painstaking for the pastoralist particularly women. They are the responsible sector of the community to fetch drinking water and to enable livestock get water.

In general the area is characterized by low availability of surface water and the availability of water is very variable from place to place. The respondents indicated that there is shortage of water supply both for human and for livestock consumption. The community in the project area

were fetch water mostly from traditional well; through digging deep well up to 3-5 meter & it is not sustain more than a month at a place where exploited, i.e. it became dried, and they have dig other place. As an option they have travelled averagely about 28km to Haro Bake for livestock watering. At most cases wife & girls collect water from the household for domestic consumption. The shortage is more serious during the dry season. As a result the people are forced to travel long distance in search of water. Even if it is not safe the water from proposed micro dam that will collected from the runoff for domestic consumption, they will use through treating by chemicals and it will minimize the problems related to water supply. Currently, as district Water supply office indicated the water supply coverage of the district is 10%, and it shows how the water supply extremely serious problem in the district. Based on GTP II rural domestic water consumption plan and number of population in the kebele; the annual and estimated water demand for the community in the project kebele has shown on (table-9) below.



Figure 9 Water Supply at the project area

Concerning; sanitation and hygiene condition in the project area is very poor, i.e. like communities personal hygiene which is due to lack of awareness about the issue, shortage of water, and their housing system is not partitioned and the household member share common salon with calves, sheep and goats and they are susceptible for communicable diseases from

livestock to people. From the total survey respondents about 76.7% were have no toilet facility from the total respondents and even the community has no enough knowledge about the use of the toilet. And the household disposes the waste material at open field and at their backyard; but such kind of waste disposing system is creating suitable condition for various diseases caused. This shows that, the activities that performed by concerned sector (health institution/health post) was very weak in addressing health education for the community; and this issues has to give attention by respective sector.

Table 9 Estimated domestic water demand for Abunu Kebele

Year	Total estimated pop	Rural domestic water consumption; 25 lit/person/day	Rural daily water demand	Tot. daily Water demand /1000 (m3)	Total annual water demand per year (m3)
2019	5,105	25	127625	127.6	46,583.1
2020	5,243	25	131075	131.1	47,842.4
2021	5,385	25	134625	134.6	49,138.1
2022	5,530	25	138250	138.3	50,461.3
2023	5,679	25	141975	142.0	51,820.9
2024	5,833	25	145825	145.8	53,226.1
2025	5,990	25	149750	149.8	54,658.8
2026	6,152	25	153800	153.8	56,137.0
2027	6,318	25	157950	158.0	57,651.8
2028	6,489	25	162225	162.2	59,212.1
2029	6,664	25	166600	166.6	60,809.0
2030	6,844	25	171100	171.1	62,451.5
2031	7,028	25	175700	175.7	64,130.5
2032	7,218	25	180450	180.5	65,864.3
2033	7,413	25	185325	185.3	67,643.6
2034	7,613	25	190325	190.3	69,468.6
2035	7,819	25	195475	195.5	71,348.4
2036	8,030	25	200750	200.8	73,273.8
2037	8,247	25	206175	206.2	75,253.9
2038	8,469	25	211725	211.7	77,279.6

Source: CSA projected population no. and analysis water demand, 2019

3.3.1.2 Water for Livestock

Availability and access of water in the area is the main determinants for livestock production and productivity. Since livestock is the dominant livelihood system of the community and their life is culturally linked with & they have concerned about it. During the dry season and in drought years the peoples are forced to travel long distances in search of water and animals are also

watered at longer watering intervals. Accordingly cattle and sheep are watered after an interval of 3 or 4 days while goats are reported to tolerate a longer interval of 5-6 days. Camels can tolerate a much longer watering interval of up to 10 to 15 days. On the other hand, donkeys are said to be just like human beings and they need to be watered every day or at least every other day. Hence; the proposed micro dam irrigation will solve this problem in the area. Based on the number of livestock, its types and water consumption rate; the annual livestock water demand in Abunu kebele would be 155,555.64 M³ will need for the existing livestock in the project kebele.

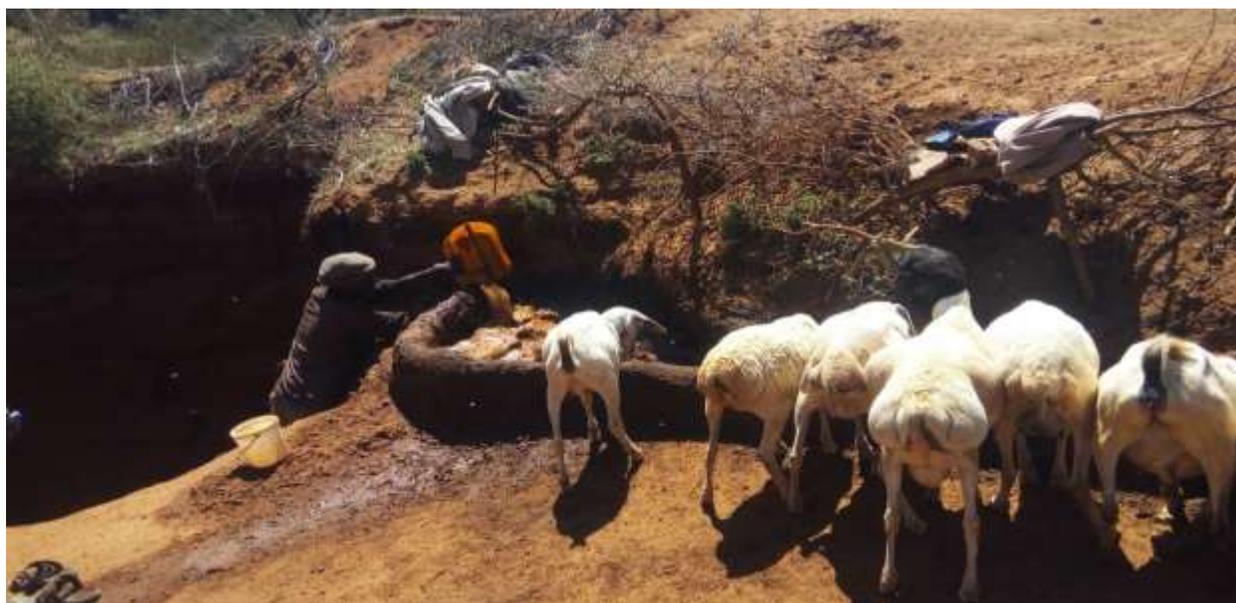


Figure 10 Livestock watering problem at project area

Table 10 Abunu kebele Livestock annual water demand

S/ N	Types of Livestock	Total livestock	TLU	No. of livestock *TLU	Daily consumption per head/day	Total livestock daily demand (lit)	Annual water demand	Annual water demand of Livestock/1000 (m3)
1	Cattle	12128	0.7	8489.6	27.3	231766.08	84594619.2	84594.6
2	Goats	13516	0.1	1351.6	5	6758	2466670	2466.7
3	Sheep	7279	0.1	727.9	5	3639.5	1328417.5	1328.4
4	Horses	7	0.7	4.9	28	137.2	50078	50.1
5	Mules	51	0.7	35.7	28	999.6	364854	364.9
6	Donkeys	496	0.7	347.2	28	9721.6	3548384	3548.4
7	Camels	3491	1	3491	49.6	173153.6	63201064	63201.1
8	Poultry	1333	0.01	13.33	0.32	4.2656	1556.944	1.6
	Total	38301						155,555.64

Source: Gomole district Pastoralist Development office & livestock water demand analysis, 2019

3.3.2 Human Health Services

The identification of health services in and around the project areas and importance to alleviate health problems together with constraints and remedial measures have discussed. The health service & related issues have direct relationship with the communities' livelihood in which the healthy community perform and produce, i.e. healthy community can perform any activities like agricultural and non-agricultural activities and generate incomes for their survival.

According to Gomole district health office; there are 1 health center (at Suruph town), 7 health post, and 4 private clinics in the district. Consequently, Health professionals in the available health center were under requirement, i.e. three health officer, five nurses, one pharmacist, one lab. technician, Concerning project kebele there was only one health post near to the kebele center, but there was no any services provided there as the community replied us; and the people in the project kebele have travelled to health center found at district town (Surupha) about 47 km, and also travelled to Yabelo about 52km to get any medical service. There is no hospital with in the district, and the community has travelled to zonal town (Yabelo) while they are referred for further health services, and they are also treated at private health institutions & exposed to extra cost related to public health institutions. Such condition become exposes the community for extra expenditure, and wastage of time. In general, provision of health service in the kebeles and specifically at targeted area is unsatisfactory compared to the existing demand. On the other hand, there is a limited family planning service provision in an area and the community themselves have no interest to use family planning services as they were respond us while survey, and the based on district health office data shows the family planning health coverage of the district in 2010 E.C. were 38% . The community by self has believed the attitude of having many children for need of child labor, since they are pastoralist. The major health problems in the district are absence of health institution by itself, shortage of professional man power for the existing health post, inadequate supply of medicines for health center at the district (Surupha) and other health equipment's, lack of logistics, budget constraints, lack of water supply, electricity, and inaccessibility of the rural kebeles to reach and address the services, etc. these and other problems that hinders the health service in the district, and the health service coverage of the district is very low, which was 30% as of district health office indicated in 2010 E.C.

3.3.2.1 Top ten and most Prevalent Diseases

Based on data obtained from household survey, FGD, district health office, and other sources; the major prevalent diseases of the area are diarrhea, malaria, typhoid, pneumonia, and other water borne diseases. The major top ten diseases are Diarrhea, Pneumonia, and Acute upper Respiratory Infection), etc. and as the data indicated the prevalence of these diseases and numbers of patients are increasing from year to year.

Table 11 Top ten diseases and number of patients treated in Gomole district, 2010 E.C.

S/N	Types of diseases	No. of Patients treated	Percentage (%)
1	Diarrhea (non- bloody)	584	29.8
2	Trauma	388	19.8
3	Pneumonia	370	18.9
4	Acute upper respiratory infection (AURI)	224	11.4
5	Diarrhea with dehydration	55	2.8
6	AFI	98	5.0
7	Parasitic disease	63	3.2
8	Disease of musculoskeletal	63	3.2
9	STI	59	3.0
10	Dyspepsia	54	2.8
	Total	1958	100.0

Source: Gomole district Health office, 2019

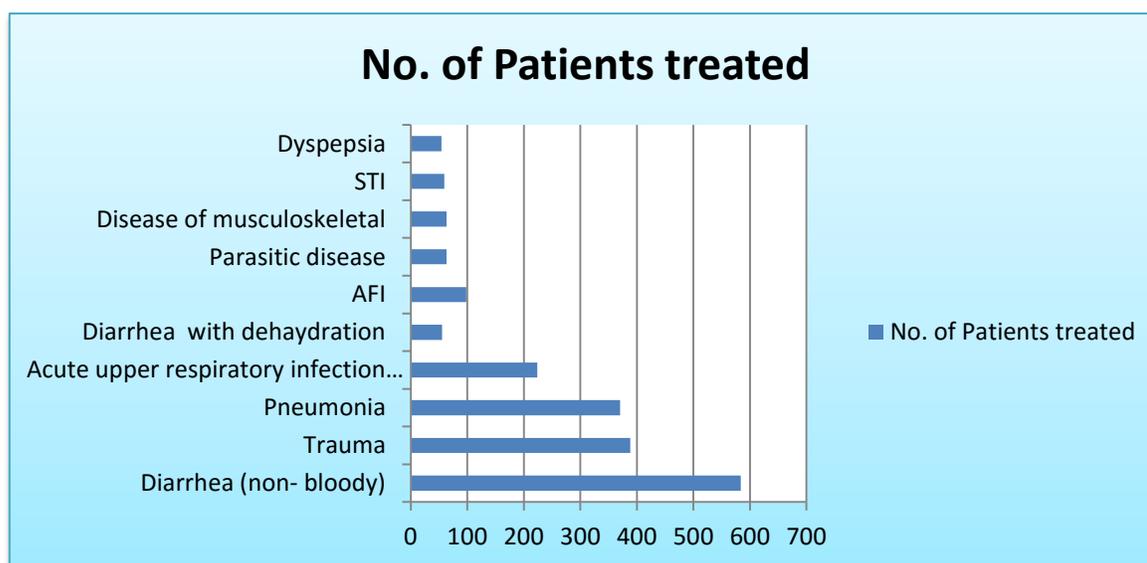


Figure 11 Graph depicts diseases & number of patients treated in Gomole district, 2010 E.C.

3.3.3. Education Services

Education is an investment in human capital to boost the living standard of society, increasing individual earnings, employment Opportunity, better health and nutrition status, low fertility rate, increasing productivity and favorable attitude towards educating their children. Moreover, education has an immense role to play in the enhancement and development of human capital, and also basic to the improvement of the quality of human life and ensuring social and economic progress. This study also evaluates the importance given by the society for the education sector.

According to data obtained from Gomole district Education Office, there were only 5 first cycle (1-4 grade) schools, 15 primary (5-8 grade) schools, 1 secondary (9-10 grade) schools, available in within the district. Currently, there were about 7,640 (male 4452, Female 3188) students attending within all mentioned schools in the district, and a total of 110 teachers (15 BA degree, 93 diploma, & 2 TTI). From the total number of students about 160 (male 60, & 100 female) or 2.09% of students were dropout the school in 2010 E.C. The cause for the dropout of the students are mainly food problem/ poverty, seasonal mobility in search of water& pasture, marriage, inaccessibility of the existing schools from their resident, lack of water, parents need children labor, unable to cover education fee, etc. Whereas, as the survey result shows; there is only one (1) school (1-4 grade) in the project kebele; and the community preferred to have a formal education for their children, and the students averagely travelled 2-5 km to access the existing school at project kebele. But, the rest secondary, preparatory schools found at district town (Surupha) 47km from project site; whereas TVET and colleges available at zonal town Yabello at 52 km from the area; and for further education, there is Bule Hora University also an opportunity, which is found at 106km. In addition to this as the district data shows, there were informal education service provision in the district, and a total of 1934 (male 977, female 1934) people were addressed; however the reliability of the data would in doubt. But, the communities were preferred a formal education for their children. The major challenges of education exist in the district as a whole, people's mobility from place to place (nomadic style), poor family background, less attitude towards education mainly for girls, drought & famine, need of children labor, etc. Hence, the proposed project will have great contribution for solving the problems of dropout, and other related issues, in which water will available at near around, food crops will available from irrigation agriculture, and it also minimize the challenges of traveling long distance in search of water that led to school dropout of children. In general, the schools were not

addressed all the areas within the district in number and levels as compared to the existing demand. Even though; these all problems related to education sector in the district, like inadequate schools relative to the demand, especially remote areas; the district education office data indicated the education coverage of 2010 E.C. was 75%.

3.3.4 Physical Infrastructures

3.3.4.1 Road Availability

Road is a principal basic public infrastructure that connects a community with the other places to undertake day to day activities. In general, there is less and poor road infrastructures & facilities within the district that connects the rural kebele to the district center via other zonal and neighbor districts. As we were observed while undertaking this study, there is 17km asphalt road from district town (Surupha) to Haro Bake, and then after from Haro Bake to the project kebele (Abunu) about 30km is a challenging dry weather road which was constructed by community participation, which is not considered as a road. The availability of road has its own role in crop production and livestock & its product market linkage, and accessing agricultural inputs for the community. Therefore; for the future to realize the proposed irrigation project, there should be construct the road from Haro Bake to Abunu kebel to realize the proposed irrigation project.

3.3.4.2 Transport facilities

Practically, the rural community is entirely dependent on traditional means of transportation. The large amount of time consumed by movements is believed to be a constraint to the achievement of higher productivity. In most cases the widely used means of transportation in the district is motorcycle especially in rural area to the district town. Consequently; there is no road at all that connects to the project area, and transportation facilities is not available there. But, there is motor bikes provides transport services to some extent with high payment, and traditional means of transportation (donkey, camel) is used especial for transporting commodities like agricultural products.

3.3.5 Agribusiness and Marketing

As known; in most cases marketing agricultural products are the main problem that challenges the farmers, mainly for perishable irrigation products.

Agricultural marketing is inferred to cover the services involved in moving an agricultural product from the farm to the consumer. It is also the planning, organizing, directing and handling of agricultural produce in such a way as to satisfy the farmer, producer and the consumer. Numerous interconnected activities are involved in doing this, such as planning production, growing and harvesting, grading, packing and packaging, transport, storage, agro- and food processing, distribution, advertising and sale. Effectively, the term encompasses the entire range of supply chain operations. However, its key function is to help direct these services, by providing competent and able market information, thereby linking the other operations into an integrated service with targeted outcomes.

3.3.5.1 Available Market and its Structures

Basically, market has twin purpose of economic and social importance for the community. Most of the time people either habitually or for business purpose attend market days in the rural areas. There is no market center at kebele near to the project site where the community exchange agricultural outputs and other market transactions undertaken. The only market center near to the project community is Haro Bake which is found at 30km; while the others like district town/ Surupha, Yabelo zonal town, are far from the project area. If there is appropriate market linkage has done, there is a potential market within the zone, i.e. zonal market and districts with in the zone are an opportunity for the produced irrigation outputs. Currently, almost all the markets in zone capital Yabello and districts with in the zone including Gomole the demand of vegetables & fruits are supplied from Arbaminch and its surrounding areas. Hence, as we were observed and data from respected sector shows, the basic problem in relation to market is not its availability, but there are problems that related to road & transport, a market linkage & its network. There for; market centers at district, kebele, including Yabelo town with in the zone is an opportunity for the proposed project. In general; the project area specifically, the district & the zone as a whole known as food insecure mainly rely on livestock production, which was affected by recurrent drought; and if this proposed project will realized it will have great contribution on food crop

availability & security of the area, as well market centers of districts within the zone are an enough destination for the production based on the demand shows.

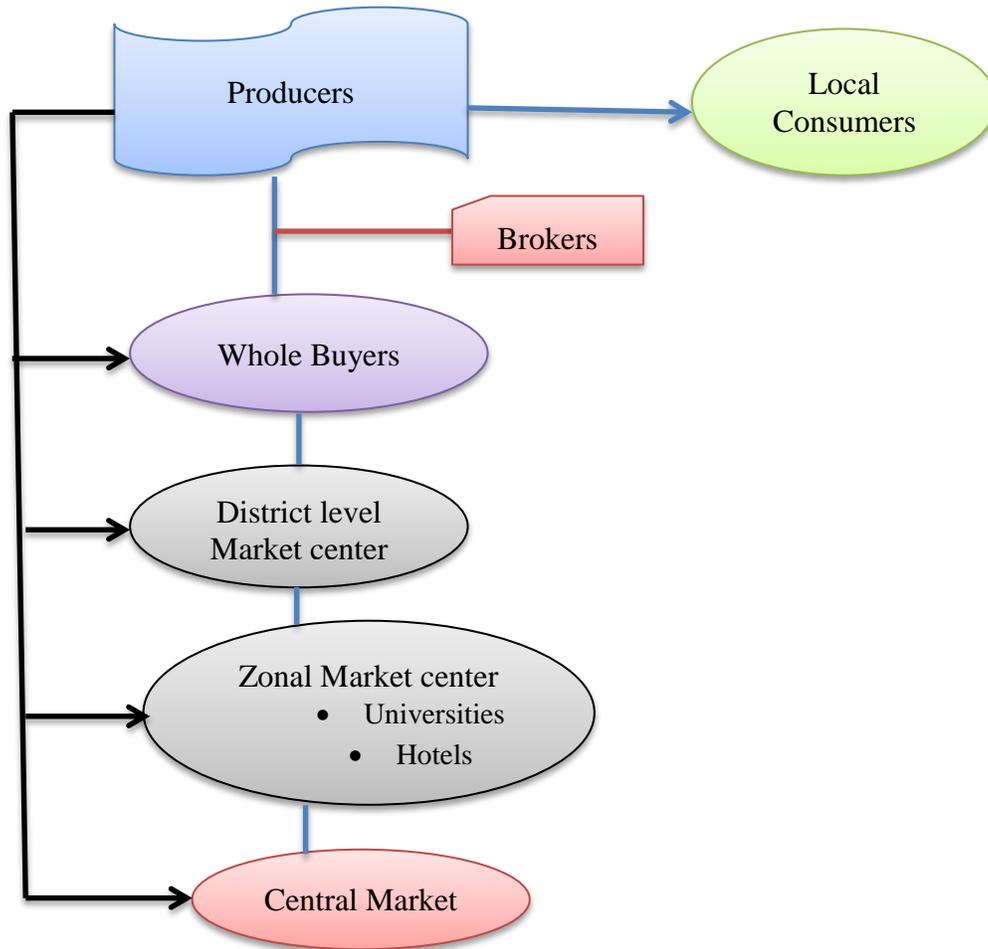


Figure 12 Market Structures

3.3.5.2 Market Infrastructure and Information

Efficient market information can be shown to have positive benefits for farmers and traders. Up-to-date information on prices and other market factors enables farmers to negotiate with traders and also facilitates spatial distribution of products from irrigated areas to towns and between markets. Modern communications technologies open up the possibility for market information services to improve information delivery through SMS on cell phones and the rapid growth of

FM radio stations in many areas of the country offers the possibility of more localized information services. As the data from respective sector shows, the available and widely utilized information technology is a mobile telephone, and it will have a great contribution in market information.

3.3.5.3 Marketing Linkage

As mentioned above; the critical problem of irrigators in the region as well in the country is primarily not unavailable market centers, but its linkage with the producers and consumers, i.e. creating a linkage where the excess production available with the area where demand available/shortage production exist. Accordingly, it is true for this proposed project, in which the available market places in the surrounding & districts with in Borena zone, Bule Hora University and surrounding market places, and further central market also an opportunity if a linkage is created in a sustainable way. Linking the irrigators/producers with the consumers is not only for the irrigation outputs, but also an opportunity for input accessibility. To realize the market linkage the district and other respective sectors including trade & market development, cooperatives, and Irrigation water Users Association (IWUA) might play a great role.

3.3.6 Agricultural input supply and cooperative services

The most known public institution that supplies agricultural input for the farmers is cooperative unions via primary cooperative society. The sector has structured from the higher level unions to the primary cooperative society at kebele level. Mainly the sector is responsible for supply of agricultural inputs, such as improved seed varieties, fertilizers (DAP/NPS, Urea), Agrochemicals, etc. and creating market linkage for the community, credit and other services provision.

Based on district cooperative promotion office shows; there are 17 primary cooperative society within the district; from these 11 of them are Saving and credit cooperatives, 5 of them area Agricultural multipurpose cooperatives, and the rest one is consumer services cooperative societies. From these primary cooperative societies two (2) of them are in the project kebele. Both primary cooperative society are engaged on soap production, and have a member of 86 (male 23 & female 63). But; the roles that the cooperatives performed were weak relative to its mandates of duties and responsibilities of the sector.

3.3.7 Financial Institutions and access to credit services

In most cases, the financial institution like Banks, micro financial institutions, etc. confined to where basic infrastructures (such as road & transport, electricity services, information technologies like telecommunication, internet access) are available. But, Gomole district is the newly established district, in which basic social infrastructures not full filled. The data obtained from district respective office shows, there is no any financial institutions that provide credit services in the district. The availability of the sector and its services is crucial for rural economic progress, especially, for accessing agricultural input supply.

3.3.8 Agricultural Extension Service

Agricultural extension service is one of the services that government provides for rural people through which technically support them to enhance their economic base for the improvement of their livelihood system. This agricultural sector is a responsibility to support technically in various extension services, training& awareness creation, technology transfer& utilization, etc. As we have seen at the project kebele, there was one Development Agents (DAs), he is an animal health assistance, from this what we concluded that the agricultural extension service is not provided at the area. Hence, the concerned district bodies due attention, based on the services needed at the area, especially, the project area is a pastoralist community their economic base is rely on livestock production, and accordingly the extension service to be given that enhance their economic base of them.

3.3.9 Animal Health Services

The contribution of availability and proper functioning of veterinary services contributes much for the places where there are livestock populations. Among other things, crop production of the command area depends on the availability of healthy and strong oxen. Accordingly, there is animal health post that provides veterinary services at the kebele administration center near to the project site and one animal health assistant assigned & provide services in the kebele. But, the existing animal health post was not provide enough services as compared to demand in the area, due to shortage of medicines and equipment, shortage of man power, lack of laboratory services, etc.

3.4 Traditional Social Institutions & Community based Organizations

Social institution is a public institution which is playing a pivotal role in the day-to-day lives of the society. These social institutions serve as a platform for information exchange; extending support in time of difficulty (mourning), as well as pleasure (wedding), and illustrating the ability to stand on one's own two feet. It is also important to note that community members respond to immediate or gradual changes affecting their neighborhood's, forming an immediate relief mechanism. For instance, when an individual loses a livestock, the community will raise money, replace the livestock and enable him (her) to pursue its life. These same institutions are playing a critical role in fair and wise utilization of resources and management like farm land, grazing land, water (for domestic consumption & livestock, for irrigation), soil and water conservation, such as curbing overgrazing through imposing penalties on those who do not abide – to the point of banning them from their membership with consensus. Similarly, in Borana as well in Gomole district the “*Gada*” system is the central social structure which is a complex, elaborate and all-embracing social institution, but there is also faith/ religious based and others like “*Iddir*”, “*Debo*”, etc. in the area which has economical & social benefits. This system generally deals with the relations within and between the generations. Mainly the system governs the people how to manage, utilize the existing grazing lands and water resources, and mobility of people and livestock in normal or periods of drought/disaster is governed by the “*Gada*” system. It also plays a great role in political affairs and conflict management and resolution. The old tradition which is a social security of sharing in Borana “*Buusa Gonofa*” has a profound impact in making poor households less vulnerable to drought. The *Gada* system also has a crucial role in organizing & mobilizing for community based development activities, conflict resolution, etc. In realization of the role of traditional social institutions Elders, “*Abba Gada*”, religious leaders has a great role. Accordingly, such community system is an opportunity for social mobilization for the operation & implementation of proposed irrigation dam project and wise utilization of the irrigation resources.

Generally, for sustainable development, institutions, especially at local levels, are important for mobilizing resources and regulating their use with a view to maintaining a long-term base for productive activity.

3.5 Seasonal Mobility and Coping strategy of the project area

The recurrent drought has posed heavy losses on crops, livestock resources, water, and grazing lands and as well as on the socioeconomic of the pastoral and agro-pastoral communities. Drought is continually become the big challenges in Borena and also in targeted district & kebele. Though the pastoralists were struggling either to overcome or reduce the effect of drought, it has been weakening their capacity to withstand as their strategies. Seasonal mobility is a known phenomenon in Gomole district, as well in targeted project kebele (Abunu). This due to the prolonged & recurrent drought in which the natural resources like, water, pasture become deteriorated, as a result reproductive performance of livestock was reduced despite the fact that livestock mortality is increasing, and food insecurity manifests in the home of each households.. Hence; they are enforced to displace and migrate to other places where water and pasture available. Such condition become severely affects them unless the agricultural policy pays attention to the pastoralism& agro-pastoralism. As the various data sources indicated, the community familiarized with different coping strategies while they face such conditions; among these some of them as follow;

- ✓ Conserving pasture/ standing hay
- ✓ Livestock related coping strategies include reducing livestock size (destocking)
- ✓ Livestock mobility
- ✓ Livestock diversification
- ✓ Focused on drought resistant varieties like, camel, goat, donkey, etc. than cattle

Water related strategies

- The community built a water harvesting scheme such as deep well and shallow pond to harvest available rain water both for human and livestock drinking
- Increasing water drinking gaps for livestock to save water

Crop related strategies

- ✓ Producing short season/ early mature crops,
- ✓ Selling livestock and buy food crops while available at market based on early warning assessment indication,
- ✓ Aid from GO &NGO, and borrowing from others

Migration

Migration is realized as coping strategies in step-by-step manner that depends on the severity condition of drought. Based on the status of forage and water condition, the first action is separating and letting the lactating cow and calves around home stead and then the herder (household head or a group of young herder) migrate with other livestock. However, they return to their homestead otherwise they migrated with all family and livestock if the condition become worsen.

Social assistant

Social assistant is a deep-rooted philosophy along with history of Borana society. There is a clan support such as “*Buusaa gonofaa*” (food and other resources sharing) and “*Ameessa*” (milking cow loan) are the most common social assistant during severe drought. It is a social assistance in which the rich or households whom livestock have survived from drought helps the households who has no and/or loss the whole livestock, and others.

3.6 Gender Issues

Basically, the concept of gender is the description of all the socially given attributes, roles, activities, and responsibilities connected to being a male or a female in a given society and gender inequality originated from socially and culturally constructed behaviors of the society.

With regard to gender relations and inequality, two major aspects to be considered, namely, are practical and strategic needs. Practical gender needs are met i.e. the lives of women (or men) would be improved without changing the existing gender division of labor or without challenging women's subordinate position in society. Meeting practical interests or needs is a response to an immediate perceived necessity (needs) & interventions, typically concerned with inadequacies in living conditions such as water provision, health care, and employment. Strategic gender needs concerned to gender divisions of labor, power and control. These may include issues related with legal rights, domestic violence, equal wages, and women's control over their bodies. In many rural areas of the region almost all household tasks are the responsibilities of women, which may usually include food preparation for the household, take care of children at home, fetching water and collecting fuel wood, and feeding & milking cows and calves.

Based on data obtained through FGD and survey result shows, the most pressing needs of women in the project area were potable water supply, maternal and child health care services,

credit and saving schemes, grinding mills, market inaccessibility, etc. respectively. Most likely, activities like, fetching/drawing water for domestic use, tending/ keeping cattle (milking cows, calves, sheep & goats), food preparation, caring children, some agricultural activities like weeding/hoeing, etc. are commonly performed or responsibility of women at project area.

It is well known that recurrent drought is common in the proposed project area, and the community was exposed to economic and social destruction from time to time. Drought and more generally disaster impacts, are more in women than men. Therefore; the project should focused on the integration of women in the beneficiaries.

Hence, gender will be treated as an integral part of the project and will be mainstreamed across all interventions. Fixed criteria will be in place to maintain the gender balance in terms of participants' selection and to be gender sensitive during formation of committees and selection of their leadership. Emphasis will be given to address the practical and strategic needs of women such as access to and control over resources and leadership positions.

There is no women association in the area, but they have significant participation in community based activities; in contrast men participation in home activities are limited, but there is a high respect for women in the area relative to the other zones of the region; since the “*Gada*” system is strongly applied at the area and more valued for women. Finally, the dominant power on HH's assets decision making is more on husbands, and recently, in some HHs case both has an equal power.

3.7 Governmental and Non-Governmental Organizations (GO &NGOs)

It is known the governmental structures that support technically for the operation of various local level development activities like, kebele administration & related structures, on the other hand those experts assigned on agricultural development (crop and livestock production), natural resource conservation, health extension, etc. has great role in community supporting and awareness creation. In addition to this, there are some non-governmental organizations that operating in the district, like Goal-Ethiopia intervenes on health & related issues. Whereas, there was no any NGOs operating in the project kebele while we were undertake this study.

3.8 Irrigation Activities in the Project Area

Basically, the communities at the project area were a pastoralist in which their economic base is depends on livestock production. But, the out puts from this economic source are hardly affected due to, harsh climatic condition, poor management, etc. hence, the people in the area exposed to frequent food scarcity and food aid is common there.

Whether traditional or modern irrigation practices were not known in the area, as of their basic economic system and available resources (water, land considered for grazing) were not invited them to practice irrigation agriculture. Even though, the community in the proposed project area has no any knowledge about irrigation practice, they have the long term indigenous knowledge on common resource management and utilization experience, on grazing land, water, etc. Similarly, they will participate in proposed project from starting phase (study& design) to operation, utilization & management, and monitoring & evaluation phase. And, to realize the implementation & utilization in sustainable way of the proposed project, the close follow up and technical support of beneficiaries from the concerned bodies/sectors such as zone to district irrigation development authority, agriculture & climate change & livestock development from zone to kebele level is a compulsory, since the community is a beginner in irrigation agriculture practice.

3.9 Positive and Negative Socio-economic Impacts of the envisaged Project

3.9.1 Positive Impacts

The part of the project which results in positive & negative impacts was identified. Project places that affect properties such as dam site/ headwork, quarry sites, camp sites and main access roads as well as places that benefit the people which are the command area should be clearly distinguished. Along with these broad classifications, the possible negative impacts within the command area as well as positive impacts within the places of other project places also be identified.

As known the area where the micro dam irrigation proposed is known by the recurrent drought, natural resources depleted in alarming rate, and the output from the main & secondary economic bases of the area were not enough for survival of the community. Hence, in considering these and other problems of the area Oromia Irrigation Development Authority (OIDA) has planned to

develop micro dam irrigation project through collecting the run off. Through this the community will produce two or three times a year and they can improve their livelihood.

3.9.2 Direct Benefit

The proposed project has a lot of benefits; it could be economic, non- economic, tangible or intangible. The economic benefits include availability of water at a place has a crucial:

- ✓ economic, (the beneficiary’s income & livelihood will improve through increasing the intensity of production per year, i.e. producing two or more times a year, it will enable parents to send their children to school, especially higher levels and provide them with basic needs),
- ✓ social (for domestic & livestock consumption) it will minimize burden & wastage of time for which they travel long distance in search of water especially, for women & children / female children will have an opportunity to enrolls school, and
- ✓ environmental benefits,
- ✓ it creates an opportunity for permanently settle in an area for those who move from place to place in search of water & pasture for livestock, and
- ✓ can access an input, technology, & information that contributes for their livelihood development,
- ✓ Increased output level that contributes towards gross domestic product.

On the other hand it increase availability of crops at local, zonal or central market for others consumption.

Employment opportunity created while construction undertaken as well as involvement of various social groups during project operation in the value chain could be one of the economic benefits of the project. The direct benefit of the project includes benefits generated by participating farmers in irrigation activity. The direct beneficiaries of the proposed Worbate Small Scale irrigation project (WSSIP) is planned to develop through earthen dam, and to benefit communities in Abunu kebele. The proposed net command area is 205.5 ha and it could be benefit 411 HHs (about 0.5ha/hh), and generally it could be directly benefit 2877 people, (about 7 family sizes per hh) will direct beneficiary of the proposed micro dam irrigation project.



Figure 13 Overview of command area

3.9.3 Indirect Benefit

The proposed project will contribute indirect benefit for the community. The impact of the project is not only crop production but also feed materials for livestock could improve, and productivity of livestock in terms of milk and meat shall improve. The non-economic benefits include the improved working culture of the people, adoption of improved practices and crop varieties. The desire of the community for more and better services could be aroused due to the multiplier effect of the project. In addition to this, cultural diffusion created and farming system and work culture of the households will greatly improve gradually through social interactions and skill transfer. Further intensive farming always avoid wastage of labor, because modern irrigation consumes labor in large and make productive, thus unproductive labor in the rural area/project area become productive force throughout the year. There is also, indirectly some groups could be involved in input and output marketing. Additionally some groups may get access to irrigable land and involved in increasing production and productivity of crops.

3.9.4 Negative Impacts

Whatever the development projects proposed and implemented, it might be costs the environment and other resources, but as compared to its benefit, its negative impact would be undermined. But, the area where Worbate Small Scale irrigation project planned to implement is

a grazing land which is covered with bushes & shrubs, trees, and others, that settlement, perennial crops & other properties are not available there may will damaged because of the project. On the other hand, the dam site, command area, & other infrastructures of the proposed project may be negatively affect the natural environment, and damaging vegetation confined to the area. In addition to these; malaria may outbreak due to the dam/ reservoir unless attention given and properly managed, since, it creates favorable condition for mosquito production. In addition to these; as water is available in the area, may the community brings their livestock from surrounding kebeles & districts, especially during drought season and it may an opportunity for livestock diseases transmitted among the livestock unless proper vaccination & treatment will be given through empowering the available veterinary institutions in the kebele, and also the area become eroded & affected as of over population of livestock.

3.10 Development Potentials, Constraints and Opportunities

The development potentials could either be related with the project or may relate to other development potentials which can affect project implementation. Out of the types of economic activities which affect the project implementation relates to existing or planned economic activities which share or utilize project resources. There is an immense livestock & livestock products in Gomole district and other surrounding areas, which is a potential for those who have interested to participate in its production and marketing. In addition to this; the proposed irrigation project also creates a market opportunity for those who will interest to supply an input for irrigators and marketing the output. In addition to these; currently government has create an opportunity through working road to link with district, market, and develop information communication system, and other development potentials.

3.11 Conclusion and Recommendation

3.11.1 Conclusion

Worbate Small scale irrigation project feasibility study is concentrated on the demographic characteristics, social services, infrastructural services, economic factors and other additional development issues of the targeted kebele (Abunu) & specifically project area that have direct relation with the proposed small scale irrigation project. These Socio economic components have direct and indirect impact on the agricultural sector (both rain fed and irrigated) and their role either to dissipate or accelerate economic wellbeing is identified in the study. The population of the target kebele specifically, and district generally is increasing at an increasing rate, whether it commensurate with food growth. On the other hand, recurrent drought, fragmentation and decreasing land holding size due to continued remuneration and decrease in land bearing capacity is an indicator for population growth, and food insecurity problem. Average family size of the targeting community is seven (7) people; it also denotes that the target kebele population is relatively increasing.

Based on the assessment, it is concluded that physical and social infrastructures are not well furnished to assist in the meantime paradigm shift pursued in irrigation development. Regarding social institutions, there is only first cycle (1-4 grade) school in the kebele, there is a veterinary service provision center, but no enough service provided. Whereas the social services like, water supply for domestic consumption & livestock, road & transport infrastructures, human health service, extension services, etc. was not available at project kebele. The communities in project kebele for accessing social services like health, education they have to travel to district town (Surupha) 47km, and Yabelo town about 52km, and they exposed to extra expenditure, but the others not affording the costs & not accessed to the services.

The target community is based on pastoral economic system, mainly characterized by shortage and erratic rain fall system, and exposed to food insecurity problems. The communities' economic base is challenged in a lot of constraints that reduces production and productivity, which affect livelihood of the community. Finally; the proposed WSSIP will planned to develop 205.5ha net command area, and will benefit 411HH heads, and with seven (7) average family size it would be directly address a total of 2877people in the project area.

3.11.2 Recommendations

Worbate SSIP will provide multi-function, primarily, water for domestic and livestock consumption, and further for irrigation agriculture. Hence; there should be;

A. Water Supply:

Mainly the project area is characterized by shortage of rain fall and scarce water sources, and they are relying on livestock production as economic base. As a result, water is a vital resource that to be prioritized for domestic consumption & livestock watering, than irrigation practice. Since, whether rain fed or irrigation agriculture is not known at the area, and the practice would gradually adopt with the community.

Therefore; to full fill the demand of water supply for domestic consumption and livestock, there should be;

- ✓ Considering water demand for domestic and livestock consumption,
- ✓ Create community awareness to improve water treatment system to reduce water borne diseases,
- ✓ Construct water fetching structures through which they easily access from the dam & sanitary systems also developed,
- ✓ Construct cattle trough at various places following the canals to minimize the overcrowded of livestock,

B. Irrigation Practice:

- Irrigation practice is not known at the area, then to realize the practice the respective bodies from Zone to district via kebele have to provide detail awareness creation on irrigation resource utilization & practice theoretically & in practical, and continuously close follow up,
- Ensuring irrigation resource (land, water, etc.) utilization according to rules and regulations for improving production and productivity, for reducing/avoiding conflicts to assure improvement of community's livelihood;
- Commonly working on community based natural resource management, soil& water conservation activities , controlling soil erosion, to ensure sustainability of the dam,
- There should be organizing & strengthen the beneficiary community in to IWUA to practically exercise the bylaws, rules and regulations of the association,

- Due attention for irrigation agriculture input supply; it is a bottleneck for the development of the sector, i.e. input may not be accessed, or timely provided,
- Regarding crop varieties for rain fed agriculture, emphasis on drought resistant/short season crops,

C. Human Health Service

However, health service & related issues have direct relationship with the communities' livelihood in which the healthy community can perform and produce. To minimize problems in relation to this sector, there should be:

- ✓ Focusing on diseases control through increasing health education given by health extension,
- ✓ Both the preventive and curative aspects of health services provisions should be given due emphasis;
- ✓ Basically; malaria is main health problem in the targeted area, and due to water available there it will be an opportunity for malaria outbreak. Therefore; the concerned government body should pay attention to control the problem, and other health service provision systems developed.

D. Animal Health Service

- The existing veterinary service should be strengthened and fully equipped, to control and treat the diseases outbreak and occurrence in the area; since, a lot of livestock will come to the project area for water consumption from all sides of project kebele, other surrounding kebeles, and other districts; mostly, during drought prolonged in search of water,
- The community has to emphasize on drought resistant livestock breeds, like camel, goat, donkey, than cattle,

E. Market and related issues

- ✓ Market is the main constraints of the irrigators in most of the country, as well in Oromia, as a result the concerned government body at all level should make a market linkage,
- ✓ Necessary attention should be given to the existing dry weather road construction in order to boost agricultural production and productivity in the long run and improve marketing facility for input and production transportation,

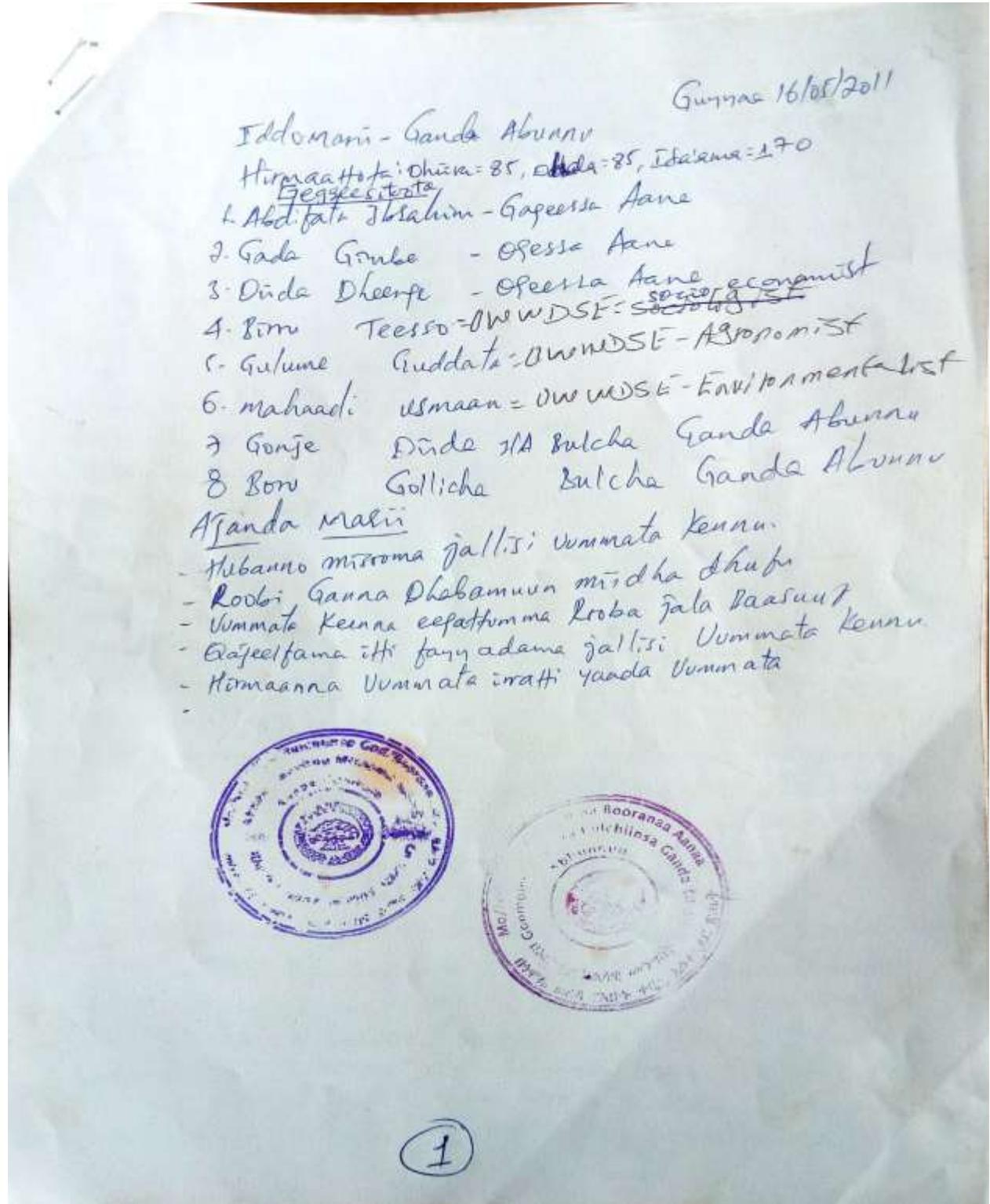
- ✓ In addition, institutions such as cooperatives/IWUA must be strengthened and others established as deemed necessary to facilitate favorable marketing of inputs and outputs in the area;
- ✓ Not only establishment of cooperatives/IWUA, but market promotion, market linkage and market information dissemination are also important in order to obtain good prices and favorable market for their products and then, this will improve the livelihood of the producers in the area as a whole;
- ✓ Crop and livestock market promotion and information dissemination systems and mechanisms should also be established and strengthened;
- ✓ Brokers activities' in marketing system may create unnecessary intervention in marketing of both crop and livestock production, and the interference of them created unfavorable marketing situation and exposes the producers for exploitation; thus necessary rules and regulations should be formulated and implemented in order to prevent and curb such unwanted interventions of parasitic forces like brokers in the area;

F. Environmental protection

- ⇒ To ensure the sustainability of the dam and other infrastructures, there should be environmental conservation like, soil and water conservation undertaken through mobilizing the community,
- ⇒ While the dam will constructed and water conserved there, as mentioned above a lot of livestock number come to the area for search of water, and over herding at a place will degrading & affect the area; unless proper water consumption system arranged and managed.

4. Annex Materials

4.1 Community Consultation Minute



Ummanni: Ganda kanaa Kinya jedhe Abbummaan turanfachuu fi lafa walii kana Kinya jedhe Ummanni: Abbummaan akka itti fayyadamu.

Itti fayyadame fi ifaarsa kanaa walii sabate Ummanni 10% deffaan faka waan ta'ey abbummaan itti fayyadamu fi of fopheessu sabdu.

- Lafa naanno ifaarsa jow kana seeraan ituu fi fophi ta'u sabdu.

Bu'a fabeessumma da mir kanceessuuf Ummanni of fopheessu. Eefumsa biyyoo fi bishaan sulula wal-sabate ammaan jal'abduun tatta'ufi rochu sabdu.

Gara wal durzeetti wanti kun cabu danda'a, mirfammaan dhufe suphu waan ta'ey koree itaasattan suphaaf of fopheessu sabdu.

Koree name tooba Amma filattan nu dhigeesitu.

- Hoji Amma jalfabe foranno, kun lafa jallisi jira, bishaani fi Ummanni jallisi fayyadamu joochu.

Yero ifaaramu, xamni: dhufaa, horiin dhufa kun hund: baalame biyyoo foratame, bishaan baachuu fi mi baachuu ka m kaasu danda'a kan jedhame of koree faka ifaarsa kan jalfabuufi maaltas fi koree baachuu. Waan jedhu adda baasuuf.

- sin maalt' baachuu kan jedhu, jedi koree adda baasuuf. Yero fophi lafa, faa'eesa, ara'ara yero fuuramuuf fobatti feeffamu irratti mari fi hubanno sin kenaa. Jallisi fi maalt' baachuu, maa caale fi bulaa fi baay'ee baachuu. lagna kun iddo bara oso taate jallisi fi fi fitatamu kun. fann oso itti ara'ara hin fobnu waan ta'ey Rakto bishaan dhufaat fannuufi miidhaan nyaataafi of danda'uuf

(2)

Wofatti si'a lamaaf isa eli akka faynadamtan arra jara ta'a pirojektii akka mindha fabela, jara, das faba, batte isa hidhamu san bisona faba. bisona mancaasuu mindhe mata of danda'e faba.

Projekti Abbuuna kun bakkii inni Oomishu shun hundiin bisona jara arra bira hin fabanu waan ta'ee, bordonni sun manca'e lafni sun hidhamuun dirfame.

Yanda Uummeta

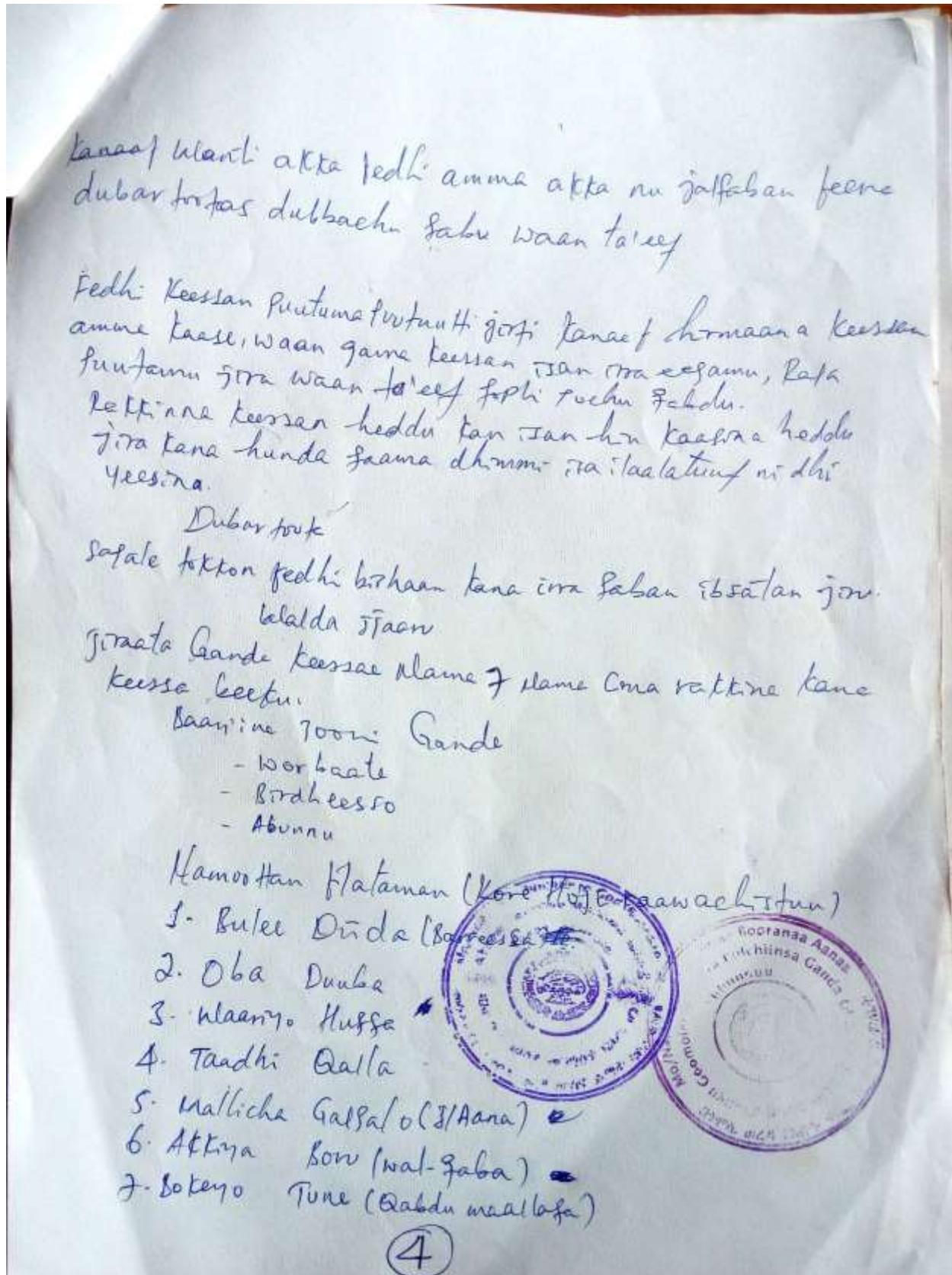
laffi sun rakto fabeli, kara hin fabanu, namni dheebu mindhamu jira, nama waanta' hin fabu male, akka fedhi teenaffi amma jalqabdan yeroo itti hin kenne. Namni kallatti hundu fopha dhiraaf fi dhalaadhaan fophi jira.

Amis Game kumaan lafa tana durii Namu sunif jira, mita ma gudda dhaanne, nuu waan durii sun gatte artine. hanni hundi amma fodaane jira, namni akkaasuu akkaama fodaana jira.

Gaarun kara kane danda'e hin dhupu, mindhaan defforse danda'enne hin fudhaanu. 40 fumaat forannoo taraan + nu kenname amma ta'ee dafa yeroo durra horeessi na dafa nu dhofa.

Rakkinni kun waa dafa dhiraaf fi dhalaanif hin feenaa, nuu fudhama dafa fumaata hatafame akka nu keran, waan manaa fi ta'i dafa jara akka jiratan waan ta'ee fedhi akka male faba waan ta'ee. Eepi: bishaan nu fabamaan tan mata rakto hin fabeli bishaan uummaan sun dafan nuuf haa hidhaman. Rakkatti harka faba namni hin feene hin jara safali tokkoon jenna. Namni mormu tokkole hin jara waan ta'ee

3



	mafaa	Saala	umrii mallatto
②	Tuloo Gammachuu	Dub	29
3	Bookayoo Muffau	Dub	200
4	Adii Gafgaloo	Dub	25
5	Daadhi malichaa	Dub	30
6	Adii Konnaa	Dub	25
7	Lookoo Gabalee	Dub	30
8	Dhakkii malicha	Dub	30
9	Dhakkii Gafphere	Dub	50
10	Shukkaa Maanyoo	Dub	80
11	Lookoo Boruu	Dub	20
12	Lookoo Maafoo	Dub	80
13	Sakee Xachee	Dub	20
14	Daboo mafa	Dub	28
15	Daboo Qadhaa	Dub	28
16	Gabalee moluu	Dub	25
17	Dhakkii Qurii	Dub	20
18	Daadhi Roobaa	Duba	25
19	Gabalee Hakkonnaa	Duba	24
20	Tuloo Kanna	Duba	20
21	Gabalee Haddumba	Dub	23
22	Siree Kotolaa	Dub	25
23	Shukkee Gafgaloo	Dub	50
24	Adii Dhatii	Dub	50
25	Xurrum Gichaa	Dub	0
26	Godona Songee	Dub	20
27	Sakee Maanyoo	Dub	20
28	Hashuu Kulaa	Dub	25
29	Elmaa Godona	Dub	28
30	Xurrum Sora	Dub	35
	Adii Muffaa	Dub	

	maṣaa	Saala	Ummuu	Malleffa
1	Bonnu Golicha Dhi	Dhi	44	B
2	Gonṣee Diida Dhi	Dhi	38	#
3	Haroo Daulacha Dhi	Dhi	50	#
4	Gabale Saatan Old	Dhi	40	#
5	Bulee Diida Dhi	Dhi	30	#
6	Saatan Galgaloo Dhi	Dhi	30	#
7	Kunnii Galgaloo Dhi	Dhi	24	#
8	Diida Liban Dhi	Dhi	27	#
9	malicha Galgaloo Dhi	Dhi	42	#
10	Tayaa Adii Dhi	Dhi	32	#
11	Jarsoo Dabosa Dhi	Dhi	20	#
12	Kiyyaa Gujju Dhi	Dhi	40	#
13	Rooba Raachoo Dhi	Dhi	25	#
14	Tarii Kiyyaa Dhi	Dhi	15	#
15	Kotoka Diida Dhi	Dhi	26	#
16	Salaa Haroo Dhi	Dhi	25	#
17	maritoo Biduy Dhi	Dhi	29	#
18	waanyyoo Tadhoo Dhi	Dhi	60	#
19	Difaa Golachaa Dhi	Dhi	70	#
20	Ata Kiyyaa Bonnu Dhi	Dhi	62	#
21	Xachee Bonoyaa Dhi	Dhi	80	#
22	Xachee Bonoyaa Dhi	Dhi	80	#
23	Maasina Bonnu Dhi	Dhi	78	#
24	Golicha Liban Dhi	Dhi	90	#
25	Golophoo maṣaa Dhi	Dhi	70	#
26	waanyyoo Diidoo Dhi	Dhi	50	#
27	Shanaa Halakee Dhi	Dhi	50	#
28	Saatan Huggaa Dhi	Dhi	40	#
29	malaa Gecloo Dhi	Dhi	53	#
30	Guyyoo Bonnu Dhi	Dhi	40	#
31	Dooyyoo Dumbaa Dhi	Dhi	40	#
32	Kiyyaa Shabaa Dhi	Dhi	50	#
33	Galgaloo Abdumba Dhi	Dhi	50	#



6

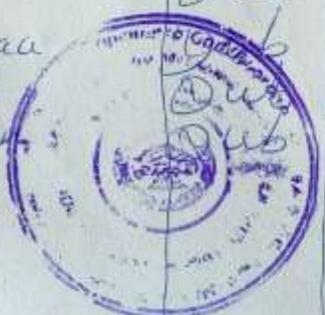
	mafaa	Seala	umru	macallattoo
	Gulgalo Saage	Dhi	30	
	Pory Doyyoo	Dhi	35	
4	malicha Mashata	Dhi	27	
5	Bute Garbicha	Dhi	30	
6	Jatani Xalle	Dhi	40	
7	Warayo Hufa	Dhi	30	
8	Dulaa Jaldesa	Dhi	31	
9	Qaaluhe Kesun	Dhi	28	
10	Quri Didaa	Dhi	40	
11	Kiyoo AtoSheru	Phi	32	
12	Abiduba Hufaa	Dhi	26	
13	Molu Soraa	Dhi	40	
14	Borun Doyyoo	dhi	21	
15	Borun Dhato	dhi	16	
16	Baxedaa Soraa	dhi	18	
17	Gonje Turaa	dhi	22	
18	Jallaa Hufaa	dhi	22	
19	Quri Doyyoo	dhi	25	
20	Turaa Godana	dhi	45	
21	Gufuu Caffaa	dhi	65	
22	Abiduba Butie	dhi	19	
23	Alura Jaldesa	dhi	40	
24	Ketolaa Saaci	dhi	35	
25	Arero Xalle	dhi	25	
26	Garbale Hufaa	dhi	40	
27	Subo Didaa	dhi	50	
28	Kusu ADi	dhi	80	
29	Soraa Warayoo	dhi	48	
30	Tura Soraa	dhi	62	
31	Jaldesa Libaani	dhi	60	
32	Kiyoo Didaa	dhi	70	
33	Gamechu Jaldesa	dhi	70	
34	Guyyoo Sedo	dhi	73	
35	Warayoo Guyoo	dhi	70	
36	Sara Turaa	dhi	25	
37	Sora Sarkona	dhi	20	
38	Giyaa Golilcha	dhi	20	
39	Gama Taya	dhi	30	
40	Sara Libaani	dhi	30	
41	Turaa Guyoo	dhi	30	
42	libaani Halake	dhi	35	
43	kana Gedo	dhi	40	



7

	maqaa	Saala	lummii	nallatto
	Siloo Lubaa	Dub	36	
	Sasii Kachoo	Dub	50	
	Lpokoo Gaaton	Dub	46	
+	Adii Kansaa	Dub	42	
5	Dabale Ashumaa	Dub	60	
6	Xummeer Rooba	Dub	28	
7	Galmoo Diida	Dub	25	
8	Sasii Duulacha	Dub	29	
9	Dabalee Boruu	Dub	28	
20	Dhakkii Boruu	Dub	36	
21	Xummeer malicha	Dub	36	
22	Daboo Tunnee	Dub	25	
23	Adii Boruu	Dub	28	
24	Dhakkii Guyyoo	Dub	25	
25	Hiladoo Barafoo	Dub	37	
26	Dabalee Shanau	Duba	55	
27	Masuu Kusuu	Duba	25	
28	Daboo Galgaloo	Duba	35	
29	Daboo Karsichaa	Dub	50	
20	Diimaa Galgaloo	Dub	60	
21	Lpokoo Sarfoo	Dub	70	
22	Adii Diida	Dub	80	
23	Dabbi Buri	Dub	50	
24	Adii Lubaa	Dub	38	
25	Xummeer Taraa	Dub	30	
26	Diramuu Tunnee	Dub	40	
27	Dhakkii Doofoo	Dub	30	
28	Kuufoo Jallessaa	Dub	40	
29	Bubalaa Maafoo	Dub	25	
30	Daashi Taraa	Dub	80	8

K	maṓaa	Saala	urarii	mallaṓo
1	Dhakkii Kiyṓaa	Dub	20	
2	Galmoo Kusuu	Dub	50	
3	Lookoo Turaa	Dub	48	
4	Siloo Ati Kiyṓaa	Dub	35	
5	Daadhii Godana	Dub	25	
6	Xummee Goolichaa	Dub	55	
7	Kuulaa Guyyoo	Dub	16	
8	Kuulaa Qalaa	Dub	20	
9	Qabalee Kreeroo	Dub	20	
20	Dhalee Tadhii	Dub	16	
21	Batii Ati Kiyṓaa	Dub	24	
22	Shukkee Haffaa	Dub	15	
23	Dormii Boruu	Dub	20	
24	Saloo Galomphoo	Dub	13	
25	Daboo Didaa	Dub	19	
26	Galmoo Galomphoo	Dub	60	
27	Baahatu Qurii	Dub	25	
28	Siloo Gurachaa	Dub	21	
29	Qabalee maluu	Dub	28	
20	Difoo Kusaa	Dub	18	
21	Shufaa Oyyii	Dub	18	
22	Siloo Adambaa	Dub	55	
23	Daboo Kiyṓaa	Dub	40	
24	Daboo Jaataa	Dub	50	



(9)

	mafaa	Laala	umrii	malletto
1	Raba Godanaa	Dhi	28	
2	Bunbi Huxaa	Dhi	31	
3	Kiyyaa Xache	Dhi	20	
4	Qubsa Racho	Dhi	17	
5	Halona Didaa	Dhi	30	
6	Guyyoo Klariyoo	Dhi	23	
7	Hibiranis Mamadi	Dhi	35	
8	Mariyoo Huxaa	Dhi	35	
9	Mariyoo Didaa	Dhi	20	
10	Giraa Ido	Dhi	20	
11	Muda Godanaa	Dhi	35	
12	Wala Dulachaa	Dhi	75	
13	Balla Didaa	dhi	28	

Participants

male = 85

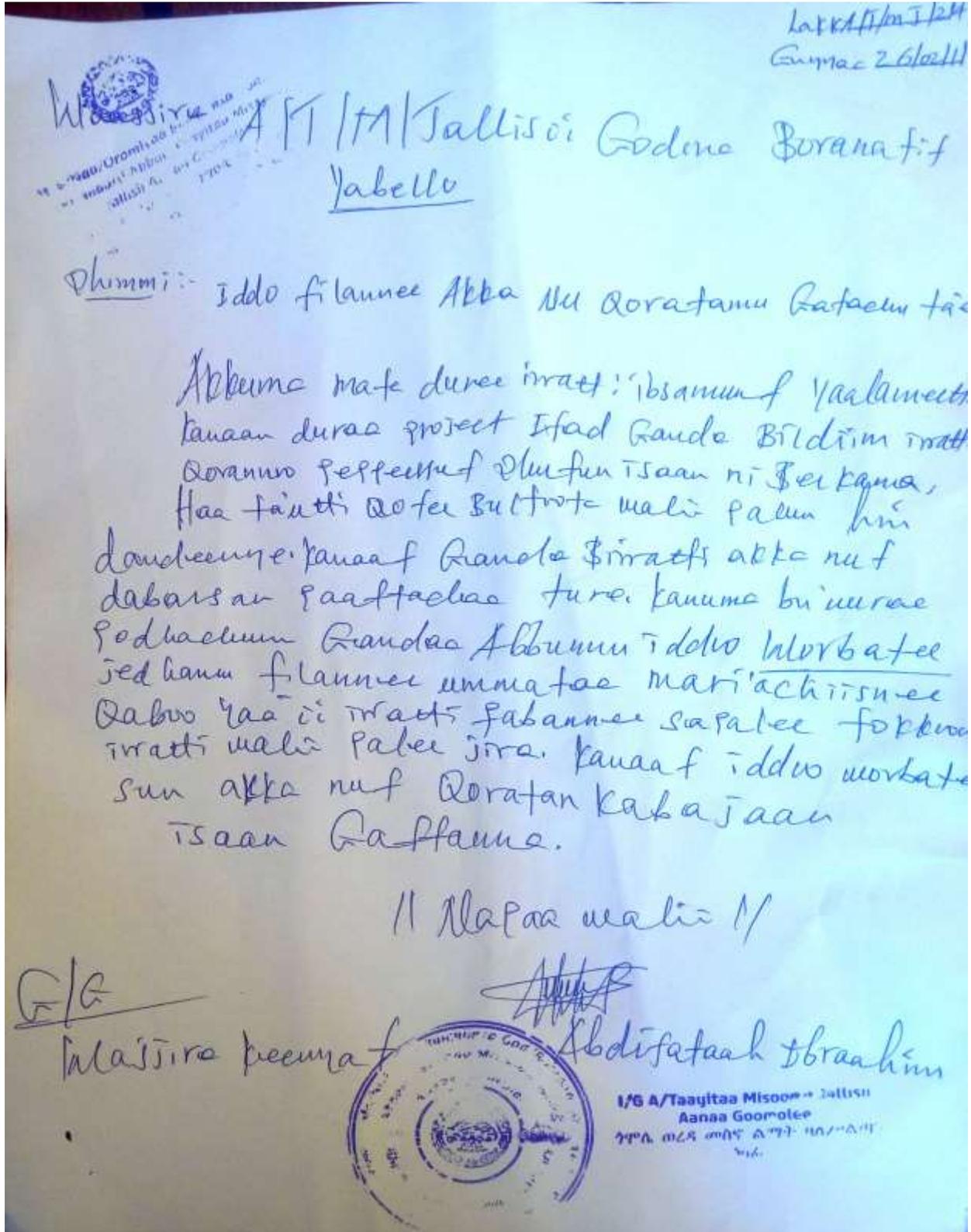
Female = 85

Total = 170

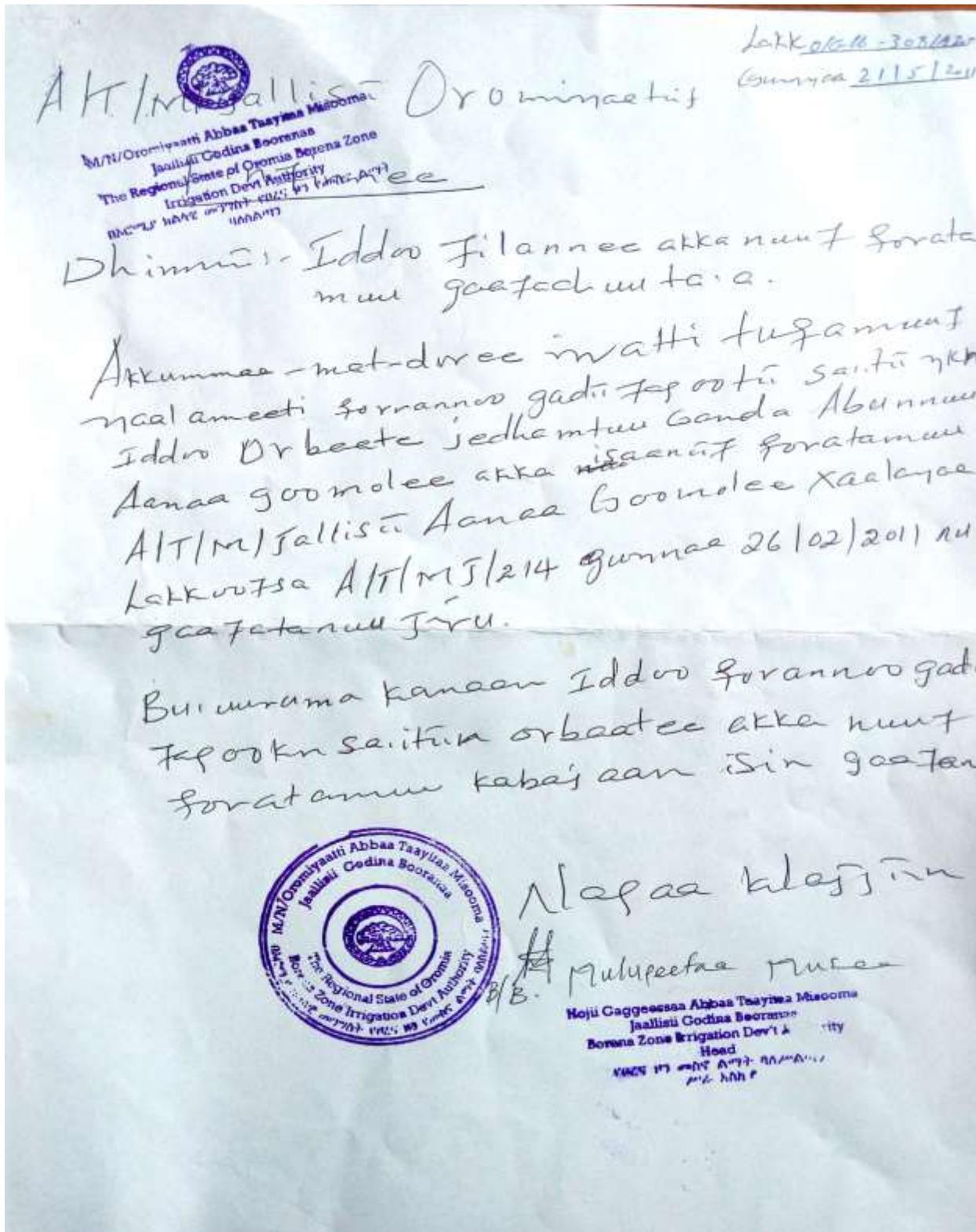



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4.2 Gomole district Irrigation Development Authority Request letter



4.3 Borena zone Irrigation Development Authority Request letter



4.4 Household Survey questionnaire

Socioeconomic Baseline Study

Household Survey data collection sheet

Identification:

Address of Household:

Region Oromia Zone _____ District _____ Kebele/Town _____

Interviewing period:

Date /month/year: _____ / _____ / _____

Starting time: _____ Ending time: _____

Name of the Respondent _____

PART I: Household characteristics

General direction: please, ask each question exactly as it is and circle or fill in the provided space as per response of the respondent.

No.	QUESTIONS AND FILTERS	CATEGORIES	CODE	Skips
1	Sex of the respondent	Female	1	
		Male	2	
2	Age	Write in full year	[_____]	
3	Marital status?	Married	1	
		Single	2	
		Divorced	3	
		Separated	4	
		Widowed	5	
4	Religion?	Orthodox Christian	1	
		Protestant	2	
		Catholic	3	
		Muslim	4	
		Others (specify)_____	5	
5	Total Size of the household	Male	[_____]	
		Female	[_____]	
		Total	[_____]	
6	Household members age	Less than 15yrs _____	[_____]	
		15-64 yrs	[_____]	
		above 64 yrs	[_____]	
		Total		
7	Ethnic group	Oromo	1	
		Amara	2	
		Somali	3	
		Tigri	4	
		Others specify	5	

8	Place of birth	Born in this area Migrate from other surrounding	1 2	
9	If you migrate from other area what is the main reason?	Job opportunity Settlement Farm land conflict Other specify_____	1 2 3 4	
10	How long have you lived in this area?	Less than 10 Yrs, 10 - 20 years, More than 20 years	1 2 3	
11	What is your highest level of education attained?	Illiterate Read and write primary school (Grade 1-4) primary school (grade 5-8) Secondary school (Grade 9-10) Secondary school (grade 11-12) College and above	1 2 3 4 5 6 7	
12	What is the <u>main</u> source of income?	Merchant Farmer Daily labourer Government employee Employee of private enterprise Pension Others (specify)_____	1 2 3 4 5 6 7	
13	What is the <u>secondary</u> occupation of the HH head?	Merchant Farmer Daily labourer Government employee Employee of private enterprise Pension Others (specify)_____	1 2 3 4 5 6 7	
14	Estimates of annual income of the HH from different sources?	Crop production Sale of livestock Sale of livestock products (Milk, butter, cheese, egg, skin, honey etc) Sale of vegetables and fruits Sale of forest products Off farm activities Remittance Others	[____] [____] [____] [____] [____] [____] [____]	

15	Estimates of annual expenditure of the HH for different purposes	Food	[]	
		Clothing	[]	
		Fuel	[]	
		Salt, sugar, oil etc	[]	
		Soap and other sanitation purpose	[]	
		Treatment	[]	
		Education	[]	
		Farm inputs	[]	
		Other	[]	
	Total	[]		
Social service				
Education				
16	What type of education do you prefer for your children?	Formal education	1	
		Non-formal education	2	
		Religious education	3	
17	How far is the nearby formal education institution for the household In km?	1 st cycle, 1-4	[]	
		2 nd cycle 1-8 (5-8)	[]	
		High School (9-10)	[]	
		Preparatory 11-12	[]	
		Higher education	[]	
18	Number of Household members attending formal education.	Male	[]	
		Female	[]	
		Total	[]	
	What are the major problems of education in your community?	Absence of the school in the nearby	1	
		Unable to cover school expenses	2	
		HH demand of children labor	3	
Health				
19	What is the most common disease prevailing in your area?	Malaria	1	
		Diarrhea	2	
		TB	3	
		Intestinal parasite	4	
		Eye diseases	5	
		STD	6	
		Headache	7	
		Typhoid	8	
		Others (Specify)	9	
20	Where do you go for treatment when one of your Household members gets sick? (More than one questions are possible)	Hospital,	1	
		Health center,	2	
		Private Clinic	3	
		Health post	4	
		Traditional healer	5	
		Self-treatment	6	

		Stay at home	7	
21	. What is the major constraint in health services? More than one answer are possible by ranking	Absence of health service in the nearby Shortage of medicine Lack of health personnel High treatment and medicine cost Reluctance of the health personnel Lack of accessibility to reach the health services Other	1 2 3 4 5 6 7	
22	Have you ever received health education on diseases prevention and control?	Yes No	1 2	
23	Do you agree that immunization for children and women are useful?	Yes No	1 2	
24	Do you agree that Household planning is useful?	Yes No	1 2	
25	Do you and/or your spouse use Household planning service?	Yes No	1 2	
26	Do you favor to have many children?	Yes No	1 2	
27	Do you know the mode of transmission of HIV/AIDS from Person to person?	Yes No	1 2	
28	Do you know what you should do to protect yourself and your Household from being infected with HIV/ AIDS?	Yes No	1 2	
Drinking water supply				
29	Main sources of water used for drinking and food cooking? More than one question are possible by ranking	River Pond Lake Hand Dug Well Protected Spring Not protected Spring Piped Water Others	1 2 3 4 5 6 7 8	

30	How long does it take to go the house hold travel to fetch water (two ways)?	Time in minute [_____]	
31	Who mainly collect water for the Household?	Wife 1 Female children 2 Male children 3 Husband 4 All HH members 5	
Sanitation and hygiene related information			
32	Does the household have a latrine/toilet facility?	Yes 1 No 2	→
33	If yes, what kinds of toilet facility do you have? (OBSERE)	Improved pit latrine 1 Unimproved pit latrine 2 Improved flush toilet 3 Unimproved flush toilet 4 Others (specify)_____ 5	
34	Does the household shares toilet facility with other household(s)?	Yes 1 No 2	→
35	Do all household members utilize the toilet facility (including children)?	Yes 1 No 2	
36	To the best of your knowledge, what is the importance of having a latrine? (Probe & Circle all that Apply)	To avoid unsightly condition 1 To have privacy 2 To control communicable diseases 3 Don't know 4 Others (specify) _____ 5	
37	Where do you <u>usually</u> dispose of your domestic liquid and solid waste?	Septic tank/sewer connection 1 Seepage pit/sock-away pit 2 Latrine 3 Open field 4 Open ditch to nearby water body 5 Others (specify) _____ 6	
Transports and Communication			
38	Do you have transportation problems in this area?	Yes 1 No 2	
39	If yes, what is the main problem?	There is no road at all 1 The fare is high 2 The road is not good 3 The road is too far 4 Other problem (Specify) _____ 5	

40	How far is the nearest postal service from your area?	KM []	
41	How far is the nearest telephone service from your area? in KM	KM []	
42	How far is the nearest Bank service from your area?	KM []	
Agriculture and Food Supply			
Land Tenure			
43	Do you have your own land?	Yes 1 No 2	
44	If yes, how much in ha?	Grazing [] Cultivated [] Backyard [] Forestland [] Total []	
45	Do you have rented <u>Your own</u> land for others?	Yes 1 No 2	
Crop Production			
46	How is the trend of your crop production for the last 5 years?	Increasing 1 Decreasing 2 No change 3	
47	Do your last year's production is sufficient for your Household?	Yes 1 No 2	
48	If no, what is the reason?	Shortage of farmland 1 Shortage of inputs (seed, fertilizers, farm power etc. 2 Bad weather 3 Other reasons 4	

49	If no, how do you manage to fill the gap?	Household members sale labor sale livestock get remittance Aid from Govt. and or NGO Borrowing Sale of forest products	1 2 3 4 5 6	
50	For how many months of the year your households rely only on the yearly produced crops without external support or buying from market?	< 3 months 3-6 Months 6-9 months 9-12 Months	1 2 3 4	
51	How many quintals of crops (all types) of food do your Household requires for 12 Months?	Quintals	[_____]	
52	Do you use any labor from outside other than your Household?	Yes No	1 2	
53	What is the share of crop production contribution of your annual income?	Estimate the percentage	[_____]	
54	Do you want to change from rain fed to irrigate farming?	Yes No	1 2	
Livestock Production				
55	Do you have own livestock?	Yes No	1 2	
56	If yes, specify their type and number?	Cattle Oxen Equines Goats and sheep Poultry Bee hives	[_____] [_____] [_____] [_____] [_____] [_____]	
57	What are the main problems of livestock keeping?	Shortage of feed Shortage of capital to buy animals Livestock diseases	1 2 3	
58	Do you have enough oxen for Ploughing?	Yes No	1 2	
59	What is the share of livestock contribution of your annual income?	Estimate the percentage	[_____]	

60	Source of water for livestock	River Traditional well Pond Springs Other	1 2 3 4 5	
61	What is the source of feed for livestock?	Grazing Crop residue Grazing and Crop residue Others (specify)	1 2 3 4	
62	Did you provide your livestock any supplemental feed materials during the dry season or during the wet season?	Yes No	1 2	
63	Do you conserve feed for dry season and wet season (kiremt)?	Yes No	1 2	
64	If yes, state the type of feed you mostly conserve (only one)	Standing hay Cut hay Crop residues Browse (pods, leaves, etc) Other (Name)	1 2 3 4 5	
65	Was there shortage of animal feed in the recent years?	Yes No	1 2	
66	what is the first measure you take during feed shortage?	Increase sale of livestock Buy feed from other places Collect pods & leaves Borrowing and sharing with others Aid from government and NGOs	1 2 3 4 5	
67	Is the frequency of feed shortage increasing?	Yes No	1 2	
68	Who treat your animals?	Community Animal Health Workers Local veterinary service Private Black Market Traditional healer	1 2 3 4 5	

69	Do you pay for their service?	Yes No	1 2	
70	How much did you pay in the last 1-year?	Below 20 Birr 20-50Birr 60-80Birr 80-100Birr above 100 Birr	1 2 3 4 5	
71	You may be advised to reduce the number of livestock, but keep only productive ones under improved management and better feeding. Do you agree to destock (reduce) the number of your livestock?	Yes No	1 2	
72	Are you willing to conserve livestock feed? If you are provided with the necessary training and material.	Yes No	1 2	
73	Do you like to carry out fattening and or dairy programs?	Yes No	1 2	
74	If yes, which one do you like most?	Fattening & dairy Fattening Dairy programs	1 2 3	
75	Do you like to receive improved breeds?	Yes No	1 2	
76	If yes, which type's livestock do you like most?	Dairy Cattle Beef Cattle Goat Sheep Poultry	1 2 3 4 5	
77	Have you ever received any extension service, credit, and training for livestock Production?	Yes No	1 2	
78	How do people get together to discuss issues of community concerns?	Through formal community organization Through Iddir and/or other related informal social organization Through religious leaders Through esteemed elders	1 2 3 4 5	

		Others	
Community Participation			
79	Have you taken part in any of the following community development programs? (more than one answers are possible)	A forestation Soil and water conservation Social services Road construction	1 2 3 4
80	In what form do you participate? (more than one answers are possible)	Labor contribution Material provision Money contribution Idea generation	1 2 3 4
Community's attitude on the proposed irrigation development			
81	Have you heard of the proposed irrigation development?	Yes No	1 2
82	Do you accept the proposed development plan?	Yes No	1 2
83	If yes, what do you expected from it?	Sustainable production Job opportunity will be created Better infrastructure & social services Other specify	1 2 3 4
84	In what way do you like to contribute or participate for the project in the future?	Labor Material Money Labor & material Material & money Idea provision Other	1 2 3 4 5 6 7
85	If your perception is negative towards the project, specify your reason:	Fear of losing land Fear of losing house Fear of losing trees Reduction of income from crop production Reduction of income from livestock Fear of social disruption	1 2 3 4 5 6
Gender Issues			

86	Is there sex discrimination in this area?	Yes No	1 2	
87	Who is the decision maker on the household assets (land, livestock) in your house hold?	Husband only Wife Both husbanded and wife All house hold members	1 2 3 4	
88	Estimate the average working hours for men and women per day:	Men Women	[____] [____]	
89	Do men/husbands participate in the house tasks?	Yes No	1 2	
90	Do women participate in the decision making of community affairs and development activities?	Yes No	1 2	
91	Is there Women association in your area?	Yes No	1 2	
92	What are the most pressing needs of women in this area?	Grinding mills Safe water supply Maternal and child health care service Credit and saving schemes	1 2 3 4	

93. Compensation claim: -----

94. Food security situation: -----

95. Conflict occurrence and resolution mechanism: -----

Suggestion and comments to improve the situation

Full name of enumerator _____ Full name of supervisor _____
Signature _____ Signature _____
Date _____ Date _____