OROMIA IRRIGATION DEVELOPMENT AUTHORITY (OIDA)
ADDIS ABABA

FINAL DETAIL DESIGN REPORT

CALLE SMALL SCALE IRRIGATION PROJECT

SHIRKA DISTRICT OF ARSI ZONE, OROMIA REGIONAL STATE

B.B.G ENGINEERING Pvt.Ltd.Co

Addis Ababa-EthiopiaG
Tel: +251-118-693142/911-886262
E-mail: bbgplc4@gmail.com

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ACRONYMS

AGP	Agricultural Growth Program
AIDS	Acquired Immune Deficiency Syndrome
COV	Coefficient of Variation
FDREMOWR	Federal Democratic Republic of Ethiopia Ministry of Water Resources
FGD	Focus Group Discussion
Ha	Hectares
HH	Household
HIV	Human Immune Virus
IWUA	Irrigation Water Users Association
MD	Man Days
MoWR	Ministry of Water Resources
NGOs	Non-Governmental Organizations
NPS	Nitrogen Phosphorus Sulphar fertilizer
OIDA	Oromia Irrigation Development Authority
O&M	Operation and Maintenance
PSN	Productive Safety Net
PSNP	Productive Safety Net Program
SD	Standard Deviation
SSI	Small Scale Irrigation
SSIP	Small Scale Irrigation Project
TOT	Transfer of Technology
URAP	Universal Road Access Program
WB	World Bank
WUA	Water Users Association
WUC	Water Users Cooperatives

Executive Summary

This socioeconomic study and organizational management study of Calle small scale irrigation project is undertaken with the overall objective of improving the livelihood of the target communities by improving the existing traditional irrigation system. Based on this knowing the existing circumstances, needs and opportunities of the target community was crucial as part of feasibility study of a sort of irrigation scheme. The study followed norms and ethics expected from the subject matter particularly in connection with irrigation development. The study began by observing the socioeconomic set up of the study area and understanding the local contexts. Various consultations at various levels that are zone, district and local level and other stakeholders had been intensively undertaken. The views of various stakeholders and communities had been incorporated in the report. Second hand information had been collected from relevant sectoral offices. After identifying the potential beneficiary households are selected for the detail socioeconomic investigation of the target communities and accordingly in-depth household level socioeconomic data was generated. The assessment includes income levels and identifying major expenditure items of households, resources owned by the households and access to various physical and social infrastructures.

Various types of consultations that include FGD, general public meetings and key informant interviews conducted and main findings are used to substantiate other information generated.

Finally it was also tried to test the viability of the investment by undertaking financial and economic analysis of the project using the results of other studies such as agronomic and engineering studies as an input. Farm get prices collected during the socioeconomic survey are used as market prices for the financial analysis and these prices are adjusted for economic analysis.

1 SOCIOECONOMIC ASPECT

1.1 Introduction

Calle SSIP is located in Arsi Zone Shirka district Solechisarural kebele administration. It is located at about eleven kilometers fromShirka district capital Gobesa.One has to move along paved road in the north direction from the town to Ticho district. This is the only accessible road. But from this road exactly after crossing the bridge on the river under consideration one has turn right towards headwork as well as main canal system and the target community as well as command area. It is rugged topography and not accessible mainly for four wheel drive. There is also other road constructed by URAP to the Solechisakebele that are the target community but the road is not good and accessible particularly during rainy season. The road lacks two bridges and water logging conditions damage most part of the road and difficult to reach the community during rainy season.

The project was launched in connection with expansion and promotion of small scale irrigation at those districts that are surplus producers and had potential to enhance economic growth and development being the aim and objectives of AGP. Shirka district is one of the weredas or districts identified in Arsi Zone among six for the program's operation.

The source of water is Challe river hence the name of the project. It flows from ArsiMountains from geographic west to East direction to join other tributaries of WabeshebeleRiver which is one of the main River basins in the region as well as the country. Irrigation practice is practiced in the area for not less than a decade. Currently an area that does not exceed thirty hectare of land is irrigated mainly by the upstream communities and about sixty households are benefitting. The new proposal assessed about a gross area of 145ha of land of which 103ha is net area for which necessary physical infrastructures provided. A total of 236 households including 28 female headed households are identified to be potential beneficiaries of the intervention.

This project is identified by the zone and district irrigation staff and outsourced for this feasibility level study by OIDA AGP coordination unit. This is the socioeconomic and organizational issue draft reportprepared and submitted by BBG Engineering PLC.

1.2 Project Rationale

Due to global climate change it becomes very difficult producing food crops for an ever increasing human population using precipitation that becomes erratic in its nature. It becomes crucial increasing agricultural water use for production of crops for household level food security or generating income for rural communities. Past attempts to address and improve food security of households in connection with eventuality of rain fall pattern focused on drought prune areas and less is done at those districts that are surplus producing in our country in general and that of Oromia region in particular. Later it was understood that the possibility of increasing more output at those potential areas with little support was recognized and hence the evolvement of AGP. There are various components of AGP geared towards improving physical infrastructures at those surplus producing districts.

The physical infrastructures include road, bridge and marketing facilities. Promotion of small scale irrigation practices was identified to be one of the intervention areas by the program. Shirka district is one of the surpluses producing weredas in Arsi zone. It is endowed with mainly with surface water resources that could be taped for irrigation development. There are numerous traditional irrigation systems in the district that has to be improved to modern irrigation systems so as to utilize the existing water and land resources efficiently and effectively. Calle SSIP is one of such schemes identified to be studied in detail and implemented for the betterment of the participating farmers.

1.3 Objective

1.3.1 General Objective

Promoting small scale irrigation activities is one of rural infrastructure components of AGP to boost up agricultural produce at surplus producing districts and link to markets. Its principal objective is assisting and supporting farmers to improve irrigation management practices and enhancing of modern irrigation systems so as to secure better livelihood for rural population. Studying and design of reasonable irrigation systems is expected to increase and improve the efficiency and effectiveness of irrigation development. The socioeconomic assessment is mainly aimed at identifying and prioritizing the real conditions and needs of the target communities for whom irrigation technology is introduced and hence tries to assess the socioeconomic conditions of the target communities in general and beneficiaries of the proposed irrigation scheme in particular.

In general the objective of socioeconomic assessment of this particular SSIP could be explained as assessing the existing socioeconomic conditions of the project area, identify the administrative boundaries and the beneficiary households, analyze attitude and willingness of the community for proposed development and forecast impact of the project on the beneficiaries and surrounding communities. Identifying the target community and scheme users is one of the activities of socioeconomic study of irrigation projects. In general it can be said that the main objective of socioeconomic study is to establish baseline conditions so as to measure the outputs, outcomes (both intermediate and final) and impacts of the project in the course of project implementation.

1.3.2 Special Objective

- ❒ To know opportunities and constraints in relation to the proposed irrigation scheme
- ❒ To assess existing social, economic and institutional issues and constraints that may hinder the successful implementation of proposed project
- ❒ To identify potential areas for improving the livelihoods of communities and identify different possible intervention for sustained development
- ❒ To undertake social, financial and economic cost benefit analysis of the project on the basis which decisions whether to invest or not on the project made possible for the government as well as funding agencies.

1.4 Review of Irrigation and Relevant Policies

In the development policy of the country, it was stipulated that rural and agricultural development as a means of ensuring rapid economic growth, a means of enhancing benefits to people, as a means of eliminating food aid dependency and finally a means of promoting the development of market oriented economy. The labor intensive strategy emphasizes increasing output & productivity and developing the land through irrigation, application of chemical inputs and diversifying production, etc. (FDRE, 2003).

Farther more it should be recalled that the development & proper utilization of the country's water resources as one of the pillars on which the countries objectives of accelerated and sustainable agricultural development is based. Similarly, it was also indicated that it is important to focus on labor-intensive technologies while developing irrigation schemes in order to be more cost effective.

It was tried to review the country's irrigation development policy that intends to achieve the objective of 'Water can be made to contribute to the national economy through the development of the country's water resources and expanding irrigation schemes so that agricultural production is improved by solving the problem of water shortage caused by the unpredictability of the rainfall,' (FDREMOWR, 2001).

According to the same policy document, sufficient food has to be produced to meet the requirements of the fast growing population and ensure food security for eventualities at household level. Furthermore, small, medium and large scale irrigation schemes will have to be developed in order to enhance reliable agricultural development in Ethiopia to cater for externally marketable surplus that would earn the country foreign exchange and at the same time provide raw material inputs for industries.

In general, it was stipulated that the overall objective of irrigation policy is to develop the huge irrigated agriculture potential for the production of food crops and raw materials needed for agro industries, on efficient and sustainable basis and without degrading the fertility of the production fields and water resources base and the policies are outlined below.

These are:

1. Ensure the full integration of irrigation with the overall framework of the country's socio-economic development plans, and more particularly with the Agricultural Development Led Industrialization (ADLI) Strategy,
2. Promote the development of irrigation on two- pronged approaches of:-
   - ✓ Strategic planning for achieving socio-economic goals and
   - ✓ Participatory- driven approach for promoting efficiency and sustainability,
3. Recognize that irrigation is an integral part of the water sector and consequently develop irrigation within the domain and framework of overall water resources management,
4. Earmark a reasonable percentage of the GDP as committed resource towards the development of irrigated agriculture, especially in capacity building and infrastructures,
5. Promote decentralization and users-based-management of irrigation systems taking account of the special needs of rural women in particular,
6. Develop a hierarchy of priority schemes based on food requirements, needs of the national economy and requirements of raw materials and other needs,
7. Support and enhance traditional irrigation schemes by improving water abstraction, transport systems and water use efficiency,
8. Ensure the prevention and mitigation of degradation of irrigated water and maintain acceptable water quality standards for irrigation,
9. Establish water allocation and priority setting criteria based on harmonization of social equity, economic efficiency and environmental sustainability requirements,
10. Integrate the provision of appropriate drainage facilities in all irrigated agriculture schemes,
11. Enhance greater participation by the Regional and Federal Governments in the development of large scale irrigated farms in high water potential basins but with low population density.

The issue of irrigation development has got great attention in the Second Growth and Transformation Plan (2nd GTP) in which the GTP is planned with an objective of gathering, analysis, compilation and updating of physical evaluation and socio economic resource information. The plan do have the objective of developing and expanding efficient, sustainable and indigenous technology based on medium and large scale irrigation farming primarily aimed at attaining food security, generating foreign exchange and supplying raw materials to industries (NPC, 2016).

In this comprehensive plan, it was stipulated that: 'Ethiopia has high average rainfall per annum'. Nevertheless, its distribution in the country varies greatly in terms of location and time. Ground water reserves also vary from place to place. According to the information available, in places where the surface water is scarce, there is a great opportunity to exploit the available ground water. Thus, it is necessary to make use of both resources in a coordinated manner.

1.5 Approach and Methodology

To organize this socioeconomic and community concern report blending of various approaches are adopted. The types of data includes both quantitative and qualitative. The sources of data are primary sources and secondary sources.

1.5.1 Physical Observation

Observation is a starting tool in any scientific inquiry. Similarly in socioeconomic investigation observation of the socioeconomic set up of the study area is paramount. This tool is thought to be powerful compared to other data collection instruments. Accordingly a transect walk was made with other crew members and an observation was made. The walk is systematic and it is accompanied by asking and recording of events and important features. Taking photograph is also undertaken during transect walk and observation.

1.5.2 Household Survey

This is one of the primary data collection instrument and most of the data collected are quantitative in nature. It involves drafting of survey questioners at desk level and pretesting of the questioners for their validity and applicability. The first task at field level is selection and training of enumerators. The criteria for selection of enumerators include university graduates who are not employed or others who can understand the concepts and good standing in English language and translate and ask the respondents in local languages preferably Oromiffa and other national language of Amharic if the respondent could not speak and listen the former language. Training was provided for the selected enumerators.

Before mobilizing the enumerators it was found necessary getting list of the possible beneficiaries. Accordingly after visualizing the delineated command area with the irrigation engineer and community groups' registration of land owners at the target area was undertaken. Based on this about two hundred twenty four households whose plot is located in the command area were initially identified from which sample was drawn. Accordingly about sixteen households being about 7.1% the population are randomly selected and surveyed. About 12.5% of the respondents are female headed households. In fact the number of beneficiaries is expected to be more if necessary land relocations made based on the existing rules and regulation of irrigation land use in the region. The questioners are filled by the trained enumerators and supervised by the chief socio-economist. The filled questioners are checked for consistency and accuracy after which they are coded, decoded and organized in the SPSS software and made ready for processing and analysis.

1.5.3 Sampling and Sampling procedures

As already indicated before sampling getting data of study population were required and hence undertaking registration of land owners at the intended land for irrigation was the first task. The registration was undertaken with the consent of local leaders and community members as well and the sample was systematically drawn. Female headed households are purposely included.

1.5.4 Focus Group Discussion (FGD)

FGD is one of the primary data collection instruments. Qualitative information is mainly generated. Check list was prepared that mainly tries to assess the general issues in the area. The topics for the FGD session are as outlined below.

- ❒ What are the main income generating activities ?(Livelihood systems)
- ❒ What type of water resources areavailable for various uses? (Human, livestock, irrigation etc)
- ❒ Food security and insecurity issues(Adequacy of annual production, proportion of needy people, months of food shortage)
- ❒ What are the social services and infrastructures that exist in the area and which are available(health, road, schools, market, financial ,communication) and their accessibility
- ❒ Is irrigation activity common or not at the locality
- ❒ Need and interest for irrigation development and participation in the implementation process

Theoretically the FGD participants could range between 8 and 12. In this particular assessment more had been involvedin the FGD session.

1.5.5 Key Informant Interview

A key informant is one who is supposed to know very well the area and target communities better than anyone in the area. Qualitative information that could augment other sources of information is generated. For this purpose a check list is prepared and its contents are as outlined below.

- ❒ Land resources and their management (tenure, water, forest, soils etc.)
- ❒ Adequacy of land for cultivation and other purposes
- ❒ Irrigation practice and demand
- ❒ Rainfall patterns the past five years (Occurrence ,distribution, amount)
- ❒ Population explosion and related matters (Computation for resources, migration, unemployment, urbanization etc.)

1.5.6 Secondary Sources of Data

Secondary sources and secondary data are those that already collected and organized by others not the investigator himself and hence up on which the investigator had little or no control over it. Checklist and format is prepared at desk level before the actual field work. The content of the check list is mainly general issues that range from land use pattern at the study area,population and demographic issues, social services, administrative location of the project, agricultural production and productivity of crops, livestock data and others. As a result it becomes necessary consulting various sectoral offices found especially at district and local administration.

The sectoral offices include irrigation development office, agriculture and natural resources development office, livestock agency, land administration office, health institutions, planning and economic development office, disaster prevention and food security and others. Additionally other published materials related to population and demographic matters are referred from CSA publications and abstracts.Non-existent of the necessary data at local level and inconsistency of data at sectoral offices was the main challenges encountered.

1.5.7 Data Analysis

The available data was analyzed using various computer utilities and programs. Household survey data was organized and analyzed using SPSS software. Frequencies and descriptive statistics are employed to determine values. Spread sheet mainly excel work sheet is used to organize secondary data collected from sectoral offices and local levels. Tables and graphs are widely used to present the results and findings. Qualitative information are logically analyzed and interpreted to augment other data.

2 ADMINISTRATION AND POPULATION

Shirka district is one of the districts found in Arsi zone. It has got about 37 kebeles including four urban centers. The district had currently a total population of 222402 in which 50% are female inhabitants based on the 2007 population and housing census of Ethiopia(Centeral Statstical Agencey, 2007). About 90.8% of the inhabitants rural inhabitants whose livelihood entirely depends on primary economic activities essentially crop production and livestock husbandry practices. Solechisa local administration is found to have a projected population of 5059 human population comprising 2511 males and 2548 females and a total household 718 of which 127 are female headed households according to administrative data. There are three sub communities in the local administration of Solechisa and namely they are Yaya, Fullessa and Luko. The following table summarizes the distribution households by each sub village.

Table2-1:Distribution of households by sub village in Solechisa kebele

Name of sub village	Number households by sex		
	Male	Female	Both
Yaya	194	52	246
Fullesa	143	33	176
Luko	254	42	296
Total	591	127	718

Source: Local administration

The existing traditional irrigation by its nature and the proposed project touches all of these villages and even could reach other local administration namely Ililewalena had it not been the case of water shortage. Average family size was estimated to be about six individuals per household based on the household survey result.There is high population pressure recognized in the area that exerts pressure on the existing natural resources according to key informant consulted.

2.1 Sociocultural Patterns

According to household survey result all of the households belong to Oromo nation and are followers of followers of Ethiopian Orthodox church. However informal discussion with the community members suggests that ethnically Oromos constitute 99% of the inhabitants and 90% of the inhabitants are Christians and the rest 10% Muslims. About 81.3% of the respondents are married, 12.5% are single orun married and 6.7% are widowed.The staple food types include 'Injera or Biden', bread and ('Merka').

These are made from wheat and barley. Most housing units are constructed from mud, wood and iron sheet roofed. About 75% of the housing units are corrugated iron sheet covered. The floors are not paved or cemented. Formal and informal ways are the common ways of discussing social issues in the community according to the views of the respondents.

2.2 Age and Sex Distribution

It was tried to assess the age and sex distribution of the inhabitants and found out that 39.1%, are aged less than fifteen years, 58% are aged between fourteen and sixty four years constituting the active labor force and the rest 2.9% are aged above sixty years which are categorized as economically in active but own important resources and household level assets including land.

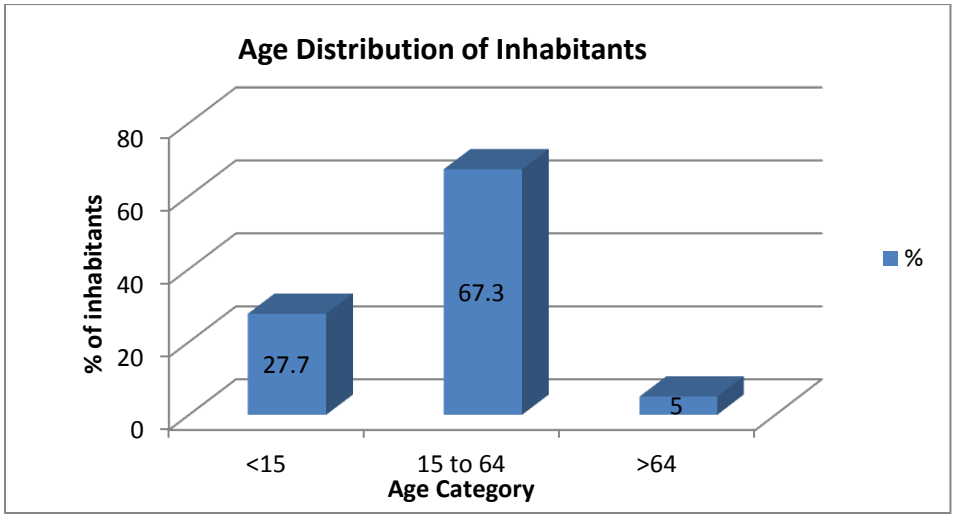


Table2-2: Age distribution of population at the study area

The distribution indicates that the working age group ranging from fifteen to sixty years of age is considerable when compared to national and regional values. Based on the household survey result about 56% of the dwellers are females and the rest 44% are males indicating higher proportion of females at the study area.

2.3 Population Projection

It was relevant forecasting the future population in connection with food demand and the importance of implementing the proposed irrigation project. Hence the population of local administration of Solechisa was predicted using an average annual growth rate set for Oromia region which is 2.9% as follow.

Table 2-3: Population projection during the project life

Year	Male	Female	Both
2018	2511	2548	5059
2019	2659	2622	5281
2020	2736	2698	5434
2021	2815	2776	5591
2022	2897	2857	5754
2023	2981	2940	5920
2024	3067	3025	6092
2025	3156	3112	6269
2026	3248	3203	6451
2027	3342	3296	6638
2028	3439	3391	6830
2029	3539	3490	7028
2030	3641	3591	7232
2031	3747	3695	7442
2032	3855	3802	7657
2033	3967	3912	7880
2034	4082	4026	8108
2035	4201	4142	8343
2036	4323	4263	8585
2037	4448	4386	8834

The population of the project area was projected for the next twenty years in line with the project life span. Current population was used as base in forecasting future population.

2.4 Housing Units and Status

House is one of the basic needs including food and clothing. The type of housing, the material from which it is constructed and internal classification or partition directly indicates living conditions and quality of life. In rural Ethiopia in the past most of the housing units are thatched roofed and the walls are mainly from wood and mud. Recently it was observed that most of the rural households are constructing iron sheet roofed housing units. Main contributing factors include the following:

- ❒ Difficulty of getting grass materials
- ❒ Stalk of wheat and barley that could be used instead of grass materials become short in favor of high yielding varieties
- ❒ Increased price of agricultural products both crop and livestock that tends to increase the purchasing power of producers

An assessment under taken regarding the housing units in the study area indicate that about 75% of the respondent live in housing units that are corrugated iron sheet roof whose wall is made from wood and mud. The floor is ground and not cement screed in most of the cases. The remaining 25% had constructed their house from grass, straw of wheat covered roof.

Figure 2-1: Settlement pattern of the project community

2.5 Migration

People move from place to place permanently or temporarily for various purposes. The main push and pull factors for permanent movement include economic in search of jobs or other resources, security and political instability could be mentioned. It was tried to investigate the inward migration aspect of the inhabitants and found that about 87.5% the respondent are born and grew there and only 12.5% of them are migrated from other places. The main pull factor was resource availability in the past such as agricultural potential of the area and availability of water sources. On the other hand there are members of the community who migrated to the nearby town of Gobesa and others mainly demanding better social services and getting employment opportunities at other public service or other economic sectors.

3 ECONOMIC ACTIVITIES AND LIVELIHOODS

3.1 Resources and Land Use patterns

FGD participants indicate that the livelihood of the people in the community is based on agricultural activities that include crop production and livestock rearing. Irrigation practice also supports crop production even though few households are benefitting from existing irrigation practice. They are mainly involved in production chat crops such as chat and cane sugar. Few are involved in a kind of petty trade activities. According to data generated from the district land administration office and local administration the land use pattern was as summarized in Table 3-1 below.

Table3-1: Land Use Pattern at District and Project Area

S.N	Type of land use	Total area (ha)		% of total	
		District	Solechisakebele	District	Solechisakebele
1	Arable land	27244	0	40.4	0
2	Cultivated land	21566	686	32.0	86.4
3	Grazing land	1472	2	2.2	0.3
4	Forest land	12622	100.7	18.7	12.7
5	Settlement	3937	0	5.8	0
6	Other uses	648	5	1.0	0.6
	Total	**67489**	**793.7**	100.0	100

Source: Shirka District land Administration office and local administration

The land under cultivation at SolechisaKebele wassignificant indicating intensive cultivation. On the other hand there is negligible land allocated for grazing limiting animal husbandry activities and contributing little to the livelihood of the inhabitants. The share of forest land was considerable however one could not see dense forest constituting sizable and multiple tree species.
The majority of land found in the district is cultivated and had potential for cultivation and there is limited grazing land that constrain livestock production activities.

The amount of rain fall, its occurrence and distribution had shown a considerable variability resulting in crop failure and flood damage on properties and crop lands as well. According to the view of key informant consulted in the community rainfall pattern become erratic recently.

3.2 Water Resources for Various Uses

According to FGD conducted in the area the main water source in the area is the river under consideration namely Challe River. It is used for livestock drinking, domestic water supply, washing and for irrigation a swell. The improved water supply constructed for community damaged because of heavy rainfall. The system crosses undulating land feature along rugged topography. The availability of water varies across seasons of the year.

3.3 Land Tenure and Holding Size

Most land is owned individually according to key informants. Communal land is found along steep terrains which are enclosed for conservation purpose. However due to the ever increasing demand of land for cultivation particularly by the youths cultivation of steep terrains become considerable. This condition had aggravated soil erosion hazards and hence degradation of natural resources. Plots and individual holdings are under continuous fragmentation due to lack of getting jobs at other sectors among emerging youths. Rural urban migration that result in expansion of urban centers and unemployment situations exerting pressure on the existing social services are consequences.

About 75% of the respondents have one and less hectares of land and 93.8% the respondents own two or less hectare of land. Individual grazing land and forest land holdings are negligible at the area. An assessment at household level suggest that about 43.8% of the respondent have owner ship security as they are provided by local administration andthe remaining had inherited and made access by various meanness of acquisition including inherited from families. Average land holding for cultivation was determined to be about 1.2ha with standard deviation of 0.94. From this a coefficient of variation of 78.3% was determined indicating little variability among plot holders.Land holding per household had showed increasing trend according to the views of 37.5% the respondents, it remain the same without any change according to the same (37.5%) of respondents and it had showed decreasing trend according to 25% of the respondents. Similarly asked for the trend of agricultural production for the last five years the following response was generated.

Table3-2: Respondents View Regarding Agricultural Production PastFive Years

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Increasing	7	43.8	43.8	43.8
	Decreasing	9	56.3	56.3	100.0
	Total	16	100.0	100.0	

Source: Household survey

In contrary to size of holding total production had showed a decreasing trend according to the views of 56.3% of the respondents, it has increased according to the views of 43.8% of the respondents and. The minimum and maximum numbers of plots managed are one and ten respectively. According to key informant no forest land in at the vicinity and individual grazing land was owned by few members along river bank. There is land transaction in terms of renting in and renting out. Youths who do not have access to land rent in land for cultivation from aged households and female headed households who usually face labor shortage.

Family labor is the main source of agricultural labor indicating limited use of hired labor. On the other hand traditional working groups as Debo or Jige are practiced at the time of peak labor demand such as harvesting and planting or sowing.A typical household in the study area allocates his plots using annual precipitation and produces the following cereal crops.

Table3-3: Cultivated land allocation by typical household at study area

Type of crop	Area cultivated annually per HH(Ha)	Average productivity/ha	Total annual production
Teff	0.5	8	4
Wheat	0.5	10	5
Maize	0.125	16	2
Total	**1.125**		**11**

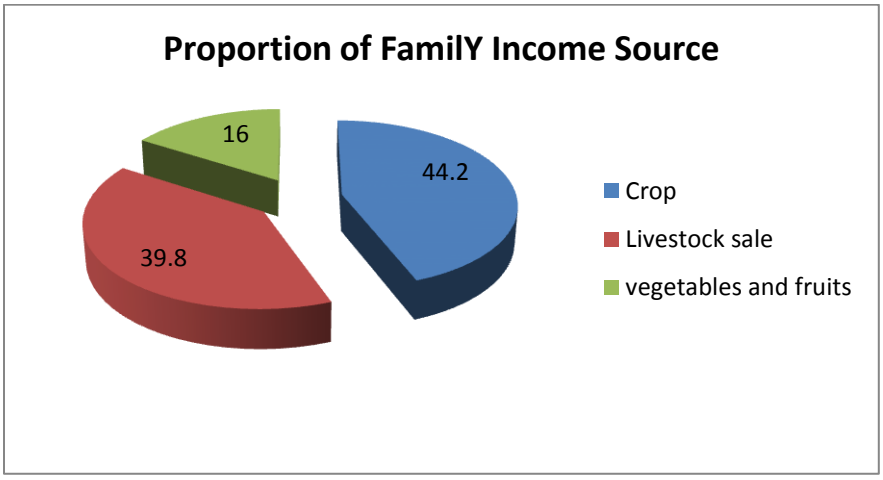
Source: Project Area Development Actors

It could be deducted from the above table that household at the study area allocate 88.8% of their holding for teff and wheat production. This in turn suggests these crops being the main crop produced and managed in the study area. There is traditional irrigation practice for more than a decade on going at the area. However few had benefited due to water shortage resulted from inefficient practices. There is also an interest for irrigation according to the participants of FGD session.

According to the participants of FGD annual production is only adequate for family consumption for not more than six months. There is also food aid in the area which is resulted from drought and other natural calamities. The major contributing factors for household level food insecurity conditions include large family size and shortage of land for cultivation.Food shortage is resulted from lack of alternative income sources for all needs of family which is mainly based on grain sell. Hence ways of provision of alternative income generating activities such as irrigation become necessary in the area.

According to the views of the community members those who do have access to irrigation water are in a better position particularly income generated from sell of chat becomes considerable.What to produce is mainly the decision of the farmer suggesting no imposition by the government or other. Production based on market demand is also limited since production is not market oriented. Output is mainly supplied to Gobesa market carried on pack animals such as donkeys and horses.

An analysis of household level economy suggested that the crop production and livestock almost contribute close income for the family as depicted in the following pie chart.



Source: Household Survey,2018

Table3-4: Chart showing income of families by source

On the other hand the majority of household level expenditure includes food, clothing, and farm input use,medical and educational expenses as depicted in the following graph 3-5.

From the household survey an average family size of six was determined. From this it could be inferred that total cereal available per head to be about being about 1.8 quintal suggesting production not adequate for family consumption. Expansion of irrigation could improve alternative income source if the proposed scheme is implemented and there is interest according to the consulted community groups. Individual grazing land holdings are nonexistent as a result few livestock are maintained by households that complement the existing crop production activities.

It was tried to assess the type of economically useful perennial crops owned and found that most respondents own chat crop and earn annual income exceeding Birr two thousand on average.

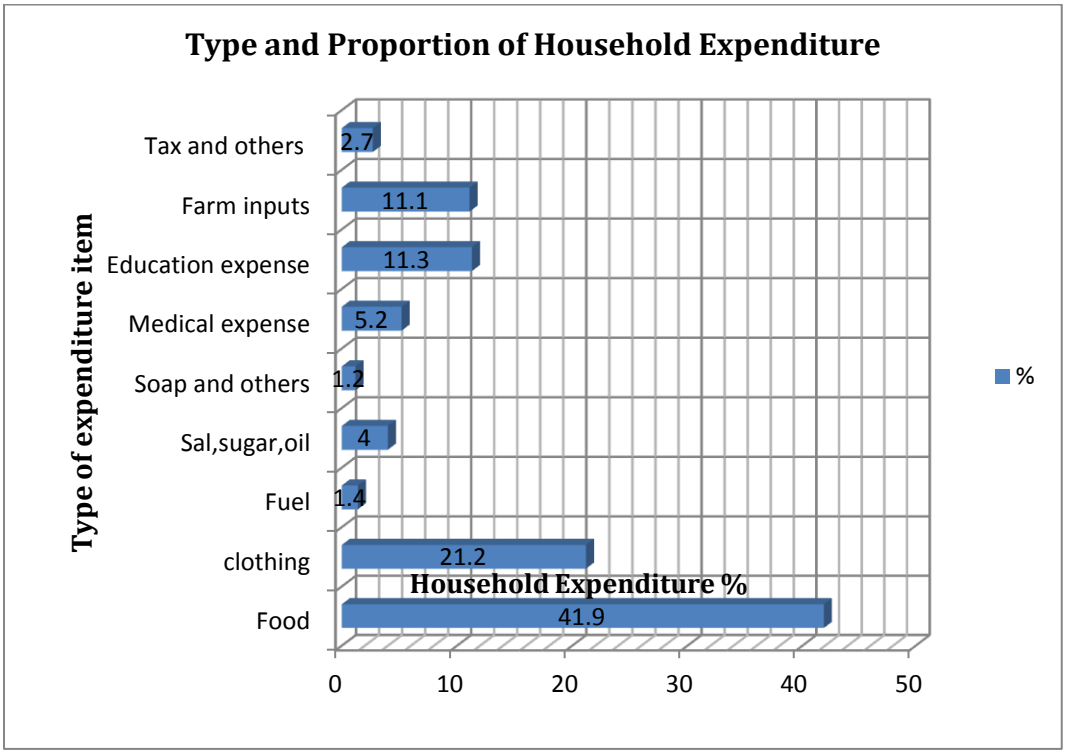


Table3-5: Graph Depicting Household Expenditure at Project area

Agricultural outputs are supplied to small local market in the community or transported mainly using pack animals and vehicles to Gobesa town. The topography and lack of access road limits marketing of agricultural products. The area is known in supply of not only cereals such as wheat and teff but also other spices.According to data obtained from the district agricultural development office wheat cultivation and production using annual precipitation account for about 57.4%and60.3% of area and total output respectively in the district taking into account performance of last five years. Other crops produced using annual precipitation in the district include maize,teff and barley are among few.

On the other hand potato production using irrigation systems account for about 51.9% of area coverage and about 49.3% of output of irrigation based on an analysis of five year irrigation performance. Other irrigated crops include carrot, onion and other vegetable crops. On the other hand based on past five years agricultural performance irrigation practice covers about 14.2% of the total land cultivated and the share of irrigation output is significant being about 42% of the total output in Shirka district.The following Tables summarize the above explanation.

Table 3-6: Agricultural Performance in Shirka District

Major Crops,Area and Production Using Annual Precipitation															
Average/ %	Year	Wheat		Barely		Teff		Maize		Sorghum		Oat		Total	
		Area	Production	Area	Production	Area	Production	Area	Production	Area	Production	Area	Production	Area	Production
	2005	9484	319776	2117	65313	3481	62658	2698	162486	1234	37020	106	3180	19120	650433
	2006	11575	327113	2222	71269	814.0	15110	4074	200397	310	3338	125	4125	19120	621352
	2007	9484.0	321010.0	2171.0	59263.0	3481.0	66169.0	2698.0	131268.0	1234.0	29606.0	106.0	3286.0	19174	610602
	2008	11031.0	438088.0	1957.0	74771.00	1164.0	14879.0	2250.0	43172.0	2143.0	57645.0	29.0	772.0	18574	629327
	2009	11895.0	475800.0	1942.0	81564.0	834.0	15012.0	1389.0	36036.0	1362.0	2996.5	29.0	667.0	17451	612075.5
Average		10693.8	376357.4	2081.8	70436.0	1954.8	34765.6	2621.8	114671.8	1256.6	26121.1	79.0	2406.0	18687.8	624757.9
	2005	49.6	49.2	11.1	10.0	18.2	9.6	14.1	25.0	6.5	5.7	0.6	0.5	100	100
	2006	60.5	52.6	11.6	11.5	4.3	2.4	21.3	32.3	1.6	0.5	0.7	0.7	100	100
	2007	49.5	52.6	11.3	9.7	18.2	10.8	14.1	21.5	6.4	4.8	0.6	0.5	100	100
	2008	59.4	69.6	10.5	11.9	6.3	2.4	12.1	6.9	11.5	9.2	0.2	0.1	100	100
%	2009	68.2	77.7	11.1	13.3	4.8	2.5	8.0	5.9	7.8	0.5	0.2	0.1	100	100
Average		57.4	60.3	11.1	11.3	10.3	5.5	13.9	18.3	6.8	4.1	0.4	0.4	100.0	100.0

Source: Shirka District Agricultural development office and Irrigation Development office

Major Crops,Area and Production Using Irrigation													
Average/ %	Year	Potato		Carrot		Kale		Onion		Garlic		All	
		Area	Production	Area	Production	Area	Production	Area	Production	Area	Production	Area	Production
	2006	852	149821	186	34782	213	39831	195	36465	195	36075	1641	296974
	2007	946	176928	270	50419	315	58707	280	52094	240	44779	2051	382927
	2008	1705	426950	395	73668	386	38037	390	71125	310	45139	3186	654919
%	2009	1740.0	53374.0	434.0	81158.0	432.0	80784.0	425.0	79475.0	263.0	49181.0	3294	343972
	2010	1650.0	308550.0	437.0	81719.0	370.0	69190.0	505.0	94435.0	150.0	28050.0	3112	581944
Average		1378.6	223124.6	344.4	64349.2	343.2	57309.8	359.0	66718.8	231.6	40644.8	2656.8	452147.2
	2006	51.9	50.4	11.3	11.7	13.0	13.4	11.9	12.3	0.1	12.1	100.0	100.0
	2007	46.1	46.2	13.2	13.2	15.4	15.3	13.7	13.6	0.1	11.7	100.0	100.0
	2008	53.5	65.2	12.4	11.2	12.1	5.8	12.2	10.9	0.0	6.9	100.0	100.0
	2009	52.8	15.5	13.2	23.6	13.1	23.5	12.9	23.1	0.1	14.3	100.0	100.0
	2010	53.0	53.0	14.0	14.0	11.9	11.9	16.2	16.2	0.0	4.8	100.0	100.0
		51.9	49.3	13.0	14.2	12.9	13.4	11.9	12.3	11.9	12.1	100.0	100.0

Source: Shirka District Irrigation office

According to subject matter specialists major constraints in relation to crop production activity both rain fed irrigated crops constitute the following.

- ❒ Problems related to crop pests
- ❒ Lack of getting agricultural inputs such as fertilizers and improved seed materials
- ❒ Change in climatic factors such as shortage or erratic occurrence of rain fall pattern

3.4 Livestock Resources and Management

Livestock husbandry activities contribute towards household economy mainly in terms of traction power, transport and provision of livestock products such as milk and egg. The distribution of livestock in the district as well as local administration was as tabulated below(Table 3-7).

Table 3-7 : Livestock found in the district and Challe kebele

Type of Livestock	Number found at Solechisa community	Number found in the district	Average holding per family at project area
Cattle	2413	218588	4
Sheep	267	60368	3
Goat	950	49937	3
Donkey	443	21763	1
Horse	4	16234	
Mule	237	7380	1
Camel	0	0	
Chicken	3789	102539	4
Bee hives			
Traditional		7478	
Transitional		2421	
Modern		450	

Source: District Livestock Agency and Local development office

According to household survey conducted at target communities about three cattle, a donkey, two sheep and goat are managedand allof the respondents own livestock. Similarly few members own mule and traditional or transitional beehives.About 43.8% of the respondents own a pair of oxen used for cultivation and other farm activities. Problems related to supply and provision of livestock feed and capacity to own livestock due to shortage of capital are indicated as major limiting factors in association with livestock husbandry practices. There are respondents that own one or no oxen whichis the major traction power suggesting various forms of arrangements.

The major livestock feeding system in compass open grazing and crop residues and at the same time major source of water for livestock drinking is river. According to 43.8% of the respondents the major livestock feed in the area include grazing and crop residue including aftermath grazing. About 93.8% of the respondents conserve feed for rain season and the type of feed conserved is mainly crop residue as supported by 87.5% of the respondents.It was perceived that feed shortage had occurred in the recent past according to the views of all the respondents.Provision of supplementary feed such as industrial by products was mainly limited mainly due to accessibility however most respondents suggest as if they use supplementary feed.Almost all the respondents are interested to receive improved breeds of cattle mainly dairy cattle breeds.

The majority of the respondents are interested to destock the unproductive local breeds in favor of improved breeds based on the training they acquired on modern livestock management and husbandry practices.Livestock are mainly treated by community level animal health workers and there is payment for such service provision. According to subject matter specialists the major livestock husbandry related problems in the district include;

- ❒ Limitation of grazing land and animal feed in general
- ❒ Lack of getting improved livestock feed or shortage of improved feed supply
- ❒ High cost of supplementary feed
- ❒ Livestock watering at low land settings

3.5 Food Security and Insecurity Conditions in Study Area

It was tried to assess the vulnerability as well as food insecurity situation in the study area and found out that the area had been supplied with humanitarian aid during the last decades according to participants of FGD session. The main contributing factors include rainfall variability including erratic rain fall, unfavorable weather condition that favors incidence of pests and crop diseases. Farther more there are natural disasters such as flood that could damage properties and crops cultivated lower crop yield. According to FGD participants the main reason for food insecurity state is shortage of land and usually landless and others with small plots of land encounter food shortage to sustain their families. According to the respondents of household survey asked for whether last year production is adequate for family consumption the response of all is affirmative against the general information generated from consultation.

The following factors contribute for not producing adequate output in the area:

- ❒ Shortage land for cultivation
- ❒ Unfavorable climatic condition including water logging condition
- ❒ Crop diseases and pests

Annual own production could support family for only three to six months according to the majority of the respondents. Asked for the main coping strategy adopted by families in the area at the time of food shortage demanding sale of livestock is identified to be the main coping mechanism.On average about 31.8 quintal of grain equivalent was annually required by families for household level consumption.

3.6 Irrigation Practice and Demands

Irrigation is practiced in the area for more than a decade.It was initiated by the government program aimed at using the available water resources for agricultural production. As a result two local administrations (kebeles) namely Solechisa and Ililewalena are involved in diverting ChalleRiver traditionally. The district and zone experts had provided technical support with fund allocated by the district. Based on this weir and few meters canal structure was constructed but the weir is found in adequate and improving the existing weir and providing other irrigation infrastructures become necessary. The length of main canal is substantial as a result provision of irrigation infrastructure could improve the existing traditional practices resulted in wastage of resources. Currently the number of users does not exceed sixty households according to the participants of FGD and the area irrigated so far also does not exceed fifty hectares.

4 SOCIAL SERVICES

The availability of social services and physical infrastructure determine the quality life to a larger extent and hence an indicator of development of a certain locality. For instance the availability of road infrastructure facilitates marketability of agricultural products including from irrigation field. Better education service and educated members in the community encourage adoption of modern technologies including irrigation practice. On the other hand adequate health service provision contributes towards healthy people hence tends to increase production and productivity. The available social services and infrastructures assessed at the target community level are as outlined below.

4.1 School and Education Facilities

There is second cycle school at serving from grade one to eight at Solechisa sub village. It was suggested that lack of school facility such as books and the like as the major limiting factors in the teaching and learning process. It was estimated that astudent could travel about 0.344km to attend the school found in the community. Secondary school and higher level education is located at Gobesa town and an average travel of 19km is required by pupil. Since daily on foot travel is difficult students has to stay there at rental house. This condition may need additional income of families and sometimes result in school termination due to lack of affording school related expenses among rural households. The proportion of male and female children attending school was found similar indicating equal opportunity of males and females towards modern education.

On the other hand families are obliged to restrain the children in about 25% of the cases and the main contributing factors include the following:

- ❒ Unable to cover school expenses
- ❒ Demanding children labor
- ❒ Marriage cases
- ❒ Farness of school

It was also tried to investigate the educational status of heads of family and accordingly about 56.3% of the respondents can either read or write attending basic education or do have attended primary school. About 18.8% of the respondents had attended secondary school education.This opportunity might enable and facilitate adoption of new ideas including technologies.

4.2 Health Facilities and Infrastructures

There is a health post in Solechisakebele or local administration with only two health extension workers. Their main duty is provision of health education on disease prevention based on the general health policy of the country. Main duties include maternal and child health care, hygiene specially toilet service promotion, family planning and the like. Most of the community members are served at Gobesa Hospital and Sole health center. The ten top diseases for the 2009 E,C. fiscal year documented at Sole health Center was as tabulated below (Table 4-1).

Table 4-1: Ten Top Diseases at Sole Health Center 2009 E.C.

SN	Type of Disease	No of patients treated	% of patients
1	AUTRI	472	17.6
2	Diarrhea	363	13.5
3	Trauma	359	13.4
4	Pneumonia	351	13.1
5	Dyspepsia	312	11.6
6	AFI	237	8.8
7	Helmenthisis	180	6.7
8	Disease of muscular,	160	6.0
9	Unspecified	155	5.8
10	Typhoid	95	3.5
Total		**2684**	**100**

Source: Sole Health center

According to the above statistics the two upper most diseases upper urinary tract infection and diarrhea are highly correlated with provision safe domestic water supply.The most common diseases suggested by the respondents includemalaria, typhoid, headache and others.The following health related matters are explored form the assessment made at the study area.

Table 4-2: Health Related Matters Assessed

Health related Matter	Main Reason	Score %
Reason for not visiting health provision centers	Shortage of medicine at health provision centers	43.8
Awareness on disease prevention	Positive response	100.0
Attitude towards immunization	Positive response	93.8
Attitude towards family planning	Positive response	81.3
Adopting family planning service	Positive response	87.5
Favoring to have many children	Negative response	25.0
Knowledge on transmission of HIV/AIDS	Positive response	87.5
Knowledge of how to protect HIV/AIDS	Positive response	93.8

Source: Household Survey 2018

4.3 Domestic Water Supply and Sanitation

There is improved domestic water supply particularly for the target communities. However improved system encounter frequent maintenance problem as a result of which the communities obliged in using from un safe source such as raw river water. For this reason there is prevalence of water borne and related diseases.

It was estimated that a household travels about one kilo meters to fetch water on average and it takes about fifty minutes to do the same. There is payment for use of water at household level and an average of Birr 76 is paid per month for water. All family members are involved in fetching water according to the views of 87.5% of the respondents. The respondents are suggested to have pit latrines which are not in fact associated with adequate sanitation facilities such as water. Most of the respondents dispose their domestic wastes in the nearby farm plots.

4.4 Power and Energy Sources

There is no power supply for Solechisa communityand all sub villages found in the local administration. Luko sub village dense settlement which is favorable for provision of some social infrastructures including power supply. There is a market in this sub village although it is small in size. Therefore main source of energy for cooking includes biomass sources of energy and crop residues. About 31% of the respondents are found in using either biogas or solar sources of energy mainly for lighting rooms during night time.Fuel wood is used for cooking, lighting and heating according to 43.8% of the respondents. The source of fire wood was collected from the nearby vegetation by family members according to 93.8% of the respondents and hence providing and expansion of alternative sources of energy such as biogas and solar source could contribute towards conservation of vegetation cover of the area.

4.5 Transportation and communication

There is critical problem of transportation of human beings and cargos from place to place. The main contributing factor is the topography of the land need of bridge structures along main rivers. Even though road is constructed by URAP there is no transportation service for one thing that the road itself is not completed properly. Hence for this reason on foot travel and use of pack animals was the main means of transportation. People are obliged to travel as much as two hours for marketing and to get social services such as health service. It could be also one of the limiting factors for implementation of the proposed irrigation system unless condition gets improved. An assessment at household level suggest the prevalence of transportation problem in the area and on foot travel commonly for human and pack animals are used for transporting loads according to 93.8% of the respondents. Hencemost of the respondents as high as 81.3% had perceived the existing transportation problem at the area and the main reason identified was inadequate road in connection with the bridge and lack of access to transportation facilities mainly vehicles. As a result it was found advisable improving the existing road condition in the area.

4.6 Communication

Mobile network operates in the area although the service is not as required as elsewhere. About 75% of the respondents have radio at their home. No TV service owned by any of the respondent in the area which is in connection with unavailability of electric power service and low income level of households.

4.7 Agribusiness and Agricultural Marketing

Demand for agricultural products to a larger extent determines its supply means the level of agricultural output. This in turn tends to promote agribusiness activities. There must be backward and forward linkages in the supply chain. Producers need to have reasonable prices. On the other hand there must be adequate marketing infrastructures that include transportation facilities, and storage facilities.

Agricultural products in the district as a whole including irrigation outputs are substantial and tend to beyond local consumption based on the existing administrative data, consultations made and physical observations as well. Hence storing and distributing output beyond consumption has to get and emphasis. Normally farming families store grain using traditional farm bins and sacks.

On the other hand the district had a potential for supply of livestock and livestock products including irrigation output. Providing of modern storage facilities could be some of the intervention areas particularly connection with increased output vegetable and fruit crops that are perishable. Linking the producers with central markets and organizing the producers as cooperatives seems areas of intervention. Accessibility and transportation facilities are observed to be the major marketing problems in the district.

4.8 Markets and Bank Services

There is local market at Solechisa community though its size is small. Grain mainly wheat and others are the main good supplied. Merchants may come from other areas including from Gobesa town and buy the products for retailing or supply to wholesalers. According to views of the individuals consulted prices actually received by the farmer are low during harvest due to excess supply and gradually increase when supplies decrease. Most markets are far from the community and the main market center is at district capital Gobesa. There are two big market days in Gobesa and they are on Saturday and Tuesday. Agricultural products and industrial products mainly textiles are supplied in large and the market is sizable with large number of buyers and sellers. Bank services are found in Gobesa town. Commercial bank of Ethiopia, Oromia International Bank and Cooperative Bank of Oromia are the three banks currently found in Gobesa town. However use of bank service by the people is limited not only because of accessibility but also low saving culture and low business mentality.

4.9 Output Price and Input Costs

Prices of agricultural produce fluctuate depending on the supply and demand conditions. During harvest it was common that prices fall since there is excess supply in the market. On the other hand prices of vegetables and fruits relatively remain stable. Due to the existing general price rise (inflation in the country) prices of agricultural products continue to increase since the last half and more decade.

Table 4-3: Prices of out puts and input costs

SN	Crop type/Input type	Unit	Unit Price (Birr)
1	Cereals/Grain		
	Maize	Quintal	650
	Wheat	Quintal	1200
	Barely	Quintal	1100
	sorghum	Quintal	700
2	Pulses		
	Horse bean	Quintal	1700
	Pea	Quintal	1700
3	Root crops		
	Potato	Quintal	350
4	vegetables		
	Cabbage	Kg	10
	pepper	Kg	80
	Carrot	quintal	120
	Onion	Kg	15
	Garlic	Kg	20
	Tomato	Kg	20
5	Cash crops		
	Sugar cane	Pcs	16
	Chat	kg	100
6	Livestock		
	Ox		7000
	Beef		15000-16000
	Goat		3100
	Sheep		3100
7	Labor	md	50-100
	Oxen	Ox day	120

5 GENDER ISSUE

Gender does not mean biologically determined sex as male and female but it is the role and responsibility that the society assigns for male and female. In the past and developing countries gender issue is one of the cross cutting issues as there is sex discrimination. However due to advancement in human race and changes in attitude sex discrimination becomes under continuous improvement through time.

One of the indicators of gender equality is decision regarding use and utilization of household level assets that include land and livestock in case of rural settings and found that it was a joint decision of all family members including children in about 81.3% of the cases. Respondents were also asked whether men participate at household level duties such as cooking meal for the family and looking after children and most responses are positive. Similarly they were also asked whether women participate at decisions regarding community development programs and almost all responses indicate they participate. These clues suggest improved gender equality in the area and absence of sexdiscrimination.

According to school enrolment condition assessed from household level more males are enrolled than female and number of females attending higher level education decreases suggesting more have to be done in the area to minimize gender disparity in this regard. This might indicate termination of education among females because of marriage, household level duties such as collecting water for the family and the like.Child and maternal health care services are identified to be the most pressing needs of women in the area according to 68.8% of the respondents.

6 PROJECT BENEFITS AND BENEFICIARIES

The major anticipated benefits of the project include increased household income due to increased irrigation water. Farther more households could be included by increasing the efficiency of existing mal practices. The youths and other social groups could get job opportunities at various phases of project and they shall gain various skills mainly in areas of construction. Based on the existing irrigation land use policy to manage half hectare land by a household a minimum of 206 households could benefit; however, about 236 households of which 28 females are identified to be potential beneficiaries. The lists of potential beneficiaries were attached to this document.

7 SOCIAL IMPACT OF THE PROJECT

A project could have positive and negative impacts in its course of its implementation. Some are measurable while others are not observable to assign monetary values.

Positive impact of the project

The positive impacts of irrigation project include increased output from use of irrigation water, improved food security and nutrition both from crop and livestock due to increased feed supply and various employment opportunities that could be created during construction as well as product distribution. The direct benefits obtainable from increased output are estimated and the benefits determined. See the analysis part in connection with project.

Negative impact of the project

Since Calle project is not new limited displacement effect is expected mainly displacement is expected in case of loss of plots for night storage construction in association with water shortage for downstream users. The issue of compensation had been discussed at general meeting. The major negative impacts anticipated by the client include the following.

Access road construction: Access road construction is critical for not only in connection with Calle irrigation project but for the overall development of the area. There is URAP started road to the community that needs bridge structure and maintenance. On the other hand access road is required for supply of construction materials. In this regard individual plots may be affected. The plots include farm land, grazing land and others. These plots may not be recommended for cultivation. Many individuals may be affected but the size of plot per individual holders may be insignificant compared to the gain and benefit of access road. On the other hand the road may last only for the construction time if the affected groups are not interested to loss permanently. In this regard compensation for access road construction is found irrelevant.

Camp Site: the location of camp site was discussed at general public meeting and it was proposed that there is public land currently under use by government offices including local administration office and no need of compensation.

Headwork and other Irrigation Infrastructures

Calle scheme is not new in the area it is existing irrigation system and hence the negative impacts in connection with loss of individual properties are found negligible and no compensation claim expected. There is existing weir, main canal system and the like. On the other hand for the possible loses of reservoir area (night storage structure) it was generally discussed with the community group to compensate the losers based on the existing rules and regulations.

Quarry Sites: the project area is endowed with construction stone and there are existing suppliers of stone at the area and it is a good opportunity for these groups. These are micro enterprises organized by the government structure. Hence compensation is not relevant issue.

Excavated materials: There are gullies widely formed at the area and they are potential sites for carting away excavated materials.

General need for compensation: There are limited cases of compensation need anticipated due to implementation of Calle project for one thing that it is aimed at improving the existing traditional system. For limited compensation needs such as reservoir area (night storage) providing in kind compensation may not be possible since individual holdings are minimal and no communal plots available and hence cash compensation may be needed based on the existing rules and regulations. In kind compensation is mainly suggested in case of loss of individual properties. There could be compensation claim in about 93.3% of the respondents. Cash and in kind compensation mechanisms are suggested by the respondents. The amount of loss could be identified with the relevant offices through establishing committee. The main stakeholders include local administration, land administration office, agricultural development office and OIDA. Considering compensation as high as one million birr could be considered.

8 DEVELOPMENT POTENTIALS AND CONSTRAINTS

The introduction of modern irrigation project in the area is a good opportunity in terms of expanding business activities. During construction numerous employment opportunities could be created mainly for jobless groups both men and women. Women may be involved in supply of meals for the laborers and benefit accordingly. Together with the implementation of the irrigation scheme road network which is the main challenge in the area is expected to be improved. For this reason the concerned road authority should finalize and construct bridges along main rivers as already started by the URAP program. The topography of the project area is characterized by steep terrain. Undertaking various conservation activities that include both physical and biological conservation measures was crucial for sustainability of the scheme and minimizing land degradation.

9 CONCLUSION SOCIOECONOMIC ASSESSMENT

According to socioeconomic assessment conducted at the study area individual holding sizes are found to decrease from time to time caused by an ever increasing human population that exert pressure on the existing natural resources. Hence annual production based on annual precipitation is not in a position to produce output adequate for consumption let alone all family needs. Other family needs may include clothing, education fees, health expenses, procuring of agricultural inputs and others. According to consultations made with the target communities there is also demand for humanitarian kind of aid mainly caused by eventuality of rain fall and other natural calamities causing reduction of agricultural yield.On the other hand based on the existing practice households involved in irrigation activity are found in a better condition generating cash income from production of cash crops such as chat and sugar cane. Since rain fall availability and distribution is not dependable it tends to enhance the need for expanding irrigation activity for sustainable production. On the other hand improving the existing irrigation practice do have multiplier effects in terms of improving other physical infrastructures such as access road, access to education and others. Farther more in addition to decreasing underemployment and disguised unemployment condition numerous employment opportunities could be created during construction phase of the project. Based on the above mentioned socioeconomic evidences the positive impacts of the project was found more and recommended for implementation in fact taking into account its financial and economic viability.

10 COMMUNITY MOBILIZATION AND ORGANIZATION STUDY

10.1 Introduction and Background

The systems oriented participatory approach to technology development and dissemination emerged as a result of the realization that the transfer of technology (TOT) paradigm of industrial and green revolution agriculture had not worked well within the complex, diverse and risk prune agriculture prevalent in the semi-arid, sub humid and humid tropics. (Anandajayasekerem Ponnjah, 2008) Historically non adoption of recommendations was attributed to farmers ignorance that could be overcome through more and better extension and then to farm level constraints, and then with the solution easing the constraints. However, evidence showed that farmers are far more knowledgeable and better informed than agricultural professionals used to suppose, and farming conditions are and will remain different from those prevailing at research stations.

This means introduced technologies and plans in the past are not successful simply because of top down development approach and hence any development plan should start from the grass root level mainly involving the people whom the plan affects. Mare consultation may not be adequate and it is necessary to fully involve the concerned community just from the inception to monitoring and evaluation phases of project cycle. Hence there is a paradigm shift while introducing a sort of agricultural technology to a certain community after commencement of participatory approaches. The major shift in paradigm is summarized in Table 6-1 below.

Table 10-1: Paradigm Shift with Introduction of Participatory Approach

Attributes	Prior to introduction of participatory approaches	With Participatory approaches
Mode	Blue print, supply,push	Process, demand driven
Key words	Planning, transfer, farmer	Participation, empowerment, rural, community
Goals	Preset, closed	Evolving, open
Decision making	centralized	decentralized
Methods, rules	Standardized, universal	Diverse, local
Analytical assumptions	Reductionist	System, holistic
Professional interaction with people	Instructing, motivating	Enabling, empowering, facilitating
Local people seen as	Beneficiaries, passive	Partners, actors
Outputs	Uniform	Diverse, based on capabilities
Planning and action	Top- down	Bottom- up

Source: Concepts and practices in agricultural extension in developing countries

Community mobilization and organization become one of the components of SSI study and design mainly because of a scheme belongs not to an individual farmer rather it belongs to a group of farmers. So how to use this common resource in a sustainable manner becomes a core agenda of community participation and organization study.

10.2 Theoretical Background to Community Participation

A distinction has to be made between the concepts of participatory and participation. (Narayan, 1993) defined participatory development as involving users and communities in all stages of the development process. On the other hand participation is voluntary or other forms of contribution by rural people to predetermined programs or project. On the other hand a participatory project has been described as one initiated and owned by beneficiaries.

According to WB, 1992 participation has been defined as a process by which people especially disadvantaged people influence decision that affects them. This is mainly to attain the objectives of empowering, developing beneficiary capacity, improve effectiveness and efficiency of activities and cost sharing. In general the principle of participation requires working or starting and finishing with the local people.

Participation is considered a voluntary contribution by the people to one or another of public programs supposed to contribute to national development, but the people are not expected to take part in shaping the program or criticizing its content.With regard to rural development participation includes people's involvement in decision making processes, implementing programs, their sharing in the benefits of development programs, and their involvement in efforts to evaluate such programs.

- ❒ Popular participation in development should broadly understand as the active involvement of people in decision-making process in so far as it affects them.
- ❒ Community involvement means that people, who have both the right and duty to participate in solving their own problems, have greater responsibilities in assessing their needs, mobilizing local resources and suggesting new solutions, as well as creating and maintaining local organizations.
- ❒ Participation is considered to be an active process, meaning that the person or group in question takes initiatives and asserts his/her or its autonomy to do so.

10.3 Objectives

The general objectives of community organization, participation and management(institutional assessment) is to identify existing community and local level support institutions ,community and stakeholders willingness, their share of participation and propose future community organization or feasible institution.

The specific objectives include but not limited to:

- ❒ Identify existing community willingness and decision on the proposed project
- ❒ Assess existing institution, stakeholders and institutional arrangements including opportunities, issues and constraints
- ❒ Understand community perception, attitude and participation and demand driven of the project expressed in terms of demonstrable willingness of the user community to commit themselves in contributing resource and acceptance/ownership responsibility for operation and maintenance of the scheme.
- ❒ Identify modes of community participation or ways of maximizing communities participation
- ❒ Propose workable institutional systems that promote effective planning, design, construction and operation and maintenance

10.4 General Methodology

To undertake community participation and organization study the methods and approaches include surveys, consultation and others.

Consultation

During the feasibility study of Calle irrigation project consultation had been made with stakeholders found at various levels. They include zonal OIDA, district OIDA that participates fully with the study, district administration, district AGP coordination office and land administration and local administration consulted regarding the project and cross cutting issues in connection with its implementation. Focus group sessions and general meeting with the user groups had been held and main issues had been discussed.

Survey

The views of individual households regarding their interest for irrigation project and their contribution towards its implementation were assed using household survey. The results and main findings are incorporated in this report.

10.5 Assessment of Existing Situation and Legal Environment

In line with the national irrigation policy to enhance the contribution of water to the national economy through the development of the country's water resources and expanding irrigation schemes so that agricultural production is improved by solving the problem of water shortage caused by the unpredictability of the rainfall, establishing irrigation institutions and regulations at various levels are some of the measures. One of the existing regulations in relation to irrigation development includes equitable distribution of land and water among users especially at public implemented irrigation schemes.

It was indicated on the policy document that Participatory- driven approach for promoting efficiency and sustainability was one of the two prolonged approaches for promoting irrigated agriculture. The following were also stipulated in the policy of irrigation development:

- ❒ Promote decentralization and users-based-management of irrigation systems taking account of the special needs of rural women in particular. (Ministry of Water Resources, 2001)

Furthermore in the strategic document that intends to translate the policies into actions one can find the following in relation to irrigation development. (FDREMOWR, 2001).

- ❒ Establish and strengthen the Water Users Associations or Irrigation Co-operatives in each scheme on a voluntary basis.
- ❒ Encourage and promote the role of women in these community based structures.
- ❒ Provide training to the women to assume greater role in the functioning of these community based structures.
- ❒ Make these structures focal point for development and management of irrigation schemes.
- ❒ Towards this aim:
- ❒ promote partnership building between relevant government institutions, NGOs and local communities at different levels for the provision of bulk water storage, flood control and transfer schemes in particular;
- ❒ mobilize local community groups and assign them greater role in the planning, construction, and O&M of small scale irrigation schemes;
- ❒ involve local people in the project cycle of irrigation schemes, as well as the settlers in the decision-making process; and
- ❒ Institute conflict resolution mechanisms based on traditional approaches and cultural practices.

10.5.1 Irrigation Water users Association (IWUA)

Association in relation to irrigation scheme can be explained as a self-governing, non-profit legal entity that shall, in the public interest, manage a canal network, wholly or in part, in order to provide water to its members for agricultural purposes (JICA and OIDA, 2014).

The WUA being the management structure at site (scheme) level and being the owner of the irrigation scheme, it has various objectives, responsibilities and functions in the development process of the schemes. Among the various objectives, the main ones are:

- ❒ Coordinate the participation and involvement of the beneficiary communities for equitable irrigation water distribution among the farmers on outlet command basis
- ❒ Process and carryout resource mobilization (irrigation O & M fee collection, labor contribution, material …).
- ❒ Resolve disputes and conflicts among the beneficiaries that may arise due to improper water utilization.
- ❒ Provide support and assistance in the form of labour, cash and construction materials during scheme construction.
- ❒ Prepare operations and maintenance plans and ensure their implementation.
- ❒ Facilitate irrigation extension, micro-watershed, drainage and pollution control work in the service area or canal network.
- ❒ Enlist members and update the list of water user farmers.
- ❒ Maintain records
- ❒ Propose changes in scheme during planning and construction.
- ❒ Prepare and execute irrigation management plans etc.

10.5.2 Sociocultural Factors and Community Attitudes

The target communities discuss common issues through formal community organizations such as local administration, religious leaders, elders in the community and other informal organization such as Idir. Idir is common almost at all communities both rural and urban in our country. It is also the most preferred informal organization according to the respondents. Most respondents do have an interest to participate in such social informal organizations.

10.5.3 Experiences in Participating in Community Development Programs

According to the views of the respondents it were common in participating at community based development programs such as planting trees, soil and water conservation activities, construction of school, health posts and even construction of the existing traditional irrigation system before decade and half. The major way of involvement and participation at such development activities was found to be provision of free labor.Based on the bill of quantity prepared by the design engineer the following are identified to be activities in which user communities supply free labor.

Table 10-2:Lists of activities and their costs for community participation

S.N	Type of activity	Unit	Quantity	Unit cost	Total cost
1	Excavation of soil	m^3	2,444.61	67.55	165,127.41
2	Backfill and compaction	m^3	366.69	69.74	25,572.66
Total					190,700.07

The communities do have been informed regarding the current irrigation intervention mainly from district irrigation sector and almost all respondents had accepted the proposed project proposal. Reasons for accepting the proposed action include expectation of sustainable production and better income from year round production. Additionally job opportunities and expansion of physical infrastructures are expected from implementation of the project.

Similarly cases of resisting the implementation of the project could result from fear of losing plots in one way or another which is the main source of their livelihood system.

10.5.4 Irrigation land Use

According to the constitution of the Federal democratic republic of Ethiopia land belongs to the public and people of Ethiopia prohibiting sale of land and long term mortgaging. In the context of Oromia region the regional land policy drafted before two decades asserts that the existing plot holdings are fragmented and become smaller and therefore no need of redistributing plots necessary in the region. Plots may be provided for those who are in need if there is an unoccupied land in the locality otherwise settlement to other unoccupied areas was the major policy recommendation.

However in connection with irrigation land use to use the land and water resources the policy document asserts the need to allocate and redistribute irrigation land with maximum holding 0.5h for each households. Land exchange and transfer are the mechanisms based on the willingness of the plot holder in the target area provided that he should not be the net loser. This issue was discussed with relevant stakeholders and at public meeting that held with the target communities. Similarly based on the household survey result about 75% of the respondents are willing to exchange irrigable plots based on the existing irrigation land use rules and regulations. It should be noted that the policy to use irrigation land lacks procedural guidelines and its implementation too much delayed. The main stakeholders to relocate the available land include local administration, land administration office, agricultural and natural resources development office and irrigation sector as well.

10.5.5 Operation and Maintenance

Irrigation infrastructure is manmade that is easily fragile. Irrigation infrastructures may be defective due to manmade or natural conditions. For these reason users communities have to make a sort of preparedness so as to maintain and rehabilitate the damaged infrastructures. The main strategy to attain this goal is collecting fees from the users. At the existing traditional irrigation system the issue of operation and maintenance and fee collection are found lose. No coordinated effort recognized to maintain the irrigation system. Usually it was found individual efforts. With the modernization of Calle project the issue of operation and maintenance is found crucial. A sort of fixed amount contribution monthly or on seasonal basis that could be recommended by the users and ratified by the association is expected.

10.5.6 Cost recovery and principles and Conditions

The major principle governing cost recovery is the capital cost to be incurred is secured either in terms of soft loan or a grant or from government's treasury. In one way or another investment has to be profitable so that the loan could be repaid. This creates fair income distribution among beneficiaries when used as revolving fund. This could be possible when farmers are willing and able to pay for the water they use for crop production. This had not been undertaken at any irrigation scheme in our country for one thing that water is considered as abundant resource and irrigation is not considered as business in most areas.

Experiences of other countries indicate that there are different methods to collect fees for irrigation water use. They include volume metric method that is amount of water used for crop production and area method which is payment related with type and area covered by each crop. This principle was one of the agendas explained at the public meeting. It was generally understood that it may take longer time to apply the above cost recovery mechanism in the context of irrigators of our country in general and the target communities in particular. However it is believed that scheme users may be enabled to recover part of the capital cost if they pay government taxes by increasing their output and then income.

10.5.7 Formal and Informal ways of Conflict resolution

Conflicts could occur among community members because of border conflicts along plots, use of water particularly among irrigation water users. Conflicts will arise due to other social relations. In our society there are traditional ways of resolving conflicts among individuals and groups. These conflicts too often mediated by involvement of elders and religious leaders. Formally there are courts at local levels when cases appealed. In case of the possible conflicts that could arise in connection with using irrigation water and land internal by laws are needed to be effective by WUA.

10.5.8 Conflicts and Resolution Mechanisms with Irrigation Practice

Conflicts could occur with irrigation activity mainly in connection with use of water and damage of ones live stock at others farm field and the like. Conflicts could also occur due to land related issues. Traditionally these resolved by intermediation of elders and religious leaders. Local administration and court cases are also involved if cases become beyond elders and others. At irrigation scheme the main principle to minimize conflicts was establishing internal bylaws. The internal bylaws include the following rules and regulations.

- Penalizing one not appeared at meeting and canal clearing activities
- Penalizing one that does not pay fees on time
- Violating water scheduling/using without own turn
- Crop damage by livestock
- Not cultivating land

10.5.9 Establishing IWUA at Calle Scheme

Irrigation development is not new in the community under consideration as the existing traditional irrigation system practiced for a long time in the area. However few members of the potential beneficiaries are involved in irrigation practice. The WUA committee is weak in delivering the required service. It is found mandatory strengthening the existing WUA in order to use the scheme properly. In this feasibility level assessment the consultant together with other stakeholders that include district OIDA and local administration had made awareness creation regarding the necessity of establishing WUA at scheme level. Users are appointed to assemble and discuss the project matter and current initiative and hence meeting were held with the community members.

The following are main points discussed with the community groups.

1. Awareness creation regarding Irrigation Development
   - ❒ Food security
   - ❒ Income generation
   - ❒ Factors
   - ❒ Shortage of rainfall & prolonged drought
   - ❒ Shortage of land/intensification of agriculture
2. Objectives of the proposed project
3. Regulations & policies related to irrigation development
   a. Irrigation land use(0.5ha/HH)
   - ❒ Exchange
   - ❒ Transfer of land

   b. Compensation in case of loss of properties
   - ❒ Canal system
   - ❒ Reservoir
4. Community Participation
   Purpose: to create ownership sentiment
   When shall communities participate?
   - ❒ During study and design/contribute idea etc.
   - ❒ During construction(minimum of 10% project cost)
   - ❒ Cash
   - ❒ Labor
   - ❒ Local materials supply
5. Cost recovery operation and maintenance expenses
   - ❒ Expected to recover the investment cost due to increased benefit
   - ❒ Water tariff principles
   - ❒ Preparedness to cover running expenses(labor, seed and other inputs)
   - ❒ Maintenance of damages on structures(necessity of fee collection)
6. Establishing WUA & nominating Committee members
   Depends on the scheme size and hydraulic structure, administrative boundaries also matter
7. Petition and support letters from local administrations and District administration organized and documented

The participants had also raised many issues and farther explanation was provided from the consultant as well as client side. Land exchange and transfer issues are the central issues raised by most of the participants of the meeting undertaken. Finally it was agreed to undertake farther discussion by involving all users and this shall be facilitated by the district OIDA.

10.5.10 Proposed Organizational Structure of Calle Scheme

Challe is small scale irrigation scheme with complicated and diversified users or complicated irrigation physical infrastructure and hence its management could also be complicated. The area to be developed and number of users could be sizable depending on the availability of water. Second phase expansion for downstream local administration may become necessary depending on past and current demand. The first phase for upstream community could have the following organizational structure.

General assembly: This is the major decision making body of the WUA and it is the general meeting of at least two third of the members and has the power to assign and nominate executive committee, control committee and block leaders. The general assembly could undertake meetings at least twice a year and sometimes as required.

Executive committee: This is composed of about seven members and is responsible for the day to day activities of the water user association. The members and their duties and personal qualities expected are as discussed below.

Chairperson: this person should have the quality of respect by the society, responsive; possess some of the managerial skills that can be acquired in born. The main duty is to provide the overall leadership regarding the organization. If possible he could able to read and write. His main duty is to lead the general meetings, give general direction for other committee members and effect payments and decide and approve regarding matters on properties of the association.

Deputy Chairperson: he could act on behalf of the chair person in case the later not available.

Secretary: This individual should able to read and write in addition to other personalities. He is responsible for all documentations including record keeping. The records include list of beneficiaries with size of plots managed, internal bylaws, minutes of meetings and the like. The importance of having independent office is also crucial.

Cashier: Collects fees from members for various purposes, keep accounting records, payment vouchers and receipts. Perform payments when ordered by the chair person or his delegate.

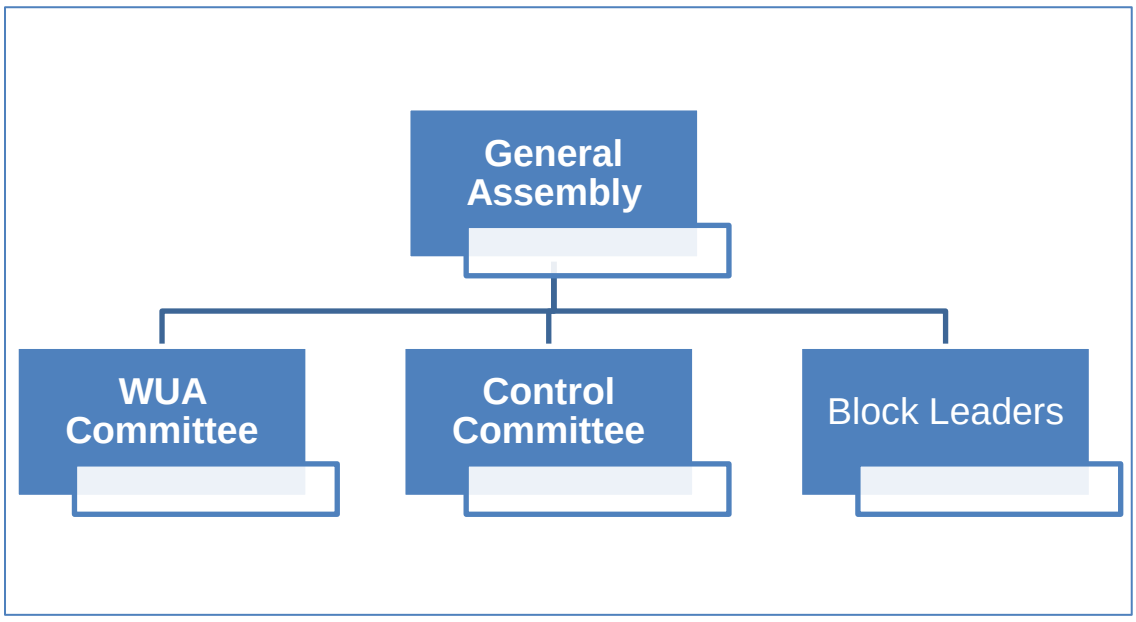
Accountant: this person should have the capacity to perform basic arithmetic as addition, subtraction, multiplication and division so as to control the inflow and out flow of the association.

Two members: these do participate at committee (WUA Leaders) meetings and suggest ideas and support the WUA leaders at various aspects.

Control Committee: composed of three membersto be nominated by the general assembly and it is responsible for the control of scheme performance and resources of the association including the physical infrastructures.

Block leaders: These are assigned based on the size of scheme and hydraulic structures mainly secondary and tertiary canals. Traditionally various names and connotations are given for these people such as 'malaqaa' in Harerghe and 'yehuhaabat' around Amharic speaking people. These are responsible for distributing water properly for the members and very crucial at any irrigation scheme management.

Table 10-3: Proposed Organizational Structure of Calle SSIP



10.6 Stakeholder Consultation and Involvement

It is crucial to involve stakeholder in the course of project planning and implementation. In this feasibility level of Calle Small Scale irrigation project feasibility level it was tried to involve and identify relevant stakeholders, assign their roles and responsibilities as indicated in the table 6-3 that follows.

Table 10-4: Identified Stakeholders, their Main Duties and Responsibilities

Identified Stakeholder	Main Duties and Responsibilities at various phases of the project		
	Project preparation	Implementation phase	Operation phase
Community/users	Contribute idea, provide information, organized as users association	Contribute towards construction, establish/strength WUA, involved in M&E	Use and protect irrigation infrastructure properly, relocate and cultivate plots, involved in terminal evaluation
OIDA District/ Zonal offices	Facilitate in establishing WUA, support in study and design process	Mobilize community and strength WUA, participate in M&E	Provide extension service and training, facilitate credit service
OIDA Head Quarter	Select consultant to conduct detail study, Evaluate and appraise design report and plan, secure fund for implementation, prepare implementation plan	Bid processing and selection of contractor, Monitor and follow up of the progress	Undertake or cause to undertake terminal evaluation with users and others
Local administration	Involved in organization and mobilization of users, confirm the willingness and support, involved in establishing WUA	Mobilize community to participate at various activities, land redistribution, manage and resolve disputes and conflicts, involved in establishing WUA	Involved in various levels of project evaluation
Land administration and Environmental protection	Provide data on existing land use, awareness creation on various rules and regulation in relation to irrigable land, involved in EIA process	Actively involved in relocating and distributing land for users, conflict resolution over use of land	Monitor the environmental performance of the scheme
Cooperative promotion Agency	Involved in establishment of WUA	Involved in strengthening WUA	Promote WUA to WUC, facilitate credit and input provision, facilitate product marketing
Bureau of Agriculture and other NGOS	Support at every stages of the project specially training and experience sharing among farmers, introduce new technologies and innovations ,agricultural practices particularly in areas of agricultural water use and crop selection		

11 MONITORING AND EVALUATION

Monitoring and evaluation is one of the project management aspects. The concepts are different but interdependent. Monitoring could be explained as a continuous function that employs systematic collection of data on specific indicators to provide management and main stakeholders an ongoing development intervention with indications of progress and achievement of targets and progress in the use of allocated funds. Evaluation on the other hand is a systematic and objective assessment of an ongoing or completed intervention for its efficiency, effectiveness, relevance, sustainability and impact of an intervention.

How to involve the user communities in the process of monitoring and evaluation becomes the central concern. The communities should know the intervention from the very beginning. During the planning stage they have be well informed what activities are planned and should contribute ideas for its effective implementation. During construction they should monitor resources and inputs used and identify problems and suggest solutions. They could suggest whether the resources are utilized efficiently or not. They should also partners at various phases of evaluation. They have to be involved in midterm evaluation whether the intervention is as planned or not and identify major bottlenecks with the evaluation team. At terminal evaluation the communities should be members of the evaluation team in assessing project relevance, effectiveness, sustainability and impact of the project.

12 CONCLUSION AND RECOMMENDATION

The proposed Calle irrigation project is based on the existing traditional system that lasted for more than a decade in which inefficient practices are observed despite the fact that there exist potential land and water resources that can benefit more beneficiaries. Little support to upgrade the existing system was attempted by the district budget in which zonal irrigation sector is involved. However the supplied structure is limited to construction of weir structure that is not properly erected and few meters main canal lining compared to the required lengthy canal system as long as five kilometer.

Yearly maintenance of the structures constructed from local materials that are easily taken by the flood action and lack of access road for marketing of out puts from irrigation field are among some limiting factors faced by the target communities. Farther more water does not reach all the communities mainly due to the miss management of water. Meeting held with the target communities and consultations made with community members indicate that they benefit if the existing traditional irrigation system is modernized for them. Accordingly they willing to contribute towards its implementation, reallocate the available land according to the existing rules and regulations. The existing WUA is not effective and reorganizing it was found relevant with the implementation of the new modern scheme. Accordingly the district irrigation office and the district cooperative promotion and development are expected to strength the WUA and promote to WUC.

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ANNEXED MATERIALS

Annex 1: Checklist for collecting socioeconomic data (secondary data)

1. Name of Potential SSIP_____
2. Region_____Zone_____District_____kebele_____
3. Main River-basin_____Sub-basin_____name of water source_____
4. Distance of the proposed site from zone capital_____
5. Name of zone capital_____
6. Distance of the proposed site from District capital_____km
7. Name of district capital_____
8. No of rural kebeles in the district____No of urban kebeles__Total kebeles_
9. Total population in the district _____Male_____Female_____
10. Number of households in the district _____Male_____Female_____
11. Distance of the proposed site from nearest market center_____
12. Name of nearest market center_____
13. Distance of the proposed site from all-weather road_____
14. Name of all-weather road and its type/grade_____
15. Number of kebeles to be affected by the project(Beneficiaries)_____

Name of kebele	Total current population			Total households			Potential beneficiaries(HH)		
	Male	Female	Both	Male	Female	Both	Male	Female	Both

16. Current beneficiaries if traditional irrigation if known
    Male____Female_____Total_____
17. Average family size at the project area_____
18. Religion and ethnic affiliations
    a) % Oromo_____% non-Oromo_____
    b) Types of religion and proportion of followers (%)
    _____
    _____

19. Land use pattern in the district and local administration

No	Type of land use	Total area in the district	Total area in the project kebele	% in the district	% in the kebele
1	Cultivated land				
2	Grazing land				
3	Forest land				
4	Bushes and shrubs				
5	Water bodies & wet lands				
6	Quarry sites & steep terrain				
6	Settlement and establishments				
	Total				

20. Main livelihood system at the project community

a. Average land holding for cultivation _____ha

b. Is there individual grazing land holding common? A)yes b)no if yes average holding _____ha

c. Main crops produced using annual precipitation and average productivity

Type of crop	Area cultivated/HH	Average productivity/ha	Total production/HH

d. Main crops irrigated and their productivity

Type of crop	Area cultivated/HH	Average productivity/ha	Total production/HH

21. Trend of agricultural production in the district for the past few years

Year	Type of Major rain fed crops area and production									
	Area	Prodn	Area	Prodn	Area	Prodn	Area	Prodn	Area	Prodn
2001										
2002										
2003										
2004										
2005										
2006										
2007										
2008										
2009										
2010										

Year	Type of Major irrigated crops area and production									
	Area	Prodn	Area	Prodn	Area	Prodn	Area	Prodn	Area	Prodn
2001										
2002										
2003										
2004										
2005										
2006										
2007										
2008										
2009										
2010										

22. What are the major constraints of crop production activity at the study area?_____

23. Livestock available, list types and number of livestock found at the local administration(kebele)

Type of livestock	Number found in the kebele	Average holding by HHs at the study area	Main feeding system

24. What are the major constraints in connection with animal husbandry?_____

_____

25. Food insecurity conditions at the study area

a. Whether the community is provided with food aid or not so far_____
b. Existence of PSNP at the area_____
c. Number of community members that need assistance_____
d. Amount of grain supplied_____
e. Number of human beings died due to famine_____
f. Number of livestock died due to drought_____

(Take one or more years for c to d)

26. Availability of social and physical infrastructures

a. Schools found and their level

Type of school	Level	Number of students attending by sex		
		Male	Female	Both

b. Health facilities and their condition

Type health service	Year constructed	No of staffs	Major problems

Ten top diseases documented at nearest health center to the project (refer to recent year)

No	Type of disease	Number of patients treated	% of patients	Remarks
1				
2				

c. Water supply services and their conditions(domestic, livestock etc)

Source of water for domestic supply_____

Year constructed if improved_____

Major problem of domestic water supply_____

Source of water for livestock drinking_____

d. Power supply, source of energy

Whether the communities supplied with electric power from the national grid_____

Source of energy for cooking and lighting rooms_____

e. Financial institutions and their service level

Name and distance of bank from the project area_____

Whether the communities use bank service such as credit and saving or not_____

f. Transportation facilities

Means of transport for the people and luggage_____

Whether road facility is good or not_____

Length of all-weather road in the community_____

g. Communication services

Means of communication in the study area_____

Availability of digital telephone service_____

Availability of mobile network_____

h. Markets and grinding mills

Nearest market center to the community_____

Name of market center_____

Number of grinding mills found in the community_____

Type of grinding mill_____

Distance traveled to get grinding mill service_____

27. Out prices and input costs

No	Crop type/input type	Unit	Unit price
1	Cereals/Grain		
	Maize		
	Wheat		
	Barely		
	sorghum		
	Oat		
2	Pulses		
	Horse bean		
	Pea		
	Haricot beans		
3	Root crops		
	Potato		
	Sweet potato		
4	vegetables		
	Cabbage		
	pepper		
	Beet root		
	Carrot		
	Onion		
	Garlic		
	Tomato		
5	Cash crops		
	Sugar cane		
	Coffee		
	Chat		
6	Inputs		
	Fertilizer		
	DAP		
	UREA		
	Improved seeds		
	Maize		
	Wheat		
	Labor cost		
	Oxen cost/day		
	Agrochemicals		
	Herbicide		
	Insecticide/pesticide		
	Fungicide		

Annex 2: Format for household survey at Feasibility level study

General

The purpose of this survey is to collect household data pertinent to small scale irrigation intervention so as to generate adequate data for analysis and interpretation and hence organizing adequate socioeconomic report. Nothing other than this does the collected information serve.

Name of project_____Wereda_____Kebele_____

Name of Interviewer_____telephone no_____

Name of Supervisor_____telephone no_____

1 General characteristics of the household

1.1. Name of respondent_____

1.2. Sex of respondent a) Male b) Female

1.3 Age of respondent in year a)<15 b)15-64 c)>64

1.4 Religion a) Christian b) Muslim c) Other

1.5 Marital status of respondent a) Single b) Married c) Divorce d) Widow/widower

1.6 Age group of respondent's family members

a)<15_____ b)15-64_____ c)>64____ d)Total_____

1.7 Sex composition of respondent's family members

a) Male____ b) Female____ c)total_____

1.8 Ethnic group of respondent a) Oromo a)Amhara c)Guragie d)Others

1.9 Educational level of the respondent a)Unable to read and write b)Read and write c)Grade 1-8 d) Grade 9-12 e) > Grade 12

1.10 Main source of income a) Crop production b) Livestock production c) Equally from crop and livestock d) Forest products sale e) Off-farm employment & petty trade f) civil servant g) other

1.11 Estimated annual income by sources (Birr)

a)Crop production_____ b) Livestock sale_____

c) Sale of livestock products (milk, butter, cheese, egg, skin, honey, etc.)_____d)Sale of vegetables and fruits_____ e)Sale of forest products_____f) Off-farm employment & petty trade_____

g)Remittance_____h)Others_____ i)Total_____

1.12 Estimated annual expenses by items (Birr)

a)Food_____ b)Clothing_____c)Fuel_____

d) Salt, sugar, oil, etc._____ e) Soap and other sanitary items_____ f) Medical treatment_____g) Educational expenses_____ h)Farm inputs (fertilizer, chemical, seeds, etc.)_____i) Others including tax and transport_____

j)Total_____

1.13. Type of housing a) Thatched roofed (grass etc) b) Corrugated iron sheet c) other

1.14. What is the material for your house and other construction? A) Wood b) stone & other materials

1.15 Whether the birth place of respondent is here?

a) Yes b) No, If "No", how long you stayed here(years)_____

2 Social services

2.1 Education Service

2.1.1 School distance from home (km)

a) First cycle (1-4)_____ b) Second cycle, 1-8 (5-8)_____ c)High school (9-10)_____d) Preparatory school (11-12)_____

2.1.2 Number of family members attending school

A) first cycle a)Male__ b) Female___B Second cycle a)Male__ b) Female___C)Secondary school a)Male__ b) Female___D)Preparatory a)Male__ b) Female___

2.1.3. Have you ever restrained your children from school)yes b) no

2.1.4. If yes, reason for restraining? A) unable to cover school expenses B) demanding children labor) Marriage cases D) Farness of school E) Drought and other disasters F)Migration with livestock

2.2 Health Service

2.2.1 Most common disease in the area a)Malaria b)Diarrhea c)TB d)Intestinal parasite e)Eye diseases f)STD g)Headache h)Typhoid i)Other (like common cold, cough, fever, anemia, etc.)

2.2.2 Mode of treatment for family members a) Hospital b) Health center c) Health post

d) Traditional healer e) Self-treatment f) Stay at home

2.2.3 Major reason for not visiting health service in the area a)Absence of health service in the nearby b)Shortage of medicine c)Lack of health personnel d)High treatment and medicine cost e)Reluctance of health personnel f)Lack of accessibility to reach health service g)Other

2.2.4 If the respondent has ever received health education on disease prevention or control

a) Yes b) No

2.2.5 If the respondent agrees that immunization is useful for children and women

a) Yes b) No

2.2.6 If the respondent agrees that family planning is useful a) Yes b) No

2.2.7 If the respondent and/or (his/her) spouse use family planning service a) Yes b) No

2.2.8 If the respondent favors to have many children a) yes b) No

2.2.9 If the respondent knows mode of transmission of HIV/AIDS a) Yes b) No

2.2.10 If the respondent knows how to protect own self and family from HIV/AIDS a) Yes b) No

2.3 Water supply service

2.3.1 Major source of water for drinking and cooking; a)River b)Pond c)Lake d)Hand-dug-well e)Protected spring f) Unprotected spring h) Piped water from improved system i)other

2.3.2. Distance traveled to fetch water_____ kms

2.3.3. Time taken to fetch water_____ minutes

2.3.4. Whether the respondent pays for water or not; a) Yes b) No

2.3.5. How much is paid for water per month in Birr? _____

2.3.6. Member of the family who mainly collects water a) Wife b) Female children c) children d) Male children e) Husband f) All household members

2.4 Sanitation facilities

2.4.1 Whether the respondent has or uses toilet a) Yes b) No

2.4.2. Type of toilet a)improved(with water) b)un improved

2.4.3 Where the respondent disposes domestic dry wastes a) Everywhere b) In the nearby farm plots c) In the pit d) In the nearby natural depression e) burning in the fire f) open dumping

g) Other (compost etc.)

2.5. Transports and communication

2.5.1 Whether the respondent perceives transportation problem in the area a) Yes b) No

2.5.2 If "Yes", what is the main problem? a) There is no road at all b) the fare is high c) the road is not good d) the road is too far e) Other (no vehicle, etc.)

2.5.3 Main means of transport for human a)vehicles b)pack animals c)motor cycles d)on foot

2.5.4 Main means of transport for luggage including farm products a)vehicles b)pack animals c)motor cycles

2.5.5. Do you have radio/TV at your home? a) Radio b)TV c) both

2.6. Sources of Energy

Energy source	**Type of use/category of use**			
	Lighting	Cooking	heating	Grinding
Fuel wood				
Charcoal				
Kerosene				
candle				
Crop residue				
Cow dung				
Electric/national grid				
Biogas, Solar				

2.6.1. From where you obtain fuel wood for household level consumption a) natural forest b) own planted c) from market d) others

3 Agriculture & Food Supply

3.1 Land Tenure

3.1.1. Whether the respondent has (his/her) own landholding a) Yes b) No

3.1.2 If "Yes", the size of landholding (in hectare)

a)Grazing_____b)Cultivated_____c)Back yard_____d)Forestland_____e)Total_____

3.1.3 Share of cultivated land between rain-fed and irrigated (in hectare) if there is irrigation

a)Rain-fed_____ b)Irrigated_____ c)Total_____

3.1.4. How you acquired land for various purpose a) local administration b)inheritance c) renting/leasing

3.1.5. Number of plots owned by the respondent_____

3.1.6. Whether the respondent has rented own landholding to others a) Yes b) No

3.1.7. Whether the respondent has rented land from others a)Yes b)No

3.1.8.Trend of your holding size for the past ten years a)increasing b)remain the same c)decreasing

3.2 Crop Production

3.2.1 Trend of respondent's crop production over the last 5 years

a)Increasing b)Decreasing c)Fluctuates d)Unchanged

3.2.2 Whether respondent's last year crop production is sufficient for the family consumption

a) Yes b) No

3.2.3 If last year crop production is not sufficient, what was the reason?

a)Shortage of farmland b)Shortage of farm inputs c)Bad weather (water-logging, drought, frost, hailstorm, etc.) d)Others

3.2.4 If production is not sufficient, how he/she managed to fill the gap? a) Family members sale of labor b) Sale of livestock c) Get remittance d) Aid from gov't or NGOs e) borrowing from others f) Sale of forest products

3.2.5 Number of months in a year during which the household rely on only own crop production without external support or buying from market

a)<3 months b)3-6 months c)6-9 months d)9-12 months

3.2.6 Number of quintals of crop (all type) in a year required by the household _____quintal

3.2.7 Whether the household uses any labor outside of the family a) Yes b) No

3.2.8 Whether the respondent wants to change production from rain-fed to irrigated farming a) Yes b) No

3.2.9 Who decides what to produce? A) Farmer b) government c) market based

3.2.10 Economically useful fruit trees owned and managed by the household

Type	unit	quantity	Annual income generated	Remark
Orange				
papaya				
banana				
mango				
Avocado				
Inset				
Chat				
Gesho				
Coffee				
Other				

3.2.12. Where do you sell your agricultural product a) local market/farm gate b) central markets to whole sellers c) cooperatives d)no selling

3.3 Livestock Production

3.3.1 Whether the respondent owns livestock a) Yes b) No

3.3.2 Type and number of livestock owned by the household

No	Type	Number owned	Remarks
1	cattle		
2	horse		
3	mules		
4	donkey		
5	sheep		
6	Goat		
7	Poultry		
8	beehives		
	Modern		
	transitional		
	traditional		

3.3.3 Main problem in keeping livestock by the household a) Shortage of feed b) Lack of capital to buy animals c) Livestock disease d) Other (shelter, etc.)

3.3.4 Number of ox/oxen owned by the respondents_____

3.3.5 Source of feed for livestock a) Grazing b) Crop residues c) Grazing and crop residues d) Others

3.3.6 Source of water for livestock a) River b) Traditional wells c) Pond d) Springs e) Others

3.3.7 Whether the respondent provides the livestock with any supplementary feed a) Yes b)No

3.3.8 Whether the respondent conserves feed for livestock during dry or wet seasons a)Yes b)No
3.3.9 The feed mostly conserved a) standing hay b) Cut hay c) Crop residues d) Browse (pods, leaves, etc.) e) Others
3.3.10 whether shortage of animal feed occurred in recent years a) Yes b) No
3.3.11 First measure taken by the respondent during feed shortage a)Increase sale of livestock b)Buy feed from other places c)Collect pods and leaves d)Borrowing and sharing with others
e)Aid from gov't or NGOs
3.3.13 whether apiculture is being practiced by the respondent a) Yes b) No
3.3.14 where livestock receives health treatment a) Community animal health workersb) Local veterinary service c) Private d) Black market e) Traditional healer
3.3.15 whether the respondent pays for livestock treatment service a)Yes b)No
3.3.16 Whether the respondent agrees, if advised, to destock or reduce the size of livestock, keep only productive ones under improved management a)Yes b)No
3.3.17 Whether the respondent likes to receive improved breeds a) Yes b)No
3.3.18 Whether the respondent has ever received any extension service, credit and training in livestock production a) Yes b)No

4 Socio-cultural Issues

4.1 Informal Social organization

4.1.1 The way the respondent gets together to discuss issues of community concern – through a)Formal community organization b)Idir and related informal social organizationc) Religious leaders d)Esteemed elders e)All
4.1.2 Whether the respondent organizes or participates in informal social organizations like Iddir, Daboo, Wanfal, Maahebar a)Yes b)No
4.1.3 Informal social organization the respondent most likes to organize or participate in a)Iddir b)Daboo c)Maahbar d)Wanfal
4.1.4. Is there known traditional social organization for managing common resources such as water, forest and others? If so list them _____

4.2 Community Participation

4.2.1 Whether the respondent has ever taken part in community development programs (a forestation, terracing, soil bund, water supply, education, health, road, etc.) a)Yes b)No
4.2.2 Forms of participation (or contribution) by the respondent in community development programs a) Labor b) Materials c)Money d) Idea generation e)All

4.3 Community attitude toward this particular or proposed irrigation development project

4.3.1 Whether the respondent has heard of the proposed irrigation development project a) Yes b) No
4.3.2 If "Yes", from whom? a) Development agent (DA) b) District office line office c)kebele office d)Neighbor e) recent study

4.3.3 Whether the respondent accepts the proposed project a) Yes b) No
4.3.4 If "Yes", respondent's expectation from the proposed project
a) Sustainable production there by better income b) Job opportunity
c) Better infrastructure and social services d) Other advantages
4.3.5 Respondent's way of willingness to contribute to or participate in the proposed project a)Labor b)Materials c)Money d)Labor and material e)Materials and moneyf)Idea generation g)All
4.3.6 The reason if respondent's perception is negative towards the proposed projecta) Fear of losing land b) Fear of losing house c) Fear of losing trees
d) Reduction of income from crop production e) Reduction of income from livestock f)Fear of social disruption g) Other

4.4 Gender Issues

4.4.1 Respondent's view whether there is sex discrimination in the area
a) Yes b) No
4.4.2 Respondent's view of who is making decision on household assets (land, livestock, etc.)a) Husband only b) Wife c) Both husband and wife d) All household members
4.4.3 Respondent's view of whether men/husbands participate in household level duties a) Yes b) No
4.4.4 Respondent's view of whether women participate in decision-making of community affairs or development activities a) Yes b) No
4.4.5 Respondent's view of most pressing needs of women in the area a) Grinding mills b) safe water supply c) maternal and child health care services d) Credit and saving schemes e)other_____
5. Any tendency for compensation claim due to this project a) Yes b) No
5.1. Do you agree to exchange or transfer your plot based on the existing irrigation land rules and regulations a) yes b) no
5.2. In what form does the respondent wants to compensated in case farm lands and individual properties lost due to the project? A)cash b)in kind(land, grain and other)
6. Whether conflict frequently occurs among individuals in the area a) Yes b) No
6.1If any conflict, main resolution mechanism a)Kebele office b)Court c)Elders d)All

Annex 3: Checklist for key informant Interview

Zone_____wereda_____Kebele_____Agro ecological zone_____

1. Land resources and their management (tenure, water, forest, soils etc.)
2. Adequacy of land for cultivation and other purposes
3. Irrigation practice and demand
4. Rainfall patterns the past five years (Occurrence ,distribution, amount)
5. Population explosion and related matters (Computation for resources, migration, unemployment, urbanization etc.)

Name of Key informant_____

Position_____

Education level_____

Annex 4: Check list for FGD
Zone_____wereda_____Kebele_____
Agro ecological zone_____

A. Focus Group Discussion Checklists

- ❒ What are the main income generating activities ?(Livelihood systems)
- ❒ What type of water resources is available for various uses? (Human, livestock, irrigation etc)
- ❒ Food security and insecurity issues(Adequacy of annual production, proportion of needy people, months of food shortage)
- ❒ What are the social services and infrastructures that exist in the area and which are available(health, road, schools, market, financial ,communication) and their accessibility
- ❒ Is irrigation activity common or not at the locality
    - o Need and interest for irrigation development and participation in the development process
- ❒ Number of FGD participants and their lists

a. Number; Male____Female_____Total_____

b. List

No	Name	Sex	Age	Role and responsibility in the community

Annex 5: Stakeholders consulted and their profile

No	Name	Wereda/zone	Position	Phone no	Date of consultation
1	Debela	Zone OIDA	OIDA Deputy		
2	Kemal	Zone OIDA	OIDA Delegate	0913434884	11/06/2010
3	TeshomeEda'e	Zone OIDA	Construction team leader	0913305375	11/06/2010
4	ShewangizawLegese	Zone OIDA	S&D team leader	0913392783	11/06/2010
5	Jere	Zone OIDA	Expert		
6	SanyiBaldhisa	Zone OIDA	agronomist	0939819816	28/05/2010
7	GirmaJiru	Shirka	Administration	0921080884	22/08/2010
8	Resho Tahir	Shirka ADNRO	AGP coordinater	0911701518	22/08/2010
9	Keweti	Shirka	OIDA head	0912861577	19/08/2010
10	MaruTilahun	Shirka	Community Worker	0912811039	10/06/2010
11	KetemaDinku	Shirka	Engineer	0921211354	10/06/2010
12	AbdelaKataba	Shirka	Head of irrigation office	0937078482	11/06/2010
13	MuktarMusha	Shirka	OIDA extension &community team leader	0912081225	20/08/2010
14	Mustafa	Shirka	SSID Expert	0921081867	20/08/2010
15	AbiyotGulama	Shirka	DA Supervisor at Solechisa	0978583781	11/06/2010
16	GezahanyAlem	Shirka	Solechisabeneficiery	0924059525	20/08/2010
17	Haji kedir	Shirka	Secretary of WUA, Hadhesa site	0924058782	11/06/2010

Annex 6: Community Petition of Calle SSIP

Lakk 8/Cile-401/2010

Guyyaa 21-08-2010

Waajjira Abbaa Taayita Misooma Jallisii Aanaa Shirkaatiif

Gobessaa

Dhimmi. – Gaaffii Qorannoo Piroojeektii Misooma Jallisii Dhiyeeffachuu Ilaala.

Nuti maqaa fi mallattoon keenya armaan gaditti mul'atu jiraattotni **zoonii Arsii Aanaa Shirkaa Bulchiinsa Ganda Soolee ciisaa -walanaa** bishaan/lolaa laga **Laga callee** humna fi ogummaa aadaan qabnuun jallisnee misooma jallisii irra oolfachuuf yaalii goonu iyyuu jallisii kun humna fi ogummaa dandeettii keenya ol waan ta'e waan nuu gaafateef gargaarsi barbaachisa ta'ee karaa keessan nuu godhamee qorannoo isaa akka nuuf gaggeeffamu gaaffachuuf dirqamnee jirra.

Kanaaf nuti gama keenyaan hojii qorannoo, dizaayinii fi ijaarsa piroojeektichaa keessatti qooda fudhachuuf akkasumas seera fi qajeelfama mootumaa irratti hundaa'uun lafa misooma jallisii jala oolu waliif qooduuf waadaa seenaa qorannoo piroojeektichaa kanaa karaa keessan akka nuu gaggeeffamuu ni gaaffanna.

Naga wajjiin

Miseensota koree itti fayyadamtoota bishaan jallisii

lakk	Maqaa Guutuu	Gahee Hojii	Baayina Maatii	Mallattoo	Ibsa
1	Ayyalaa Asafaa	I/G/WIBI	8	[illegible]	
2	Salamoon Xilahuun	I/A/I/G.	5	[illegible]	
3	Hundee Nogasaa	Mallaqaa Qabo	6	Hundee	
4	Gazuu Shiferaw	Miseensa	3	[illegible]	
5	Tsheetuu Shumii	"	4	[illegible]	
6	Boqee Asafa	"	3	[illegible]	
7	Zamudee Dajjanee	Barreessa	5	Zamadee	

Guyyaa koree itti fayyadamtoota bishaan jallisii itti dhaabate 21-08-2010

Itti fayyadamtoota bishaan jallisii bakka piroojeektichaa(household)

T/L	Maqaa A/Warraa/H/Warra	Baayina Maatii	Bal'ina Lafa Jallisiin Misoomuu(Ha)	Mallattoo	Ibsa
1	Obbo. Ashanafi malko Kurisaa	3	0.125	Ashannaf	
2.	" Abbuu Dafaraa	6	0.125	[illegible]	
3	" Jatamaan Dirribaa	5	0.125	Sarman diriba	
4	" Geetachaw Mayyeesaa	3	0.125	[illegible]	
5	" Mayyeesaa Idaa'aa	3	0.5	[illegible]	
6	" Abbaabaa Garradoo	6	0.125	[illegible]	
7	" ATSadee Gabayyoo [struck out: illegible]	3	0.125	ATsadee Gabaw	
8	" Shamallis Kumsaa	3	0.125	[illegible]	
9	" Kumsaa Gallattoo	5	0.5	[illegible]	
10	" Suyyumii Xilahuun	5	0.5	Siyuume	
11	" Biruu Suyyumii	1	0.125	Biruu	
12	" Mallasaa Asiratee	5	0.125	[illegible]	
13	" Nugusuu Abbaraa	5	0.125	[illegible]	
14	" Tsagayee Taaduu	6	0.5	[illegible]	
15	" Disikoo Tasamaa	7	0.5	[illegible]	
16	" Tayyee Mofoosi	6	0.125	[illegible]	
17	" Nagasaa Mofoosi	4	0.5	[illegible]	
18	" Kasuu Mofoosi	6	0.125	Kasuu	
19	" Gannanaa Mofoosi	5	0.125	[illegible]	
20	" Damisee Mofoosi	6	0.125	[illegible]	
21	" Cannafaa Dibbabuu	4	0.5	Cannaqa	
22	" Tuluu Cannafaa [struck out: Mofoosi]	5	0.125	[illegible]	
23	" Abbaabaa Suyyumee [struck out: Mofoosi]	6	0.5	[illegible]	
24	" Abbaraa Tasamaa	4	0.5	Abaraa	
25	Addee Siboonuu Biqillaa [struck out: Tasamaa]	5	0.125	[illegible]	
26	Obbo Baqqalaa Tasamaa	4	0.5	Baqala	

Itti fayyadamtoota bishaan jallisii bakka piroojeektichaa(household)

T/L	Maqaa A/Warraa/H/Warra	Baayina Maatii	Bal'ina Lafa Jallisiin Misoomuu(Ha)	Mallattoo	Ibsa
27	Obbo. Tamirree Baffallee	3	0.125	Tamirree	
28	" Taduu Baffallee	4	0.125		
29	" Girmee Mulugetu	6	0.5	Girma	
30	" Mulatuu Fayyee	5	0.5		
31	" Darajee Fayyee	5	0.5		
32	" Badhadhee Abbaabee	7	0.5	Badhadha	
33	" Asafa Abbaabee	7	0.5		
34	" Urgee Abbaabee	4	0.125		
35	" Tarrafee Abbaabee	2	0.125	Tarrafee	
36	" Shirafaw Alamuu	6	0.125		
37	" Fi'adu Mardee	2	0.125		
38	" Fannoose Abbarree	5	0.5	Fannose	
39	" Darribee Indalalee	1	0.125		
40	" Birahanuu Dirribee	5	0.125		
41	" Balaxee Xilahuun	5	0.125		
42	" Salamoon Xilahuun	4	0.5	Salamon	
43	" Kiyaar Kadiir	7	0.125	Kiyaar Kadir	
44	" Kalamo Fayyisee	3	0.25	Kalamo Fayisa	
45	" Birahanu Dirribee	4	0.375		
46	" Fayyisee Biyyoo	8	0.5		
47	" Kasee Biyyoo	6	0.375	Kasa Biyo	
48	" Kafalo Biyyoo	7	0.125		
49	" Asinaafee Biyyoo	5	0.5		
50	" Gulimee Mardaa	6	0.25		
51	" Daajanee Daawee	4	0.375	Dajanee	
52	" Hunduu Seeyfuu	3	0.25		

Itti fayyadamtoota bishaan jallisii bakka piroojeektichaa(household)

T/L	Maqaa A/Warraa/H/Warra	Baayina Maatii	Bal'ina Lafa Jallisiin Misoomuu(Ha)	Mallattoo	Ibsa
53	obbo Dirribee Seeyfuu	4	0.5		
54	" Seeyfuu Yadaw	2	0.25		
55	" Gishuu Yadaw	3	0.5		
56	" Balchaa Mangistuu	4	0.25		
57	" Mangistuu Margaa	6	0.125		
58	" Damisee Nagasaa	6	0.625		
59	Asinaqaa Garrado Nagasaa	5	0.5		
60	Dubbalaa Gisilasee	8	1.375		
61	obbo Aadamo Nagashi	4	0.625		
62	" Ayyalo Asafuu	7	0.125		
63	" Asafuu Abbaabaa	5	0.25	Asafuu	
64	" Tsagaa Hordofaa	3	0.5	Tsagaa	
65	" Mindaa Hordofaa	2	0.375		
66	" Birqee lamaa	3	0.5		
67	" lamaa Abbabaa	2	0.25	Birqe	
68	" Adana Nagashi	4	0.125		
69	" Akililuu Nagashi	5	0.25		
70	" Mamushi Nagashi	3	0.5	mamush	
71	" Makataa Hammee	3	0.5		
72	" Shimallisii Hammee	6	0.5	shimalis	
73	" Tashomaa Bayrana	4	0.125		
74	" Mallasaa Bayranaa	5	0.5		
75	" Boshona Balaxaa	4	0.5	Boshonalam	
76	" Balaxaa lamaa	2	0.375		
77	Alde Asinaqaa Garrado	1	0.25	Asnaqu Garad	
78	obbo Hamba Yadaw	3	0.25		

Zooni - Lugo

Itti fayyadamtoota bishaan jallisii bakka piroojeektichaa(household)

T/L	Maqaa A/Warraa/H/Warra	Baayina Maatii	Bal'ina Lafa Jallisiin Misoomuu(Ha)	Mallattoo	Ibsa
79	Lamii Haayyiluu	5	0.5		
80	Tashomaa Haayyiluu	3	0.25		

Zooni Yaayyoo

Itti fayyadamtoota bishaan jallisii bakka piroojeektichaa(household)

T/L	Maqaa A/Warraa/H/Warra	Baayina Maatii	Bal'ina Lafa Jallisiin Misoomuu(Ha)	Mallattoo	Ibsa
1	obbo Balayi Moroosii	4	0.0.25		
	" Kabbiiw Tasamaa	7	0.5		
	" Girmaa Moroosi	3	0.125		
	" Geetuu Kayyisaa	6	0.25		
	" Nuruusee Damisee	2	0.125		
	" Manqisiiw Kayyisaa	3	0.128		
	" Abbaabaa Kayyisaa	2	0.125		
	Adde Fayiiw Qarii	1	0.5		
	obbo Kalloosaa Baatuu	3	0.5		
	" Tasamo Baatuu	5	0.5		
	" Isheetuu Baatuu	5	0.5		
	" Lamii Dastaa	3	0.25		
	" Habitee Badhadhaa	7	0.5		
	" Nuruuu Tolchaa	6	0.5		
	" Isheetuu Badhadhaa	5	0.625		
	" Fayyidee Alafaw	4	0.375		
	" Alafaw Hurisaa	3	0.375		
	" Shiferaw Dasaa	3	0.375		
	Adde Dirribee Gallatuu	4	0.75		
	obbo Salamoon Tolchaa	4	0.25		
	" Alafaw Gallatuu	5	0.25		
	" Tolchaa Hurisaa	2	0.25		
	" Geetachaw Tolchaa	1	0.5		
	" Balata Hmariyamii	7	0.5		
	" Tsalaa Lamaa	5	0.5		
26	" Gadaa Isheetuu	4	0.25		

Fooni Yo??oo

Itti fayyadamtoota bishaan jallisii bakka piroojeektichaa(household)

T/L	Maqaa A/Warraa/H/Warra	Baayina Maatii	Bal'ina Lafa Jallisiin Misoomuu(Ha)	Mallattoo	Ibsa
27	Kabbadaa Tolosaa	5	0.125		
28	Addee Qisineshi Qabo	2	0.5	Qisinesh	
29	Tadaasse Raaii	5	0.5	[illegible]	
30	Aadde Asinaqui Xilahuun	2	0.5	[illegible]	
31	〃 Tasamee Simao	1	0.125	[illegible]	
32	〃 Abbabuu dadhii	1	0.5	[illegible]	
33	Obbo. Tamiruu Mokonin	5	0.5	Ababu dadhi	
34	〃 Ayyala Tollosa	1	0.125	[illegible]	
35	〃 Darrabaa Tolichaa	5	0.5	Ayyala Tolosaa	
36	〃 Badhadha Motummaa	4	3	[illegible]	
37	〃 Tollosaa Rafasaa	6	0.5	[illegible]	
38	〃 Tashome Rofasaa	3	0.5	Tashom Rofasa	
39	Adde Shashi Rofasaa	1	0.5	[illegible]	
40	Obbo Warifina Bayyeechaa	3	0.0125	[illegible]	
41	〃 Fifiree Lamaa	8	0.5	[illegible]	
42	〃 Tamiruu Nugusee	6	0.5	[illegible]	
43	Adde Xayifuu Badhanee	3	0.5	[illegible]	
44	〃 Balayee Nofasa	1	0.5		
45	〃 Zannabaa Hawaasii	1	0.0125	[illegible]	
46	〃 Gorfee Baafuu	2	0.0125	[illegible]	
47	〃 Asikala Tirfee	2	0.0125		
48	〃 Yeeshi Sanbataa	2	0.5	[illegible]	
49	〃 Jamaree Qunbi	2	0.25	[illegible]	
50	Obbo Darajje Gamee	2	0.0125	Darjee Game	
51	Adde Mashtuu Gamee	2	0.0125		
52	Obbo [illegible] Dastaa	3	0.0125		

Zooni Yayyoo

Itti fayyadamtoota bishaan jallisii bakka piroojeektichaa(household)

T/L	Maqaa A/Warraa/H/Warra	Baayina Maatii	Bal'ina Lafa Jallisiin Misoomuu(Ha)	Mallattoo	Ibsa
53	Dadhi daltaa	5	0.25	[illegible]	
	Isheetuu Mammuu	3	0.375	Isheetu	
	Simee Arrarsaa	5	0.125	[illegible]	
	Baatir Tulluu	4	0.25	Batiri	
	Lamaa Gallatuu	3	0.5	[illegible]	
	Hundee Nagasaa	6	0.375	Hundee	
	Adde Ayyaluu Tolchaa	4	0.5	[illegible]	
	obbo Arigachaw Nagaso	5	0.25	[illegible]	
	〃 Alammayyoo Shiferraw	4	0.625	Alamayo	
	〃 Tolloso Dirribaa	4	0.375	Tolosa	
	〃 Tarkuu Warfee	3	0.125	[illegible]	
	〃 Isheetuu Nuguse	2	0.375	[illegible]	
	〃 Suyyumi Nagasaa	6	0.25	Suyyumi	
	〃 Mullatuu Lamaa	2	0.375	[illegible]	
	〃 Nuguse Dirribaa	5	0.25	Nuguse	
	Adde Warifineshi Abbabaa	3	0.25	Warqineh	
	〃 Xurunesh Dammisee	1	0.125	[illegible]	
	obbo Abbarraa Idda'ee	3	0.5	[illegible]	
	Adde Ayyaluu Dangee	4	0.25	[illegible]	
	〃 Jiji Gayyu Mangistuu	2	0.5	Jigaayo	
	obbo Mulluseeta Xilahuun	5	0.25	[illegible]	
	〃 Hayiluu Ragasaa	6	0.625	[illegible]	
	〃 Abbabaa Warfee	5	0.375	[illegible]	
	〃 Geetahuun Nagasaa	3	0.25	[illegible]	
	〃 Caalaa Badhadhaa	5	0.375	[illegible]	
78	〃 Atinaa Dagatuu	6	0.25	[illegible]	

Itti fayyadamtoota bishaan jallisii bakka piroojeektichaa(household)

T/L	Maqaa A/Warraa/H/Warra	Baayina Maatii	Bal'ina Lafa Jallisiin Misoomuu(Ha)	Mallattoo	Ibsa
79	Mokonin Nigatuu	4	0.25	[illegible]	
80	obbo Indallaa Abbarraa	6	0.375	[illegible]	
81	Addee Ayyaluu Lamaa	4	0.25	Ayalu Lama	
82	obbaa Caalaa Kabbadaa	2	0.125	[illegible]	
83	" Abbushaa Kabbadaa	1	0.375	[illegible]	
84	Adde Zawidituu Gabiree	2	0.25	[illegible]	
85	obbo Geetahun Jimaa	3	0.125	[illegible]	
86	" Abiishuu Agaa	5	0.25	[illegible]	
87	" Miliyyoon Agaa	6	0.5	[illegible]	
88	" Girmaa Jimaa	5	0.375	[illegible]	
89	" Kabbaada Dajjanee	4	0.375	[illegible]	
90	Adde Bifee Tollaa	2	0.25	[illegible]	
91	" Mamitee Tollaa	1	0.5	[illegible]	
92	" Jimee Agaa	7	0.25	Jimu Aga	
93	" Gorfee Kabbaadaa	6	0.375	[illegible]	
94	" Dhabbaa dabbabi	5	0.25	dhaba. dabi	
95	" Tadassa Gurmuu	4	0.5	[illegible]	
96	" Nagassa Lamaa	3	0.5	[illegible]	
97	" Abbaabaa Odaa	2	0.75	[illegible]	
98	" Hayyiluu Gurmuu	3	0.375	[illegible]	
99	" Baggala Galatee	4	0.375	Bgulu a. G -	
100	" Abbiyyoti Talhomaa	3	0.125	Abiyot. T...	
101	Adde Mazangiyaa Kabbadaa	5	0.5	mazangi kabad	
102	obbo Akililuu Kabbadaa	6	0.375	[illegible]	
103	" Buuzinash Kabbadaa Tadasse	4	0.375	[illegible]	
104	" Mulisaa Tirfisoo	7	0.5	[illegible]	

Yayyu

Itti fayyadamtoota bishaan jallisii bakka piroojeektichaa(household)

T/L	Maqaa A/Warraa/H/Warra	Baayina Maatii	Bal'ina Lafa Jallisiin Misoomuu(Ha)	Mallattoo	Ibsa
105	obbo. Jamaal Tiniso	5	0.5	[illegible]	
106	Adde Zawidinishi Tadasse	4	0.5	[illegible]	
107	" Abbabachi Zannabaa	1	0.5	Zawdinesh Tad	
108	obbo Alammayyo Kumsaa	5	0.5	[illegible]	
109	" Balchaa Camaraa	6	0.5	Balchoo Camara	
110	A" Warqiino Camaraa	7	0.5	[illegible]	
111	" Girmaa Alammayyo	5	0.5	[illegible]	
112	" Dinquu Abbaabaa	6	0.5	[illegible]	
113	" Daqifee Alammayyo	5	0.5	Dingu Ababa	
114	" Kabamo Abbarraa	5	0.31	[illegible]	
115	" Bayyana Wadajo	7	0.125	[illegible]	
116	" Mulluqeeto W/Kidaan	8	0.5	[illegible]	
117	" Asiratee Mulluu Shawo	8	0.5	[illegible]	
118	" Asafa Mulluqeeta	3	0.125	[illegible]	
119	Add Dabirtuu Daqato	2	0.5	[illegible]	
120	obbo Abbabayyo Dajjanee	9	0.5	[illegible]	
121	" Abbaabaa Tabbadaa	7	0.5	[illegible]	
122	" Zamadee Dajjanee	7	0.5	[illegible]	
123	Add Sanayi Hayiluu	1	0.5	[illegible]	
124	obbo Naqasa Dasee	5	0.5	Nagas Dase	
125	" Dirribaa Dasee	5	0.125	[illegible]	
126	" Dasuu Wafayyoo	1	0.5	[illegible]	
127	" Salamoon Kidanee	4	0.5	Sollamo kidane	
128	" Ashabiri Liquu	5	0.125	Ashabir	
129	" Damitee Badhaa	1	0.5	[illegible]	
130	" Liquu Dajjanee	6	0.5	[illegible]	

Itti fayyadamtoota bishaan jallisii bakka piroojeektichaa(household)

T/L	Maqaa A/Warraa/H/Warra	Baayina Maatii	Bal'ina Lafa Jallisiin Misoomuu(Ha)	Mallattoo	Ibsa
131	Obbo Boki Bayisaa	2	0.5		
132	" Sisay Jilato	3	0.25		
133	Ado Yeeshi Alato	4	0.125		
134	obbo. Girmaa Alato	4	0.25		
135	" Nuguse Xaqaa	3	0.5		
136	" Gosaa Tafasaa	4	0.5		
137	Ado Boqee Tullu	1	0.5		
138	obbo Kasaye Damise	7	0.5		
139	" Hirpha Damise	2	0.5		
140	" Nuguse Nagasaa	7	0.75		
141	" Girmaa Shoqaa	1	0.75		
142	" Tadesse Wadajo	5	0.25		
143	" Hayilu Wadajo	6	0.25		
144	" Toqanne Boffallo	4	0.5		
145	Ado Arqashi Wakane	2	0.5		
146	Obbo Isheetu Lamaa	3	~~0.5~~ 0.125		
147	" Sanbata Horaa	2	0.5		
148	" Jattu Bafallaa	6	0.5		
149	Ado Tannabeeli Wadajo	3	0.5		
150	obbo Fiqadu Tolosa	6	0.125		
151	" Girmaa Alamu	3	0.5		
152	Ado Abbabeeli Dase	4	0.25		
153	Obbo Warqinehi Mulugeta	1	0.25		
154	" Simee Tullu	7	0.5		
155	Ado Xuruu Jimaa	3	0.5		
156	Obbo Abbaabo Alamu	3	0.25		

Appendix 4: Community Consultation Template

Guca Mariin Ummataa Ittiin Gaggeeffamu /Public Consultation Documentation Template/Form

1. GuyyaaMarii /Consultation Date: 16/2/2011
2. GosaProjektii/Sub-project Type: New scheme
3. MaqaaPirojektichaa/Specific Name of the Project: Calle project
4. BakkaMariinittigaggeeffame /Place of Consultation:
   Naannoo/Region: oromia ,Godina/Zone: Arsi ,
   Aanaa/Woreda: Shirka ,Ganda/Kebele: Sole cito ,Gooxii/BakkaAddaa(specificplace):
5. SababaMarii/Purpose of Consultation:
   ijaarsa projectkii Laga Callee - marii Umataa waliin godhamee
6. Sa'aMariinittieegale/Consultation Time started: wali-gali Umato
7.
8. Consultation Method: wali-gali Umato
9. AjandaaMarii/Consultation Agendas:
   1. Rattoo hawaasnaa fiduu danda'a
   2. Xiaannoo irratti dhiibbaa qaba
   3.
   4.
10. Dhimmoota dabalataa yeroo marii keessatti ka'an/Additional Issues Raised During Consultation
    - Rakkoo daandii Omishaa gabaa gahuu jiraachuu dhabuu
    - projectiifii Jorranno isaa maaliif turee
    - Rakkoo gabaa jiraachuu dhabuu
11. Ajandaawwanirrattiwaliigalame/Agreed Agendas/ Issues
    - Hirmanno gahaa ni fashifina
    - projectiif eegachuu,dirjama keenya
    - Lafa ijaarsaa ni kennina
12. Ajandaawwan/dhimootairratti walii hin galamne sabaaba isaa wajjiin/Disagreed Agenda/issues including Reasons for Disagreement
13. Sa'a mariin itti xummurame/Consultation Ended Time:

KanMariiGaggeesisan/ Consultation Facilitators

Maqaa/ Name:	Mallattoo/ **Signature:**
1. Mustefa Ameen	[signature]
2. Kedumaa Dinqu	[signature]
3.	

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14. **HirmaattotaMarii/ Consultation Participants.**

T/L S/No.	Maqaa hirmaattotaa/ Name Of Participants	Umurii/ Age	Saala/ Sex	Gaheehojii/ Position	Lakoofsa bilbilaa /Tel.No	Mallattoo/ Signature
1	Darajjee Gammee	27	Dh	Q. Bulee		[illegible]
2	Mostawaffa Gammee	30	DU	Q. Bulfee	0972911639	[illegible]
3	Tamiru [illegible]	40	Dh	Q.B.		[illegible]
4	Dinboo Haylu	30	Dh	"	0941708[illegible]	[illegible]
5	Haylu w/mikael	66	Dh	"		[illegible]
6	Abbabaa Araarsa	28	Dh	"	0941738019	[illegible]
7	Lamma Gaalatuu	59	Dh	"		[illegible]
8	Gaafuu Dassaa	34	Dh	"	0934938601	[illegible]
9	Bolinoshew [illegible]	41	DU	"		[illegible]
10	Abaaruu Gimma	47	"	"		[illegible]
11	Ayaaluu Tolchaa	45	DU	"	-	[illegible]
12	Hundee Nagassa	43	Dhi	"	-	[illegible]
13	Asimee Araarsa	40	Dhi	"	-	[illegible]
14	Baatiin Tullu	44	Dhi	"	-	[illegible]
15	Didha Dassaa	62	Dhi	"	-	[illegible]
16	Asafaw Gaalatuu	42	Dhi	"	-	[illegible]
17	Tolosa Ragassa	40	Dhi	"	-	[illegible]
18	Ashanafi Kiilayee	26	Dhi	"	0915802382	Ashanafi Kilaye
19	Ishetuu Mammoo	40	Dhi	"		[illegible]
20	Warqinaa Bayeessa	44	Dhi	"	0904458767	[illegible]
21	Yitagas Nagasa	27	Dhi	"		Yitagas: Nagasa
22	Gambare Dumbi	50	DU	"		[illegible]
23	Fifree Lamma	50	Dhi	"		[illegible]
24	Jeylu Saanoo	50	Dhi	"		[illegible]

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14. HirmaattotaMarii/ Consultation Participants.

T /L S/No.	Maqaa hirmaattotaa/ Name Of Participants	Umurii/ Age	Saala/ Sex	Gaheehojii/ Position	Lakoofsa bilbilaa /Tel.No	Mallattoo/ Signature
1.	Nagaash Hayiluu	70	Dhi	QIBulaa	09 -	[illegible]
2.	Asaffuu Abbabaa	70	,,	,,	09	[illegible]
3.	Ayyalaa Asaffuu	50	,,	,,	09 05 11 57 35	[illegible]
4.	Dubbaala Gilgillagee	35	,,	,,		dubalkaa
5.	Birgee ~~Abba~~ baamma	29	,,	,,		Birgee
6.	Lammaa Abbabaa	70	,,	,,		[illegible]
7.	Alamayyo Habebee	35	,,		0905115739	[illegible]
8.	Zannabaa Habeebee	33	,,			[illegible]
9.	Tashoomaa Bayyana	65	,,			Tashoomaa
10.	Jambaree W/moram	60	Dub			Jabere
11.	Adaanaa Nagaash	45	Dhi		0970271188	Adanaa
12.	Nagaash Dhaabii	65	,,			[illegible]
13.	Muluu Abbabaa	60	Dub			muluu
14	Akliluu Nagaash	32	dhi			Akiluu
15.	Maamushee Nagaash	31	,,			Mamushe
16.	Xagaa Wordofaa	45	,,			[illegible]
17.	Morkataa mammo	30	,,		0922704587	Morkata
18.	Asnaqu mammo	55	,,			Asinqu
19.	Indaalaa Wordofaa	40	,,			[illegible]
20.	Mindaa Wordofaa	35	,,		0972914422	mindaa
21.	Abdallaa Waaree	31	,,			Abdalaa
22.	Kaasuu Alamuu	38	,,			kasuu
23.	Xaggaayee Taaddu	45				[illegible]
24.	Maammoo Taaddu	32				Mammo Tadu
25.	Nashaa Muussaa	60				
26.	Abdulee Nashaa	30				Abdulee
27.	Mallasaa Bayyanaa	60				[illegible]
28.	Fiqaaduu Maammoo	55				Nashaa
29.	Jamaal Nashaa	36				Jamal
30.	Mallasaa Ballaxaa	45			0941740906	malsaa
31.	Abdaladir shiKadir	32				Abdelka
32.	Jeyluu Suleymaan	45				Jigiluu
33.	MuAmin Fiqaaduu	30				[illegible]
34.	Kadir shiHuseen	35				Kadir
35.	Sultan KiHusen	30				[illegible]
36.	Salamon Xilaahun	60			0922039890	[illegible]
37.	Ballaxaa Xilaahun	48				[illegible]

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T.L.	Maqaa Qlbulaa		umrii	sala	Gohee ho'i	Lakk. Bilbilaa	mallattoo
1.	Sintayoo	manigistu	37	Dh.	G. Bulaa	0966828269	Sintayo
2	Ashabir	shumii	48	〃	〃	0945187770	Ashabir
3	Zanaba	Abaraa	50	〃	〃	—	[illegible]
4.	Ilfuu	Tulluu	45	dub	〃	—	[illegible]
5	Ishetuu	Shumi	38	Dh.	〃	98388	[illegible]
7	Tasifaye	〃	38	〃	〃		Tasfaye
8	Tashoma	Hayile	33	〃	〃	0922320847	[illegible]
9.	Abara	Bashaa	60	〃	〃	—	[illegible]
10	Dinfitu	Getacho	32	Dub	〃	—	Dinfitu
11	Dajane	Damsaa	35	Dh	〃	0961963408	Dajane
12	Dajane	Bazaa	32	〃	〃	0968222[illegible]	Dajane
13	Daribe	Seyfuu	26	〃	〃	0941740048	Daribe [illegible]
14	Asinafe	Biyoo	55	〃	〃	0924059206	[illegible]
15	Farrissa	Birroo	67	Dh	〃	—	[illegible]
16	Bafaaa	Geetachoo	37	Dh	〃	—	Bafaaa
17	Gannana	Warreessa	35	〃	〃		Gannanu
18	Balachoo	Tashoma	27	〃	〃	0945187180	Balachoo Tashoma
19	Birannu	Farrisaa	35	〃	〃	—	[illegible]
20	Seefuu	Yaaddu	60	〃	〃	—	Seefuu
21	Ungusa	Seefuu	38	〃	〃	—	Ungusa
22	Balaxaa	Lammaa	65	〃	〃	—	[illegible]
23	Kaasaa	Birroo	64	〃	〃	0927218822	[illegible]
24	Mamituu	Farree	37	Du	〃	—	Mamitu
25	Kafaala	Birroo	53	Dh	〃		Kafaala
26	Asnaquu.	Garadoo	50	Du	〃	0932586561	Asnaqu
27	Asnaqaa	Nugusaa	54	Dh	〃		Asnaqaa
28	Ababaa	Girmaa	50	〃	〃		Ababa
29	Gishuu	Yaaduu	62	〃	〃	0921081545	[illegible]
30	Shifara	Dirree	65	〃	〃	—	Shifarra
31	Katama	Farrisaa	30	〃	〃	—	Katamaa
32	Mallasaa	Ballaxa	70	〃	〃	—	Mallasa
33	Mangistuu	Marguu	68	〃	〃	—	[illegible]
34	Gullumaa	Marguu	65	〃	〃	—	Gulluma
35	Badhadhu	〃		〃	〃	—	Badhadha
36	Balchaa	Mangisi	33	〃	〃	—	Baalchaa
37	Damisee	Nugusaa	56	〃	〃	—	[illegible]
38	Bossoo	Badhadhu	24	〃	〃	0981445019	Boso
38	Ashanafii	Farrisaa	22	〃	〃	0934882291	mamashi
39	Habubba	Nagusa	44	〃	〃	0927246947	[illegible]
40	Lammii	Hagree	68	Du	〃	—	
41	Burtukan	Marguu	30	Du	〃	—	Burtukan
42	Akbebushii	lamii	50	Du			[illegible]
43	Singu	Ngashii	25				Singu
44	Zudu	Kababaa	45				[illegible]

	Hirmaattota maqaa	Umrii	Saala	Gahee hojii	lakk bilbilaa	mallattoo
1	Isheetuu Nugusee	22	Dhi	Q/bulaa	0949315669	[illegible]
2	Tolasaa Dirribaa	40	Dhi	Q/bula		[illegible]
3	Toriiku Worafoo	22	Dhi	Q/bulaa	0927248362	[illegible]
4	Siyyum Naggasa	43	Dhi	Q/bulaa	0965 3869	[illegible]
5	[illegible]	47	[illegible]	[illegible]	0937077789	[illegible]
6	Abiyaat Tashomaa	34	Dhi	Q/bulaa	0922030758	[illegible]
7	Algaachoo nagasaa	45	Dhi	Q/bulaa		[illegible]
	[illegible]	38	Dhi	Q/bulaa	0775349949	[illegible]
8	Asaafa Migatuu	45	Dhi	Q/bulaa		[illegible]
	Mokonin Migatuu	50	Dhi	Q/bulaa		[illegible]
9	[illegible]	30	Dhi	Q/bulaa		[illegible]
	Asaffaa maingetu	30	Dhi	Q/bula		[illegible]
10	Abiyoot Tashomaa	30	Dhi	Q/bulo	0922030758	[illegible]
	Mulu Rossosaa	30	Dhi	Q/bulo	0964923570	[illegible]
11						
12						
13						
14						