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Abidan Consulting Group Team

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Acronyms

CDF	Cooperative Development Foundation of Canada
CSA	Central Statistics Authority
CS-Pro	Census and Survey Programming Statistical Software
ETB	Ethiopian Birr
FGD	Focus Group Discussion
FHH	Female Headed Household
FTC	Farmer Training Center
GAC	Global Affairs Canada
HH	Household
MHH	Male Headed Households
NGO	Non government Organization
NSP	Nutrient Stewardship Program
KII	Key Informant Interview
PPI	Poverty Probability Index
SPSS	Statistical Package for Social Science
ToR	Term of Reference
USD	United State Dollar

Executive Summary

Background: As part of its efforts to improve the livelihoods of the Minjar Woreda small scale farmers, the CDF Canada leads and coordinates, ‘the 4R Nutrient Stewardship Program (4R-NSP)’ The project targets to improve the socio-economic well-being of 8000 smallholder farmers in Minjar-Shenkora woreda through improving agricultural productivity and sustainability. The CDF Canada commissioned Abidan Consulting Group to conduct a baseline survey in the project intervention woreda to establish a baseline data that will be used for impact evaluation. This report highlights the baseline findings and intended to provide CDF Canada with the required benchmark information for the project interventions.

Methodology: Quantitative (Household survey) and Qualitative methods (FGD and KII), and various secondary sources of data were used. To obtain a representative random sample of target smallholder farmers, a two-stage sampling procedure was used. To generate primary qualitative information KII and FGD were undertaken. Household survey was used to generate primary quantitative information, and a total 430 HHs participated in the survey. The qualitative information was analyzed based on idea clustering and quantitative information analyzed using SPSS.

Baseline Survey Findings

Demographic Characteristics: The distribution of respondents (430 HHs) was 63.4% males and 36.6% females, out of which 84.9% were male-headed HHs and 15.1% female-headed. The age profile of the respondents indicates that the average age is 45.2 years, while the minimum and maximum age is 18 and 88 years old, respectively. The sampled households had an average of 4.7 persons per household, which was lower than the national average of 5.1 persons. About 80% of the respondents are married. 35.6% and 33.7% of them are illiterate and can read and write, respectively. Crop farming (98.1%) was the most common source of household income with livestock rearing (52.8%) the second most common.

HH Asset: The result reveals that 94.8% of the households had bed and mattresses, 85.6% of the respondents possessed mobile and 62.8% of them possessed table /chair. Other valuable items possessed include radio by 49.2% of the respondents, Jawallery by 29.5% of the respondents, stove by 24.9%, TVs by 20.5% of the respondents, wheelbarrow cart by 24.5% and sofa by 5.2% of the respondents. The livestock ownership of farmers was probed in this survey. The result of this survey shows that about 31% of the household owned cattle. A small ruminant (sheep and goat) is also important with about 16.5% households reporting ownership. Findings also show that the majority of the respondents (98.8%) owned a house. This is the situation among both male and female headed households, in which percentages of household ownership were as high as 99.4% and 95.3% respectively.

Household Food Security: Despite the area is prominent food grain producing cluster, the survey finding as indicated that the survey households face food shortage for an average of

2.5 months. The survey has also assessed the perception of food security status of target households. The fact has shown that 89% of the households reported that they have sufficient food for their family while the remaining 11% reported their family had shortage of food for some month/s in the last one-year reference period.

Crop Production: Based on the farmers reporting having produced project targeted crops in the year 2018/19, it was found that out of 430 households interviewed, 97.8% produced Teff, 85% produced wheat, 34% produced chickpea, 22% produced maize and 20% produced Barley. The average yields of Teff and Wheat in the survey area was 18 and 30 quintal per hectare respectively. The survey finding further reveals that the the average yield was 8 quintal per ha in case of Chickpea while 28 quintal/ha in the case of Barley. The most common constraint to crop production was pest and diseases as reported by 63.3% of the households. Unreliable weather/little or too much rain, lack of fertilizer and lack of pesticides were also common constraints.

HH Income from Major Crops: The evaluation team found that Teff is prominent source of crop income for smallholder farmers generating an average annual income of **21,740 .39** ETB. Wheat is the second major source of income with an average annual income of **16,340.29** ETB whilst sorghum makes an average annual income of **12,368.18** ETB

Access to Credit, Fertilizer and Improved Seed: A majority of households (68.6%) had access to Credit. Finance institutions like Amhara Saving and Credit Authority was the most common sources of loan among households in the survey. Of the HHs interviewed, 95% and 71.3% had easy access to fertilizer and improved seed respectively.

Women Leadership and Participation in Decision Making: About 83.7 % of the households reported that, both husband and wife make joint decision on issues related with selling and buying of livestock and agricultural input. For 16.1% of the households, household heads are the sole deciders on issues related with selling and buying agricultural input while the spouse makes such decision in only 0.2 of the households.

Knowledge and use of 4R: On the matter of respondents' knowledge of the operation of the 4R, none of the respondents (100%) are aware of and know about the existence of 4R. The proportion of households who know and use the technologies follows is similar for both male and female households.

HH membership of cooperative/group: More than half (56%) of the households have members who belong to farmers' cooperative societies.

Recommendations:

In moving forward with the implementation of the Project in the surveyed areas, some of the following issues should be considered by CDF Canada.

- Farmers are challenged with several crop production constraints such pest and disease and efforts to teach and promote Integrated pest management practices must be developed to control the incidence of pest and disease
- The survey data revealed that there is a food shortage for some farmers in the study area. In order to resolve the problem of food insecurity problem of target community due to vulnerabilities to disasters it becomes important to incorporate disaster risk reduction interventions that mitigate risks of crop failure associated with unpredictable weather and crop diseases especially for legumes and volatile market price of farm produces
- Farmers' particularly female headed households (more than half) have limited access to improved seed may limit their ability to adopt in project -taught technologies and therefore limit project's impact in this area. Hence a due attention should be given to improve women farmers access to agricultural inputs
- The reducing trend of legumes crop production due to high vulnerability to wilting disease signals the need to curb the problem as it affects crop rotation and fertility of land which has an impact on objective of enhancing increase farm productivity.
- Any interventions guided towards improved technologies should be viewed against the farmers' knowledge, perceptions, and practices pertaining to farming.
- The low participation of women in leadership position at community level such as cooperatives deserves more attention in the implementation phase of this project through supporting their literacy and enhancing awareness in gender equality
- The existing cooperatives are at low capacity in purchasing farm produces at attractive price and in supplying improve storage kits due to financial shortage and hence it becomes important to boost their financial capacity by linking them with financial institutions or design alternative mechanisms to resolve the challenge
- Linking farmers with improved value chain system is important to create increased income from their produces.

1. Introduction

The 4R Nutrient Stewardship Program (4R-NSP) is a 5½ year program funded by GAC and implemented by CDF Canada in collaboration with Ethio Wetland Management. CDF Canada commissioned this Baseline Survey in order to set benchmarks for the ongoing program intervention in Minjar-Shenkora Woreda. The baseline survey is meant to gather and generate information on, among others: Household composition, household assets, household livelihood, and particularly household seasonal food profiles such as food access and deficiency, crop production and access to productive resources.

1.1. Project focus

4R Nutrient Stewardship Program (4R-NSP) is aimed to improve the socio-economic well-being of smallholder farmers in Minjar-Shenkora woreda through improving agricultural productivity and sustainability. The program targeted to build the capacity of the small-scale farmers as members of financially viable agricultural co-operatives and also intended to enhance representation and influence of women in leadership positions and decision making. The project meant to realize the following three intermediate and six immediate outcomes.

Intermediate Outcome:

- Enhance sustainable production using climate smart, best management practices in agriculture and increase value chain access and integration by women and men farmers in the targeted regions in Ethiopia;
 - Enhanced representation and influence of women in leadership position and decision making bodies, especially in co-operative within targeted communities of Ethiopia
 - Increased integration of gender sensitive 4R principles in relevant standards and policies globally and nationally particularly in Ethiopia.
-
- **Immediate Outcome 1110:** Improved agricultural knowledge and skills of women and men smallholder farmers and extension agents, particularly in applying 4R for targeted crops;
 - **Immediate outcome 1120:** Enhanced access to women and men smallholder farmers to value chains including access to inputs, loan, pre and post production facilities and markets through cooperatives;
 - **Immediate outcome1210:** Increased capacity of women smallholder farmers to participate as extension agent and leaders in co-ops and communities;
 - **Immediate outcome 1220:** improved acceptance of women and men in targeted communities towards women's participation in leadership roles;
 - **Immediate outcome 1310:** Improved awareness by international policy makers, universities and agri-businesses of the environmental and economic benefits of 4R;
 - **Immediate outcome 1320:** Increased awareness of the importance of 4R within government ministries, farm groups and key rural development actors in the target countries.

1.2 Purpose and Objective of the Baseline Survey

As indicated in the ToR, the purpose of the baseline study was to provide an independently assessed information base against which to monitor and assess the project's progress and effectiveness during implementation and after project completion. The framework of the study is based on the project log frame, which includes the expected project outputs, the indicators of achievement and the potential sources of information.

As already defined in the ToR, the main objective of the assignment is to conduct a baseline survey for 4R-NSP project aimed at assessing the existing conditions and issues affecting the target communities based on the identified benchmark indicators of the project. The results will be used for measuring change among the target beneficiaries in the short, medium and long term. The following were the specific objectives of the assignment.

- To provide benchmark information for measuring project achievements and impact at the outputs, immediate, intermediate outcomes and ultimate outcomes levels of the project;
- To establish a baseline on the key activities of the farmers Cooperatives and credit unions in the target communities;
- To identify barriers and challenges that women are facing for full participation in household and community social economic activities;
- To come up with recommendations and strategies that will enhance project implementation and results (output/outcomes).

1.3. Scope of the Study

As outlined in the ToR, the assignment of the consultant was to conduct baseline survey using qualitative and quantitative survey methods to generate baseline data on defined objectively verifiable indicators of the project. Geographically, the baseline survey includes four kebeles¹ of Minjar--Shenkora Woreda, Amhara Regional State. Specifically, Adama, Bole-Silase, Christos-Samara and Sama- Senbeto are the main areas this study focused. The survey investigated the current trends as regards to household's demographic characteristics, food security trends, agricultural production, asset wealth of households, livelihood activities, agricultural service provision, access to micro-finance opportunities gender and other benchmarks related to project key result areas. The baseline survey will be done through identifying data sources and developing the required instruments and methodology for collecting primary and secondary data.

1

A kebele is the smallest administrative unit of Ethiopia, similar to a ward, a neighborhood.

2. Methodology

2.1. Study area

This baseline study mainly focused and conducted in the Minjar Shenkora woreda, which is one of the woredas located in the North Shewa Zone of Amhara region. The geographical location of the study area extended from 8042'46" N to 907'37" N latitude and from 39012'57" E to 39046'53"E longitude (Figure: 1). Currently, Minjar Shenkora woreda has a total of 28 kebeles. Adama, Bolo-Silase, Christos-Samara and Sama are the four sample kebeles selected for the purpose of this study. The woreda holds the total area of 229463 hectares of land and based on the census result conducted by Central Statistics Agency (CSA,2007) the rural area of Minjar Shenkora woreda has total population of 116,642 of which 60,895 or 52.2% are males and 55,474 or 47.8% are females.

Agricultural activity is the dominant means of livelihood for the majority of the Wereda population. Moreover, some households engage in non-farm and on-farm activities. The woreda has one crop production seasons meher (the main production season that constitutes the sowing period (April to July) and the harvesting time (October to December) Crops such as Wheat, Teff, Barley, Sorghum, and Chick Pea are among the main crops of the woreda. Others include. Onion, cabbage, garlic and tomato are normally grown in small scale.

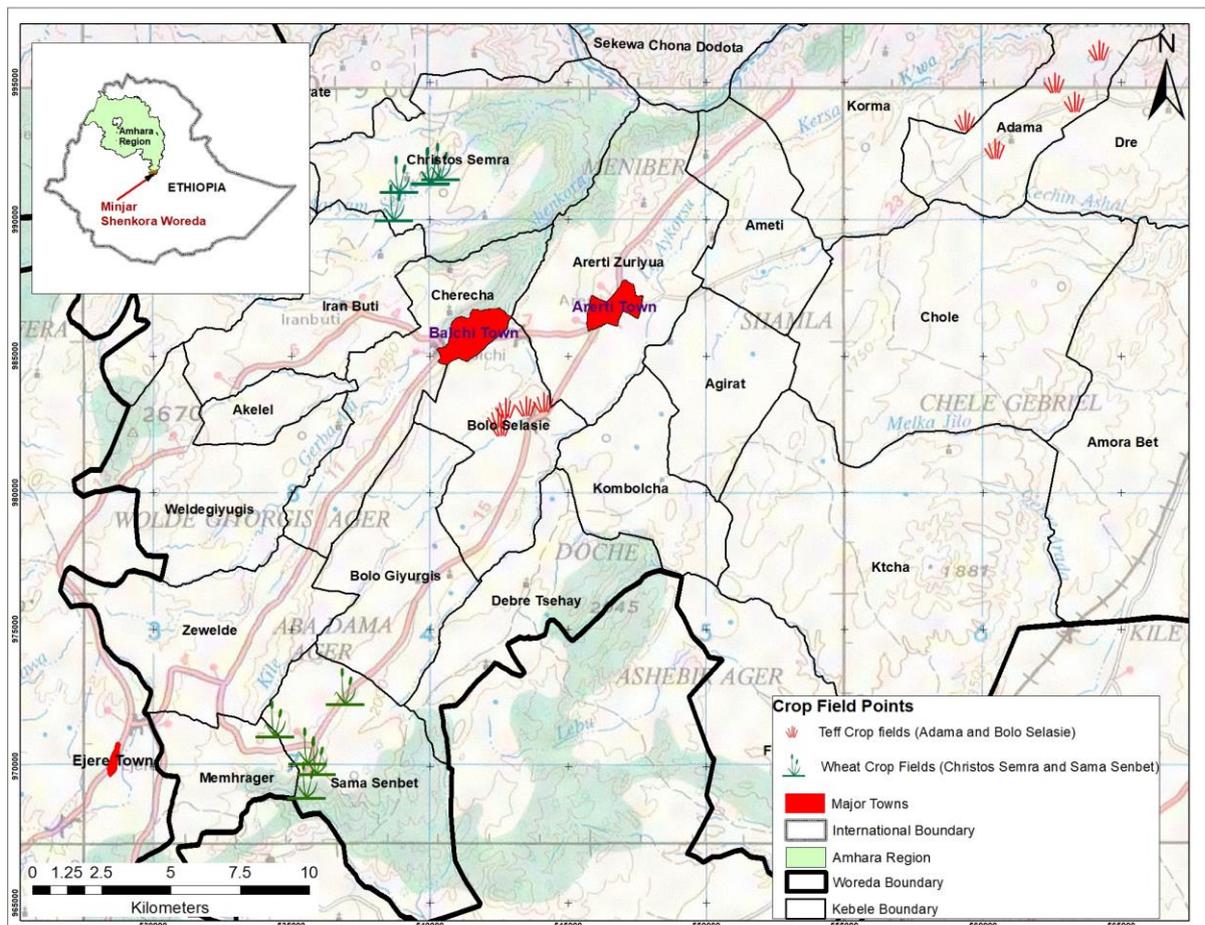


Figure 1 Map of the study areas (Prepared by Consultant).

2.2. Data collection Approach

The baseline study adopted a mixed-method approach, incorporating both quantitative and qualitative data. In order to collect data, FGD, KII, household survey, physical observation, and secondary data review methods were employed. The data collection methods and sources of data/information used for the survey are outlined as follows:

Collection of Secondary Data: We began this assignment by collecting and analyzing secondary data. Secondary information helped the consultant to understand the project and to develop indicators and design all-inclusive data collection instruments. In addition, the secondary information helped the consultant to substantiate the findings of the primary data. The prime sources of secondary data include among others, Project proposal, log frame, CSA reports as well reports from woreda offices of the Agriculture and cooperatives

Focus Group Discussions (FGD): A total of 8 FGDs were conducted in four kebeles. A topic guide, prepared after reviewing relevant literature, was used to conduct these discussions. The Consultant conducted FGD for the sake of providing qualitative data which gives an insight in to attitudes, events and perceptions difficult to obtain using other data collecting procedures. FGDS were done separately for men and women farmers. On average, 8-10 farmers were present in each FGD.

Key Informant Interviews (KII): As part of qualitative study, information was collected from key persons associated with the project, woreda experts and head of Agriculture and Cooperative Promotion Offices. Separate topic guides were prepared for different stakeholders by reviewing relevant literature before conducting the KII.

Observation: In this study, interviews were conducted at the field site and in the farmer's home. Therefore, it was easy to make informal observations of the famers' characteristics and farming. All of them allowed photographs to be taken, which later not only helped to recall the interview settings and the participants themselves, but also contributed support to the findings of the study.

Household Survey: Based on Consultants' previous knowledge of the subject, secondary information review and discussions with the CDF team, the consultant first developed a set of framework to make sure that all topics and matters in the project indicator are included in the data collection instruments. The data collection instrument (questionnaire) was designed to capture the information needed to illustrate each of the selected indicators.

2.3. Selection of Enumerators and Training

The data collection team was selected based on previous experience with survey work and included local enumerators resident in Arerti town. This was important in ensuring that the enumerators are familiar with sampled clusters in the project area. Eleven enumerators with suitable qualifications and experience in socio-economic data collection were recruited to

undertake the survey. The enumeration team received two days training and after the training a pilot testing was conducted in neighboring kebele. This pilot site was selected as logistically; it was easily accessible from the training venue. Besides giving the enumerators firsthand field experience with the survey, the pilot test was essential in verifying that the survey questions were well understood by the respondents. This therefore helped identify any gaps that the enumerators may have had with the survey data collection platform and address the same before the data collection rollout.

2.4 Sampling Procedure and Sample Size

A two-stage sampling procedure was used to select the kebeles and sample households. In the first stage, out of the 28 kebeles (2 kebeles for Teff and 2 for wheat) were selected purposively, based on the relative better production potential of Teff and Wheat. In the second stage, farm household were selected using random sampling technique taking into account probability proportional to size of household in each of four selected kebeles. As a result, the survey was administered and data were collected and analyzed on 430 respondents/farmers.

Table 1 Number of Sample Respondents Taken From Each Kebele

Grain type	Name of selected kebele	Number of sample household taken
Teff	Adama	112
	Bolo-Silase	107
Wheat	Christos-Semara	104
	Sama	107
Total		430

2.5. Method/s of Data Analysis

All questionnaires were checked in the field prior to leaving each kebele to ensure they were completed fully and correctly. The questionnaires were first checked by supervisor for completeness and consistency. The data entry format was developed as per the codes used for questionnaire design in CS-Pro, while field data collection is in progress. The software provides exact paper-format of the questionnaire on the screen, and data checking systems. The cleaned quantitative data was then analyzed using SPSS. Both qualitative and quantitative information were generated for the study and presented through a combination of cross tabulation, graphical and pictorial representations. Descriptive (frequencies, percentage and means) were used to ascertain the distribution of the variables in the study.

2.6. Limitation

The limitation that the survey team faced was unavailability of farmers to give data. The field data collection for the survey started in the first week of November. It was difficult to get farmers at Kebeles as they were highly engaged in harvesting operations. The enumerators often had to make repeated visits to complete an interview and discussion with farmers. Nevertheless, the survey team members did their best to make the survey more reliable and valid.

3. Baseline Findings

3. 1. Demographic Characteristics of Surveyed Households

A total of 430 Households were surveyed and the characteristics of the studied households are summarized in this section of the report. The distribution of respondents (430 HHs) was 63.4% males and 36.6% females, out of which 84.9% were male-headed HHs and 15.1% female-headed. It is found out that the proportion of MHHs increases as the HH size increases. This is related to the difficulty of finding adequate number of FHHs households to participate in the survey. Male household heads are by far higher in proportion than female heads of households in rural areas of Ethiopia in general and in the study area in particular.

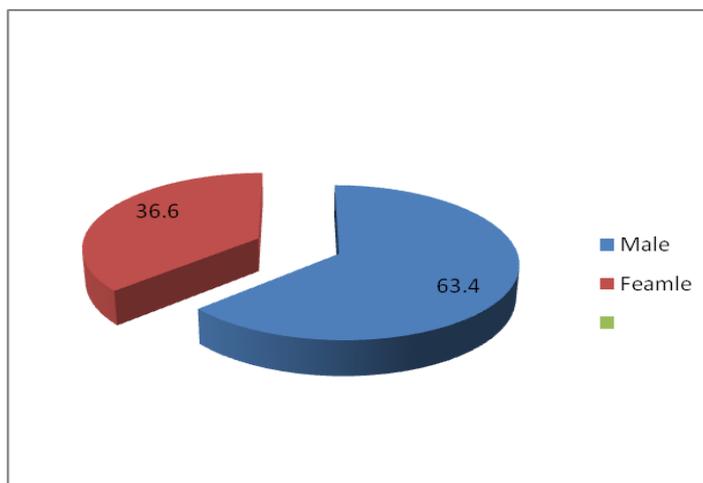


Figure 2 Percentages of Respondents by Sex

Age and household Size of Sampled Respondents

Age as one of the household characteristics is important to describe households' situation and can provide a clue on working ages of households. Figure 2 below shows the average age of the sampled respondents is 45.2 years, while the minimum and maximum age is 18 and 88 years old, respectively. The above observation entails an opportunity for project to work with farmers which are relatively younger and more productive.

Household size is also one of the factors which has implication on the family labor of household in farming community. In this study, the sampled households had an average of 4.7 persons per household, which was lower than the national average of 5.1 persons (CSA, 2007). The implication of this finding is that the farmers in the study area might have advantage of availability of unpaid family labour that reduces the cost of farm labour.

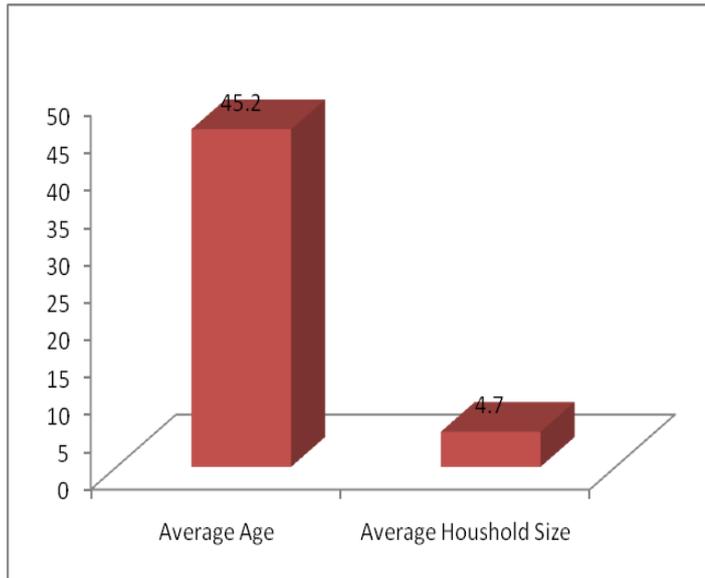


Figure 3 Age and Household Size of Respondents

Marital and Education Status of the Respondents

Figure 3 and 4 present information about marital and education status of the respondents. The result shows that the majority of the respondents (80.6%) are in a monogamous marriage and 1.5 % have never been married. Results showed that there were more married respondents in the surveyed population than those who had never been married before, widowed, divorced, and separated.

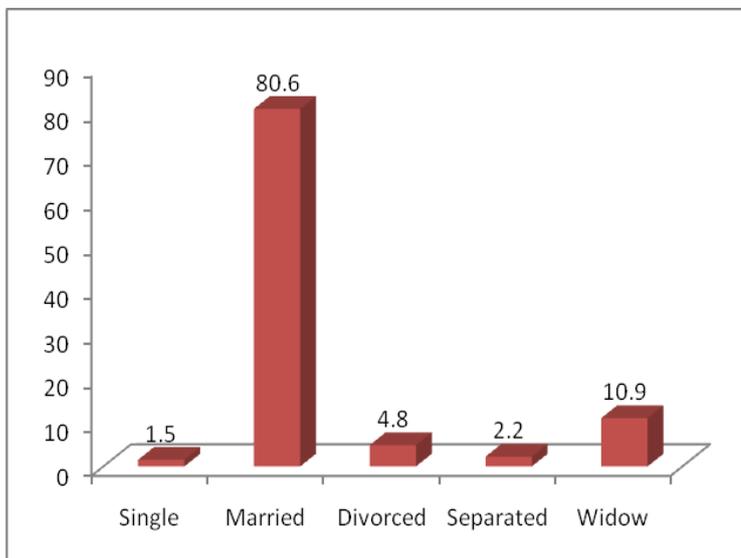


Figure 4 Percentage Distributions of Respondent's Marital Status

The educational background of the sample households is believed to be important features that facilitate farmer’s understanding and use of improved agricultural practices. As depicted in Figure 4, about 35.6% and 33.7% of the respondents are illiterate and can read and write, respectively. About 9.9% attended formal education ranging from grade 1 to 4, while 15.6% had formal education from grade 5 to 8. The remaining 4.7% attained education level ranging from grades 9 up to 12. From the sample survey findings, we can see that relatively males are literate than female (42.8% and 18.1%) respectively. This result also reveals that the majority of female respondents are in illiterate group and this calls for the necessity of basic education for women farmers in the area. This finding is important the high level of education among the respondents would likely make them more responsive to project intervention.

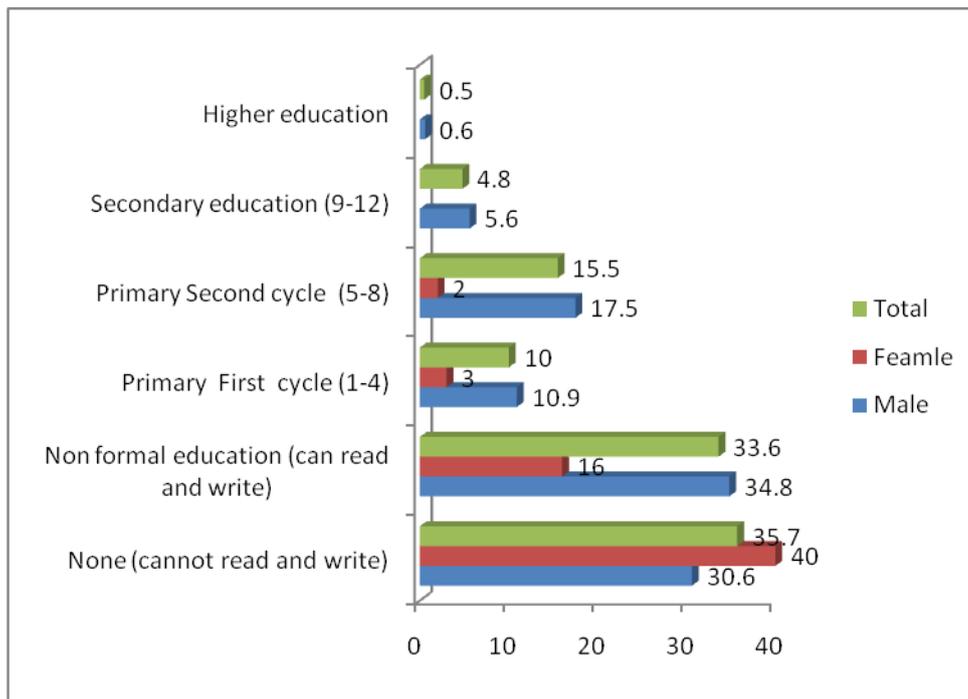


Figure 5 Percentage Distribution of Respondents Education Status by Gender

Livelihood Activity

The study enquired about the economic categories of respondents in the sampled areas. The results showed that maximum proportion of the households was primarily involved in farming and contributed to about 98.1% of the total households. These findings were supported by the FGDs where discussants indicated that the main income source of all of the participants is income from crop production .The figure 5 shows that apart from reporting crop production as a common source of income for the household, they also engage in livestock production reported by 52.8% of households.

The female headed households depend so much on casual labour (9.4%) than the male headed households (1.7%) who are involved in other diversified income portfolio. The over dominance of casual labour among female headed households poses an entry point for the

project to support the vulnerable groups especially female-headed households in order to improve their socio-economic status. As figure below suggests, more female headed households (7.6%) than male households (4.2%) were engaging in small business activities. In general, the sampled respondents have different sources of increasing their family income through diversification of livelihoods.

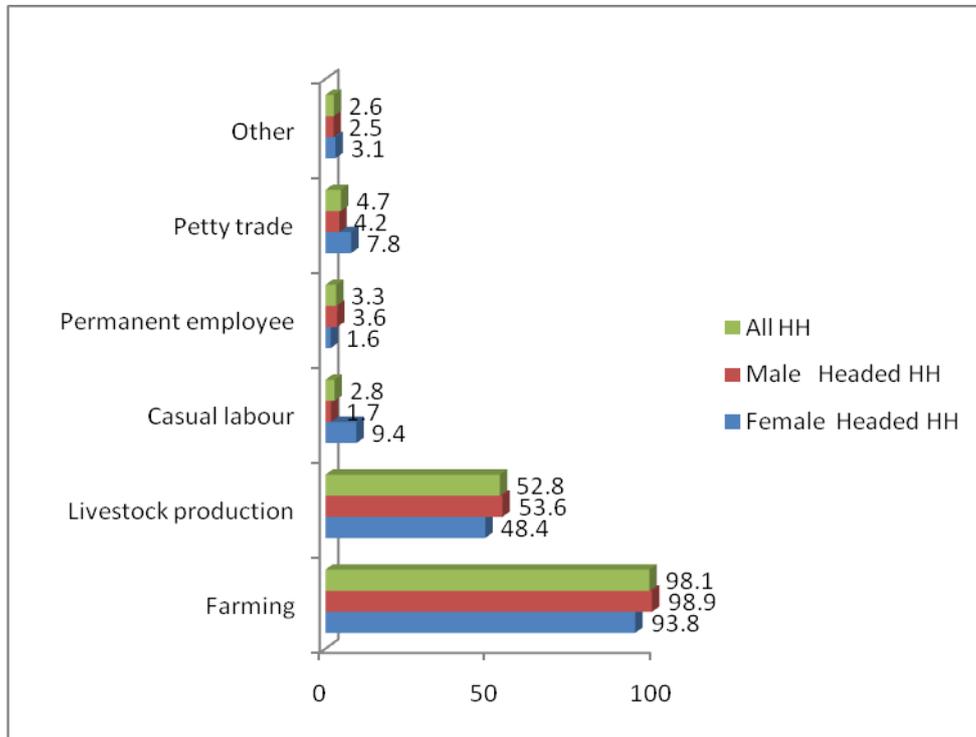


Figure 6 Percentage Distributions of Household Livelihood Activities

3.2. Ultimate Outcome indicator

3.2.1. Household Poverty

Poverty Probability Index (PPI) is a poverty measurement tool for organization with a mission to serve the poor like CDF. This measurement tool is statistically sound and simple to use. So as to determine the PPI, the consultants have gathered information on ten questions about the household characteristics and asset ownership. These questions include, study HHs family size, education status of female head or spouse of the study HHs, the types of the main material from which the wall of residence made, the types of toilet facilities, the types of fuel that the study HHs use for cooking, whether the study HHs own asset like farm land, cattle, radio and bed.

The response of each of these ten indicators has given values and point/score for each value. Out of the total study HHs, 334 HHs have given complete response for the ten questions, the other HHs missed at least one of the ten questions, and therefore the consultant analyzed the score of the 333 HHs to get reliable PPI. The score of each HHs is then compared with the estimated poverty likelihood table (*we used the poverty likelihood tables estimated by 1.9*

USD/day at 2011 international prices). Finally, the PPI of each HH summed up and divided by the total number of HHs to get PPI of the study area.

$$PPI = \frac{PPI \text{ of HH1} + PPI \text{ of HH2} + \dots + PPI \text{ of HHn}}{\#THHS} = \frac{20.6 + 53.6 + \dots + 53.6}{333} = 29.3$$

Where:

PPI= Poverty probability Index

HH1= the first HHs interviewed for the study

HHn = the last HHs interviewed for this study

#THHS= number of total HH surveyed that fully responded the ten questions required for PPI

Therefore, the final PPI index calculated to be 29.3. This indicates that 29% of the study population living below the national poverty line. There is slight difference in PPI between men and women respondents as the PPI of male and female HHs participating in the survey are 28.2% and 31.1% respectively.

Incidence of Poverty: This is the proportion of families/individuals with expenditure less than the per capita poverty threshold to the total number of families/individuals. To calculate this poverty line, we have considered the expenditures of the households for food and other basic nonfood items. The value of the food poverty line used by Household Income and expenditure survey undertaken in 2015/16 at national level which is 3781 birr/year.

$$Pi = Q/N * 100$$

Pi= Poverty incidence

Q= Number of family/individual under poverty line

N= total number of studied population

As per the finding of the analysis, the total average expenditure of members of 89 households on food and nonfood items is less than 3781 Birr.

For this particular study, Q=87HH, N=430 HH (total study HHs).

The poverty index/incidence of poverty is $Pi = Q/N * 100 = 89/430 * 100 = 20.7\%$. Therefore, the PI is 20.7% which means 20.7% of the studied household cannot afford to buy a basic basket of good including food and nonfood items.

3.2.2. Household Food Security

As stipulated in the proposal, the project aims to enhance agricultural productivity and food security situation of small holder farmers through application of 4R principle. The baseline survey result has made food security assessment in view of source of household food

consumption, food security status in last one year and forecast of risk of food insecurity in the future.

One of the major parameters under review by this assessment is food security status of target households. Despite the area is prominent food grain producing cluster, the survey finding as indicated that the survey households face food shortage for an average of 2.5 months. The cause of food shortage as reported by FGD discussants is associated with high growth rate cost of rent of farmland which ranges 5,000-7,000 ETB per *Timad* (0.25 ha) depending on the level of fertility of land. It was also mentioned that the rent of one *Timad* rises up to 10,000 if the land is meant for onion production.

The high cost of rent of farmland affects large number of people who are landless and those that have less plot size hence need to rent additional plot to support their family livelihood. The high cost of crop production is also observed during peak agricultural periods such as ploughing and harvesting time which demands farmers to hire daily labourers at wage rate of 200-250ETB/day. The survey has also assessed the perception of food security status of target households. The fact has shown that 89% of the households reported that they have sufficient food for their family while the remaining 11% reported their family had shortage of food for some month/s in the last one-year reference period.

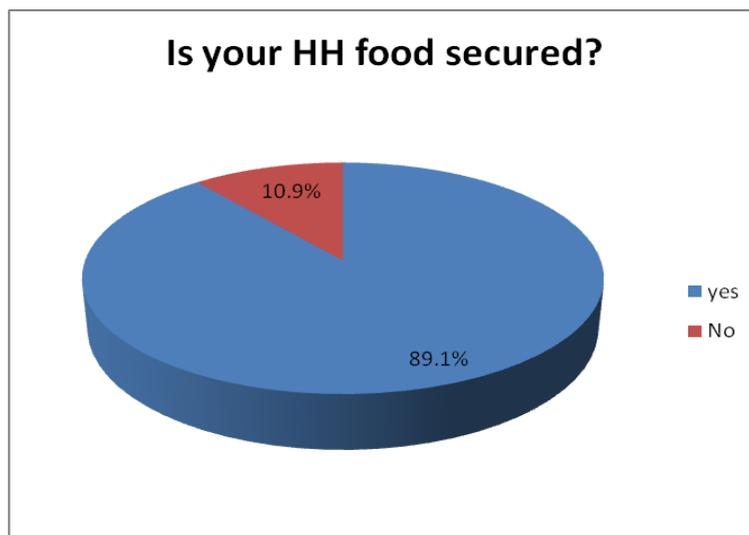


Figure 7 Household Food Security Status

The study also assessed the anxiety or perceptions that the household food budget or food supply was inadequate. The survey result as evidence in Figure 8 showed that about the majority (68%) of the respondents reported to never worry about running out of food before. The rest had some anxiety of some sort. Whilst the remaining 32% reported they worry about the food security status of their family if shocks face the family. This shows that there is a risk of food shortage as vulnerabilities hit the area indicating the need to ensure food security for small holder farmers who are under risk of food shortage especially during disaster times.

The FGD discussants has widely mentioned that erratic rain fall and wilting of disease affects the food security status of target small holder farmers.

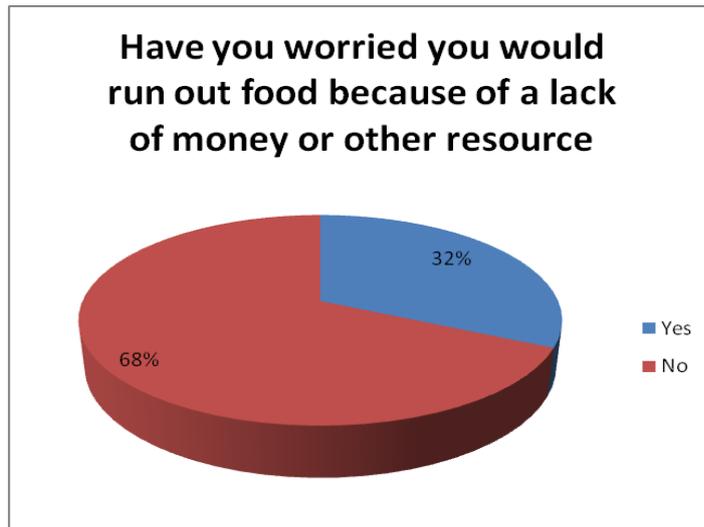


Figure 8. *Not preparing enough food to feed the family*

This study has also assessed the major sources of food for target small holder farmers as this affects their food security status since the source affect purchasing power of families at fluctuating price level of food items. As tabulated in Figure 9, the major source of food for majority of the households (55.3%) is obtained from own source. While 24.6% reported that livestock and its products is major source of their family food security and 19.7% reported major source of their food consumption is fulfilled through purchase. The above evidence shows that household food security/shortage status is affected by individual farmer performances and external market condition of food items.

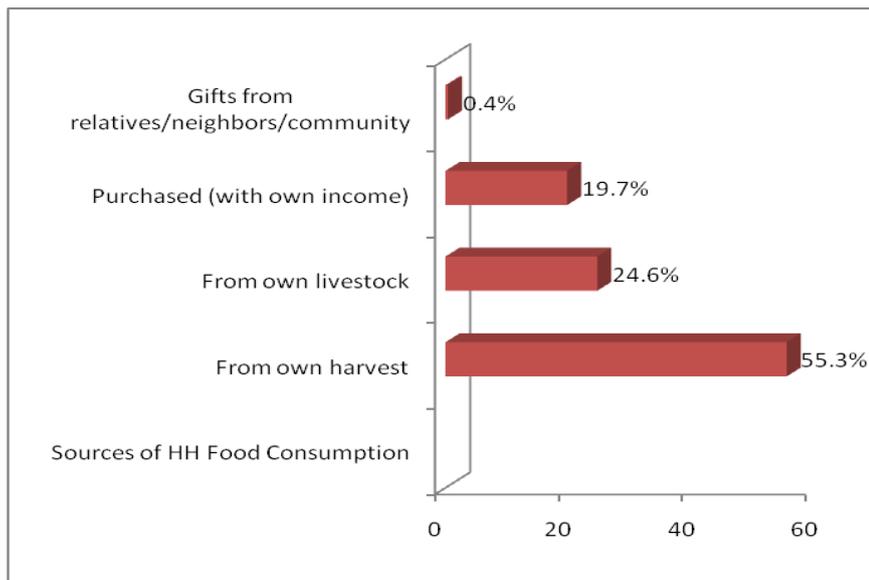


Figure 9 *Major Source of Household Food Consumption*

3.2.3 Household Asset

Durable and Livestock Assets

Ownership and access to vital assets is an important determinant of household wealth and potential for development. The survey asked for information on a range of different assets and the respective values. The table 1 shows that 94.8% of the households had bed and mattresses, 85.6% of the respondents possessed mobile and 62.8% of the households possessed table /chair. The high percentage of households who own mobile phones provides potential opportunities for the farmers to improve on their access to agricultural extension information and other updates on general development.

Other valuable items possessed include radio by 49.2% of the respondents, Jewelry by 29.5% of the respondents, stove by 24.9%, TVs by 20.5% of the respondents, wheelbarrow cart by 24.5%, sofa by 5.2% of the respondents. This implies that the majority respondents have basic assets of the household. The findings also showed that very few (2.8%, 1.7% and 1.2%) households owned refrigerator, Bajaj and car respectively. The result also shows that sofa and TV had the highest average value of Birr 10099 and 7393.2 respectively.

The livestock ownership of farmers was probed in this survey and the results show that about 31% of the household owned cattle. Other types of livestock reared by the households are sheep and goats (small ruminant), back animals (equines) and poultry. About 28.7% and 24% farmers reported owning equines and poultry respectively. A small ruminant (sheep and goat) is also important with about 16.5% households reporting ownership. Table 2 also shows that on average the per capita asset value of other livestock kept by farmers. With regard to total value of livestock, the survey findings reveal that cattle had the highest average value (Birr 56687) followed by small ruminant with average value of Birr 6853.02

Table 2 Ownership of Assets and their current values

Types of asset	Name of asset	% with asset	Average value (Birr)
Durable asset	Stove	24.9	971.68
	Sofa	5.2	10,909.09
	Bed and matrices	94.8	5,963.64
	Mobile	85.6	1,981.41
	Radio	49.2	516.91
	TV	20.5	7,393.02
	Jewelry	29.5	3,169.19
	Table/chair	62.8	1,529.21
	Wheelbarrow cart	24.5	6,493.14
	Car	1.2	445,800
	Refrigerator	2.8	18,083.33
	Bajaj	1.7	177,142.86
Livestock	Cattle	31	56,687.20

Equines	28.7	6,566.40
Small ruminant	16.5	6,853.02
Poultry	23.7	1,193.41

Ownership of Dwellings

The description of the dwelling unit of a household provides an indication of wealth, based on the materials used at floor materials, wall materials and roofing materials. The results of the analysis show that the majority (98.8%) of the respondents owns the houses that they live in while only 1.2% said they don't own house (Table 3). In terms of gender distribution, there is no disparity between male and female headed HHs.

Floor type of the house for 70.3 % of the respondents, is mud or dung, while only about 7.6% are living in a house with rough cement floor. However, there is a disparity between male headed and female headed HHs as more proportion 23.2%) of male headed households living in a house with cement with tiles floor as compared to female headed HH, which stand at 10%.

As to the type of construction material for wall, there is no common type of wall material for both male headed and female headed HHs. Overall 90.5% of the respondents (96.7% female headed HH and 89.6% of male headed HH) are living in the house its wall is constructed from wood with mud, while about 5.3% (5.9% of male headed HH and 1.7% of female headed HH) are living in the house its wall is constructed from stone with cement.

With regard to the type of roofing there is no common feature. However, larger proportion (98.3%) of both categories of respondents live in a house its roof is made of iron sheet while only 1.2% are living in a house its roof is made of thatched. This implies that owning a house with Corrugated Iron Sheet' is a sign for a household in Minjar Shenkora Woreda.

In terms of rooms over 73% of respondents, both categories are living in house with 2 room and about 15.9% live in a house with one room.

Table 3 Respondents' type of house owned by Type of Household

	Female Headed HH(%)	Male headed HH (%)	Total (%)
Home ownership	95.3	99.4	98.8
Number of rooms			
• One	28.3	13.8	15.9
• Two	65	74.6	73.3
• three or more	6.7	11.5	10.8
Floor materials			
• Mud or dung	83.3	68.6	70.7
• Rough Cement	6.7	7.6	7.4

• Cement with tiles	10	23.2	21.3
• Others	-	0.6	0.5
Wall material			
• Wood with mud	96.7	89.6	90.6
• Wood with cement	-	1.4	1.2
• Bricks with cement	1.7	1.7	1.7
• Stone with cement	1.7	5.9	5.3
• Other	-	1.4	1.2
Roofing material			
• Thatch	1.7	1.1	1.2
• Corrugated iron sheet	98.3	98.3	98.3
• Other	-	-	0.5

3.3. Intermediate Outcome indicator

3.3.1. Implementation of 4R by Farmers

Farmers were asked whether they have implemented 4R in their farm. Of the households surveyed (N=430), none of the respondents claimed that they have implemented 4R. According to information gathered from KII, it was reported that 4R approach (best nutrient management based on the principles of 4R nutrient stewardship) are quite new in Ethiopia in general and in the study area in particular. However, according to information gathered during FGD farmers became aware of other fertilizer application practices through government extension service. They reported that they have their own preferences on how to, when, what types and amount of fertilizer to apply. They sometimes use blanket fertilizer recommendation that may lead them to over-fertilize and under fertilize in some areas. There are knowledge gaps and challenges with regard to farmer's fertilizer applications. This study suggests the need for appropriate sensitization of farmers through various capacity building activities such as field days, seminars, practical training which should aim at addressing the knowledge gap on fertilizer management.

3.3.2. Crop Productivity

The various crops grown in the study area were explored. As expected, the figure 10 indicates, wheat and Teff are the major crops grown in the study area. The largest proportion (about 97.8%) of the households planted Teff. Next to Teff is wheat cultivated by 85% of the households. Chickpea appears to be grown by 34% of farmers. Barley and Sorghum are close to each other as 4th and 5th as reported by 20% and 16% of respondents, respectively. This ranking of importance holds across the FGD discussants. They were asked to enumerate, in order of priority, the various types of crops grown in the area. Accordingly, Teff remains the first choice cultivation followed by wheat both in terms of importance and area coverage.

It is interesting to note that yield of major crops is also an important part of this study. The survey estimated yields by asking farmers how much they harvested in the previous planting

seasons (2018/19). As presented in figure 10, the survey result indicated that the average yields of Teff and Wheat in the survey area was 1.8 and 3 Mt per hectare respectively. This indicates that the recorded average yields by households are relatively lower as compared to the woreda average yields (2.18 Mt /ha for Teff and 3.8 Mt /ha for wheat).

The survey finding further reveal that the the average yield was 0.8Mt per ha in case of Chickpea while 2.8 Mt/ha in the case of Barley. In FGDs, farmers mostly mentioned Chickpea production changes over time to pest and disease. Famers reported that yield of chickpea is reduced extremely from 2.8 Mt/ha (over the last 3 to 4 years) to 0.8 Mt per ha in 2018/19. Furthermore, the discussion with the FGD participants indicated that there has been a growing interest by many farmers to produce Chickpea due its higher productivity. However, they mentioned that they are not able even to get enough seeds from their plots for the next harvest due to the continuous disease. As information obtained from discussion with Woreda official, because of the root rot disease (*Cicer arietinum* L) famers are not able to get enough yields from chickpea and the crop is becoming out of production in some areas like Adama kebele. Some of FGD participants (e.g in Adama) expressed that they have lost their entire field of chickpea due to the disease.

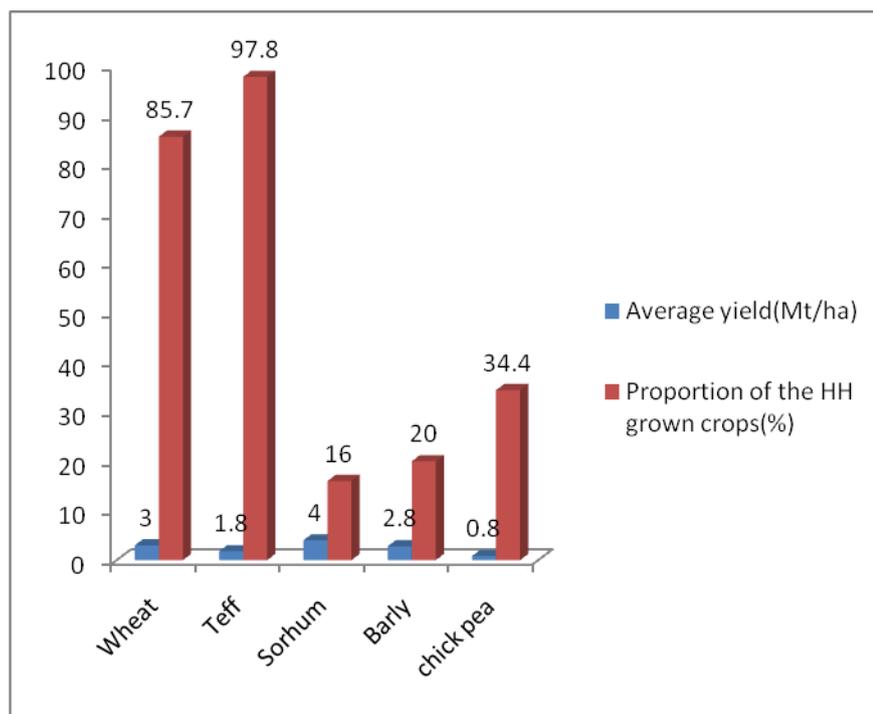


Figure 10 Major Crops Grown and Productivity in 2018/19

The study further analyzed the critical problems that affect crop productivity of the households in the surveyed area. As depicted in 11 pest and diseases are the most limiting factors of crop production as reported by 63.3% of the HHs. The FGD and Key informant interview discussion disclose that this is the most critical challenge farmers are currently facing to increase chickpea productivity. 40.5% of the interviewed farmers indicated that

unreliable weather, little or too much rain, constrain crop productivity. Respondents during FGDs in almost all the surveyed kebeles stated that climate change causes reduction of crop production. Most of them are affected directly or indirectly by the unpredictable and unreliable rain, leading to an increase in the frequency of periods of low/no rainfall and heavy rainfall events.

Problems obtaining sufficient labor at critical times (40%) were also identified by the farmers as having negative impacts on crop productivity. According to information gathered during group discussion with farmers a labour shortage in the household was also ranked as an important factor affecting agricultural production. Thus, efforts to improve crop productivity in the study areas need to explore the technologies that will help to improve the labour efficiency such as tractor and thresher like combine harvester. Lack of fertilizer and lack of pesticides were also identified as constraints by 39.6% and 37.6% of the respondents, respectively. Some of the other major challenges farmers are facing include lack of irrigation facilities (28.1%), lack of improved seed (23.3%), poor soil fertility (21.8%) and lack of money to buy the necessary input (21.8%).

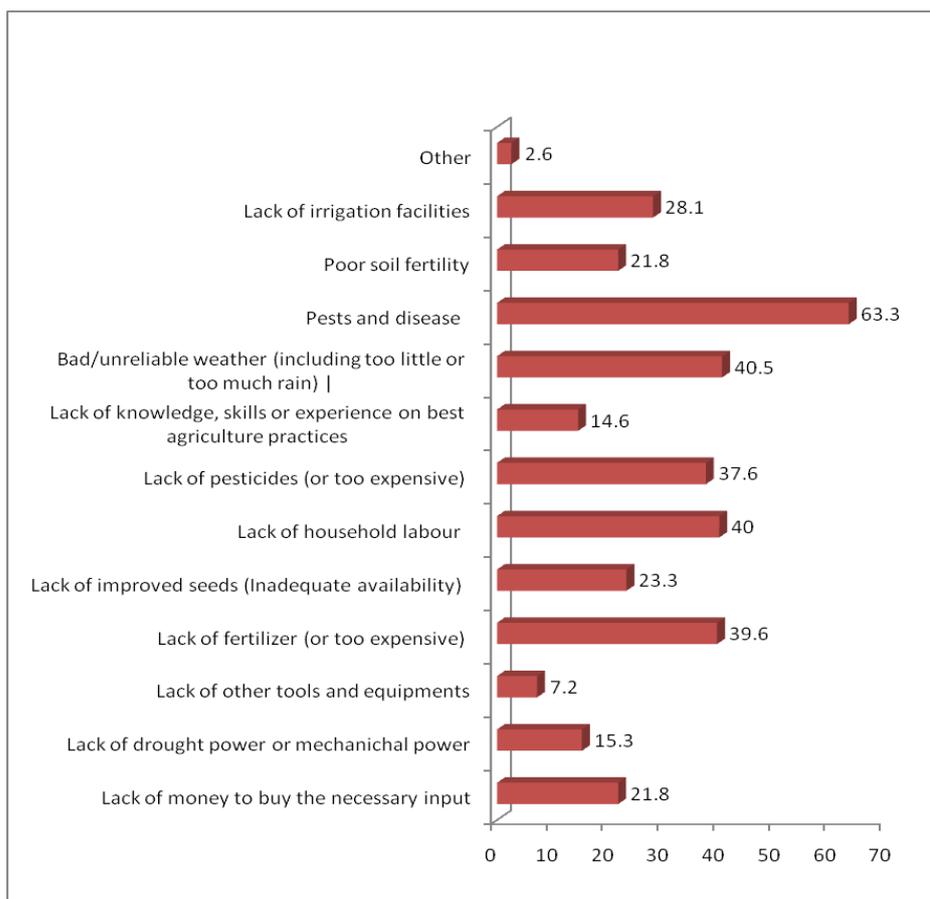


Figure 11 Critical factors affecting agricultural production

3.3.3. Income from Major Crops

Evidence indicates that Minjar-Shankar woreda is among food crop producing hub of the country. The target households are mainly dependent on income reaped from crop produces. Attempt was made to assess the income² obtained from major crops produced by smallholder farmers. Table 4 presents total agricultural income³ for all households that cultivated at least one plot. The result of household survey as illustrated in the Table below indicated that an average annual income of **34,804.30** ETB is reaped from sell of under listed major crop items in the last one-year reference period. It is found that is prominent source of crop income for smallholder farmers generating an average annual income of **21,740 .39** ETB. Wheat is the second major source of income with an average annual income of **16,340.29** ETB whilst sorghum makes an average annual income of **12,368.18** ETB. Other crops such as lentils, beans, peas, beans, and haricot beans makes-up an average annual income **10,578.72** ETB of Maize and barely makes an average income of **4,150.00** and **4,087.50** ETB respectively.

Table 4 The share of total crop income attributed to each crop type (2018/19)

Crop Type	Average Annual Income (Birr)		
	Female Headed HH	Male Headed HH	Total
Maize	1,066.7	4,810.7	4,150
Wheat	11,313.5	17,072.5	16,340
Teff	13,623.5	22,971.8	21,740.4
Sorghum	7,500	13,136.8	12,368.2
Barley	2,000	4,385.7	4,087.5
Other Grain	9,240	10,738.1	10,578.7
Total	22347.1	36692.7	34.804.3

The FGD and KII sources also surfaced that the major source of income for the target community is obtained from sell of mainly Teff and wheat. The area is well known for its good quality ‘*Minjar Teff*’ variety. This *Teff* variety has good market reputation and good market price as compared to items from other areas. The overall findings showed that *Minjar Teff* is main cause of high-income constituency of target smallholder farmer.

One of the striking issues identified by this survey as reflected by FGD participant is that the income obtained from grains such as chickpea and lentils is diminishing in the last recent years. As a result of this, the trend of production of these crops is reducing over time due to prevalent incidence of wilting disease affecting the crops. The reduced production of chickpea and lentil is not only associated with reduced income from the specified crops, but it

² *Income is measured through sales, and does not include imputed value of production.*

³ *Agricultural income is defined as the total amount of money received from crops sold.*

has spill over negative impact on the income obtained from *Teff* and other cereal crops because of the importance of legumes crops in enriching soil fertility and crop productivity.

In addition to income from the major food grains, the baseline survey assessed the income obtain vegetable produces. As indicated in the Table 5, smallholder famers reap an average annual income of 32,580.9 ETB from vegetable production in the last one-year reference period. This earning is much closer to the annual income obtained from crop produce 34,804.3 ETB. The major income from vegetable comes from onion followed by carrot and garlic.

Table 5: Income from sale of major vegetable crops

Vegetable crop	Average Annual Income (Birr)		
	Female Headed HH	Male Headed HH	Total
Onion	23,700.00	32,333.8	31,635.74
Chili	400.00	4,094.29	3,632.50
Tomato	3,880.00	5,390.32	5,180.56
Garlic	16,583.33	26,866.7	23,928.57
Carrot	.	30,000	30,000.00
Beet Root	.	1,000	1,000.00
Other Vegetable	.	9,916.7	9,916.67
Total	23,733.33	33,508.12	32,580.87

Though the area coverage for cereal crops is higher over the vegetable, the cash crop nature of the later takes the higher income earning share privilege. This shows there is stiff competition over the land allocation for *Teff*/Wheat and Onion. However, as evidenced by FGD participants, the income from vegetables is highly volatile and the earning is less predictable due to market fluctuation. The perishability of vegetables such as onion coupled with lack of value chain linking the producers with rewarding markets are causing challenge on farmers in earning fair gain from their produce sometimes resulting in loss of income.



Picture: Partial view of crop and vegetable production in Chirstos Semera from left to right

3.3.4. Women Leadership and Participation in Decision Making

The design of project has given special emphasis to ensure the inclusion of women in the benefit of project intervention. It seeks to empower women in enhancing their participation in decision making at household and community levels. In this regard, this study has assessed the role of women in making decisions on agricultural practices and their status of leadership in cooperatives operating at kebele level. The finding of the baseline survey as illustrated in Figure 12 indicated that for 83.7 % of the households, both husband and wife make joint decision on issues related with selling and buying of livestock and agricultural input. On the other hand, for 16.1% of the smallholder farmer husbands make exclusive decision on the key household assets while 0.2% of wives make independent decisions. The result of the survey pinpointed that there is good level of engagement of women in decision making at household level.

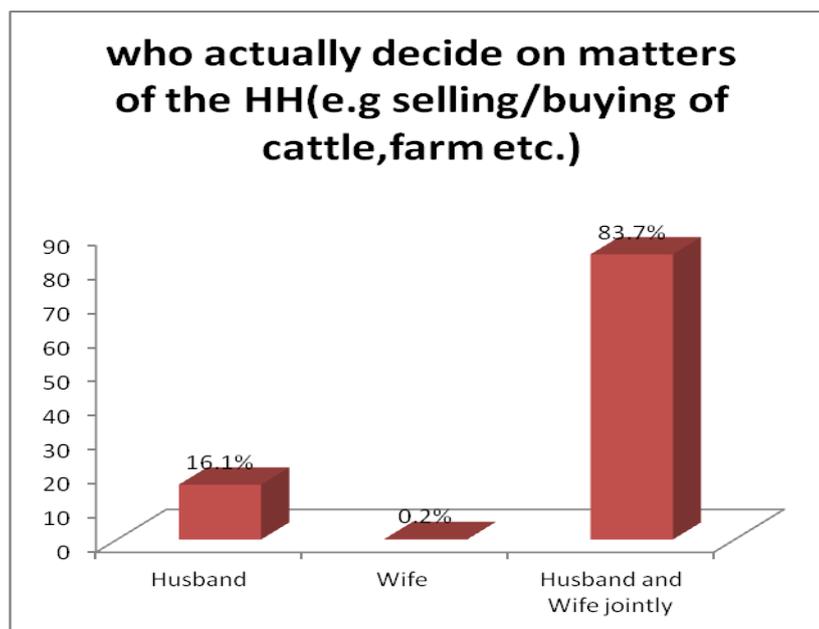


Figure 12: Decision making at household level

In overall, the various sources contacted by this survey unanimously indicated that there is good level of joint participation on household matters. However, it also signals that there is need to understand that there are also trivial numbers of households in which decisions are dominated by male. Women FGD participants also flagged that they there is minimal participation of women in farming related skill trainings and events including technology disseminations as they think that participation of their husband is adequate.

In addition to the participation of women in decision making at household level, the study has also assessed the level of participation of women in cooperatives/associations/unions leadership position. The review of secondary sources solicited regarding the role of women in cooperative leadership in major cooperatives related to the project activities showed that only 21.6% of the leadership position of cooperatives is occupied by women while the overwhelming majority (78.4%) of leadership occupied by their male counterparts. The findings showed that women have less leadership role in cooperatives which deserves due attention in the project implementation phase. Inter-coop engagement of women in leadership position showed that wide range from 0% to 44.6% in improved seed duplication and saving and credit cooperatives respectively. This signals that more attention shall be given to those cooperatives with lesser participation of women such as improved seed duplication, irrigation and multi-purpose coops.

Table 6: Gender Analysis of Leadership Participation

No.	Type of cooperative	Total no. of coops	Number of coop leaders			
			No. of Male	No. of Female	Total	% of F
1	Multi-purpose Cooperatives	22	120	9	129	7.0
2	Biodiversity Cooperative	1	5	2	7	28.6
3	Improved seed duplication cooperatives	4	22	0	22	0.0
4	Irrigation cooperatives	6	35	1	36	2.8
5	Saving and Credit cooperatives	26	72	58	130	44.6
	Total	59	254	70	324	21.6

Source: Woreda Cooperative office, 2019

In addition to participation of women in leadership position, the analysis of rate of participation of women (membership) in kebele cooperatives showed that there is less participation as compared to their male counterparts. In the five pertinent cooperatives under listed in Table 7 surfaced that women participation as member is only 20.4% whilst male counterparts makes-up the overwhelming majority of share (79.6%). The review of gender disparity in membership across different cooperatives shows that the highest participation is for saving and Credit cooperatives which makes-up 40.8% while the least participation is observed for improved seed duplication (7.9%).

Table 7: Gender Analysis on Rate of Participation(membership) Women in cooperative

No.	Type of cooperative	Total no. of coops	Number of members			
			No. of Male	No. of Female	Total	% of F
1	Multi-purpose Cooperatives	22	22,406	5,294	27,700	19.1
2	Biodiversity Cooperative	1	8	2	10	20.0
3	Improved seed duplication cooperatives	4	316	27	343	7.9
4	Irrigation cooperatives	6	280	69	349	19.8
5	Saving and Credit cooperatives	26	1,184	816	2,000	40.8
	Total	59	24,194	6,208	30,402	20.4

Source: Woreda Cooperative office, 2019

As it was flagged by Cooperative Development Office, it was realized that the participation of women especially in leadership is low due to less literacy skill of women as compared to men. It was also added that women have less interest to work at such capacity partly due to their multiple role in the household and due to lack of confidence to assume position. Hence, the participation of women in leadership position at community level such as cooperative deserves more attention in the implementation phase of this project through supporting their literacy and enhancing awareness in gender equality.

3.3.5. Organization that Integrate 4R and Gender Sensitive Principles

Lower level of knowledge has been observed on integrating 4R principles among the surveyed institution due to limited exposure and lack of supportive intervention. As a result, 4R was not integrated as part of the development programme in the surveyed areas. It was indicated that Woreda agriculture office is mainly involved in knowledge generation through demonstration as well as agriculture-oriented service delivery at woreda level. However, as the 4R approach is quite new in the area, it is not integrated into their institutional work plans to provide technical advice and affordable solution to farmers. However, the detailed KII with officials indicated the integration of 4R approach to be necessary for the future of farmers and that it should be integrated into the areas of agricultural techniques.

3.4. Immediate Outcome indicator

3.4.1. Farmer's and Extension Agent's Knowledge on 4R

In inquiring about the knowledge status of the farmers relating 4R approach, all of the respondents (100%, N=430) indicated that they had no information or knowledge about 4R. Respondents were also asked whether they have received training on 4R, the results found that all respondent surveyed (100%) informed that there has been no training provided to them. Although respondents could participate in more than one training session in a year, the

training session most attended over the last one year was on crop production as discussed in the FGD.

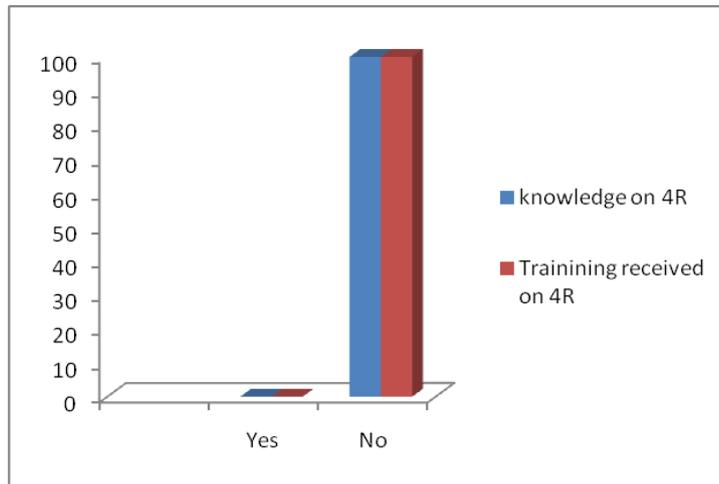


Figure 13 Percentage of Farmers' Perception of 4R

Predictive knowledge of the extension has been assessed focusing on, among others, their levels of awareness about source, amount, time and placement of fertilizer. The survey team interviewed with extension agents and found that

- All of the Extension agents (8 out of 8, or 100% asked) said they had poor knowledge of 4R
- The survey team asked whether they have received training on 4R, but none of the interviewed reported having received formal training related to 4R

As information obtained from discussion with extension agent indicated that they are not well aware of the application of 4R nutrient. The poor knowledge of 4R indicates that they have not over the years acquired necessary information and awareness on the 4R principles. Hence, there is a need to increase their knowledge to improve their competency skills in extension service provision especially on awareness creation and in the provision of 4R application to improved crop productivity.

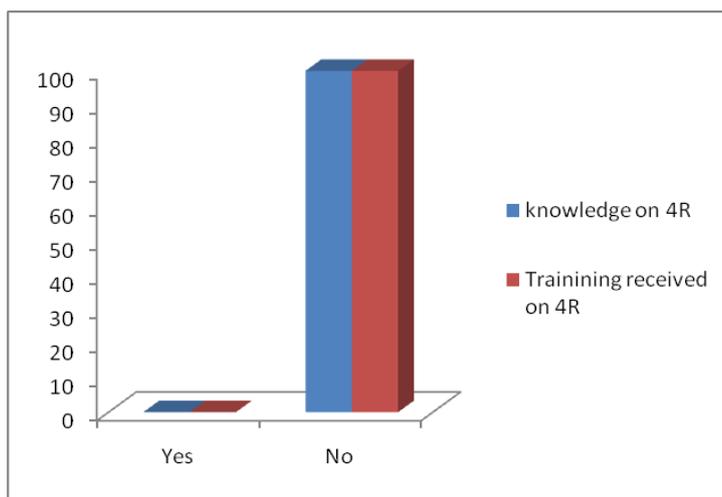


Figure 14 Percentage of Extension Agents' Perception of 4R

3.4.2. Access to Improved Production Resource

Access to Fertilizer and Improved Seed

Farmers in the study area used inputs such as improved seed and chemical fertilizers for production but the amount of inputs and the rate of application are not uniform for all farmers. Of the farmers interviewed, 71.3% had easy access to improved seed (Figure 15). This indicates that there is still need to make improved seed more accessible. Some of the respondents in FGDs also alleged that they have access to improved seed especially for wheat and Teff and reported that improved seeds of wheat and Teff are of high yielding compared to the local seed ones.

There is significant variation in this proportion between male and female headed HHs. The survey finding reveals that male headed HH had better access (75.4%) to improved seed compared to female headed HH (47.5%). This difference may be partly related to the fact that female-headed households tend to have smaller farms. The low percentage of female headed household accessing improved seed may also imply that there is need to improve the seed supply system so as to enable the female headed household to access the improved seed for the farm produce. In the FGDs, apart from the accessibility, participants (both male and female) were encouraged to discuss other factors that are commonly associated with improved seed. The participants mentioned that the improved seed varieties are not available affordable price and at the right time and place. As a result, some farmers depend on local cultivars and seeds

As far chemical fertilizer is concerned, the highest percentage (95%) of farmers had access to fertilizer. The FGD result confirmed that farmers have access to fertilizer, and it is common for them to be able to purchase fertilizer on credit in the study area. However, a few respondents (e.g farmers who produce onion as cash crop) of FGDs opined that they are go to local market for buying fertilizer due to shortage of fertilizer. As shown in figure below, male

headed households have a better access of improved seed and fertilizer than female headed households.

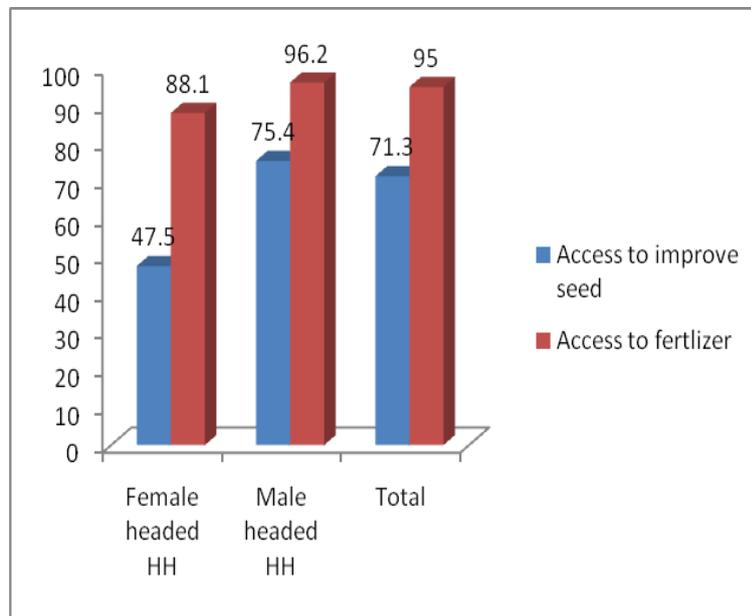


Figure 15 Percentage of households with accessibility to fertilizer and improved seed

Access to Credit Services

Access to credit is one way of improving crop's production and productivity. From the sample survey conducted we found the majority of the respondents (68.6%) have access to credit that can be used to buy agricultural inputs such as improved seed and fertilizer. The FGD participants unanimously concurred that some farmers do not want to borrow money for purposes of financing their farming activities. They claimed that the amount of interest rate is one factor that determines their ability to repay the loan. It is interesting to note that farmers' ability to purchase fertilizer is tied with access to credit and credit was made available to farmers through the Amhara Saving and Loan Association. As information obtained from discussion with farmers and KII indicated that Cash shortage is prevalent among smallholder farmers particularly during the main cropping season when previous year's harvest is near exhaustion, and this is the time where cash is required to purchase agricultural inputs.

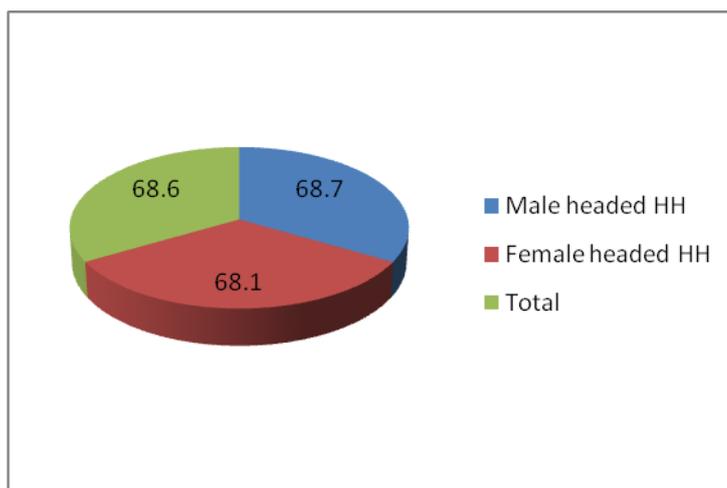


Figure 16: Percentage of households with access to credit

The baseline study also found that the majority (87.1%) of those who reported to have access to credit confirmed that finance institutions were their main source of credit. SACCOs was mentioned by 6.5%, while 3.8% reported informal lender as a source of credit (see figure 17). FGD held with both women and men groups revealed that the Amhara Saving and Loan Association is the major financial institution that provide access to loan for farmers to buy fertilizer. According to FGD participants’ loan from other source was used for petty trading, consumption needs, etc. The survey finding indicates that, the male and female headed HHs have no significant difference in opportunities to borrow from the sources of credit accessible in the study area.

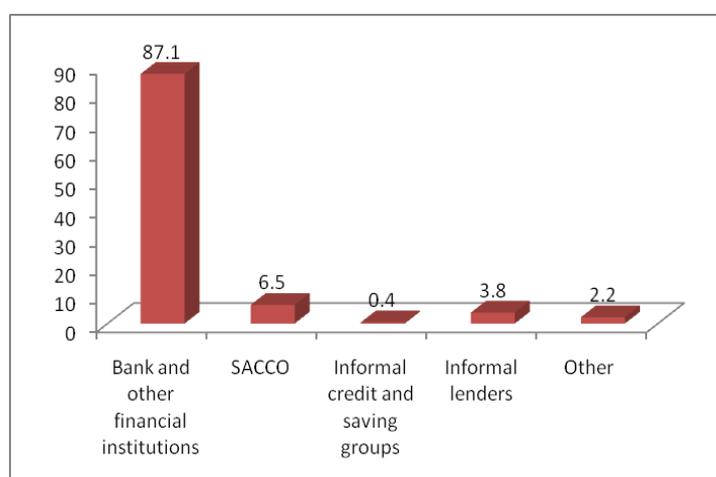


Figure 17: Percentage of households with source of credit Service

Access to Agriculture Extension Services

Access to agricultural extension services is expected to have direct influence on the production behavior of the small holder farmers. Figure 18 depicts that out of the total respondents of sample households, about 65.2 % (41.9% of female headed and 69.3% of male headed) HHs had access to extension services. According information obtained from KII

improved agronomic practices are normally introduced to the farmers via the agriculture extension service and research project. On the other hand, the remaining 34.8% (58% of female headed and 30.7% male headed) of sample households responded that they did not receive any extension services from development agents. The result of this study questions the efficiency and effectiveness of the government extension program. The result also indicates that female headed households still need more information about the improved agricultural practices and access a better extension service. The survey as well as the detailed expert interviews indicated that agricultural extension services should be rendered with the aim of introducing technologies and improved production techniques to smallholder farmers to increase the level of productivity.

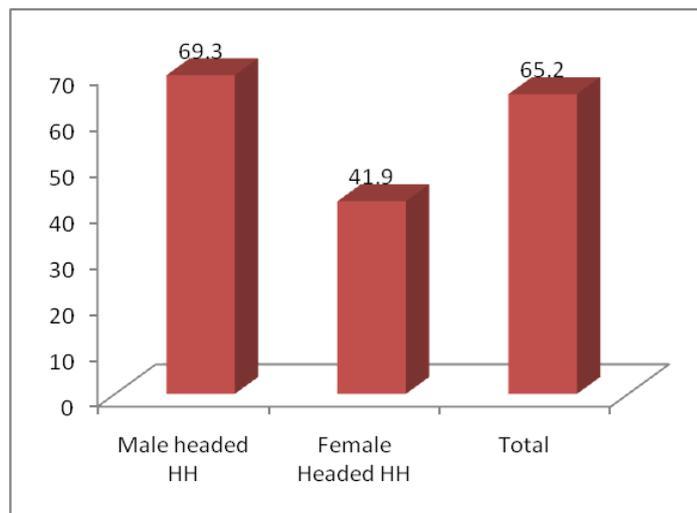


Figure 18: Percentage of households with access to Agriculture Extension

3.4.3. Linking Farmers to Market and Post Harvest Storage through Cooperative

Against addressing the aim creating value chain of smallholder farmers, the project intends at improving cooperative managed warehouses for storing inputs such as fertilizer, seed, necessary equipment, machinery and high value crops. In so doing it foresees to improve marketing system of farmers through strengthening the functionality of cooperatives to provide effective post-harvest handling, running value chains and keep production technologies. The result of the survey with regards to participation of smallholder farmers on cooperative showed that 83.2% of respondents are member of kebele cooperatives (figure 19). This shows that most of smallholder farmers are member of cooperative which gives the opportunity to have high outreach through this institution and the need to strengthen these institutions to reach out to large number of target community.

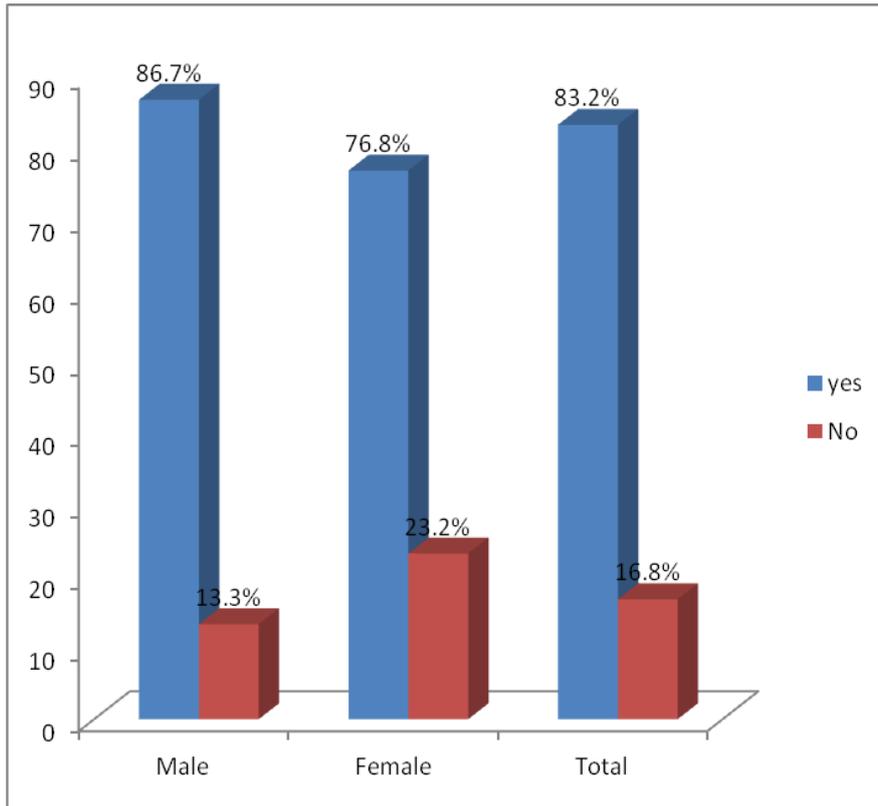


Figure 19 Membership of Smallholder Farmers in Cooperative

As it is envisaged in the project design, cooperatives are to be positioned to provide improved storage equipment. In this regard, the survey results showed that majority of the smallholder farmers (86.1%) do not get improved storage facilities from cooperative indicating limited outreach service of the institutions.

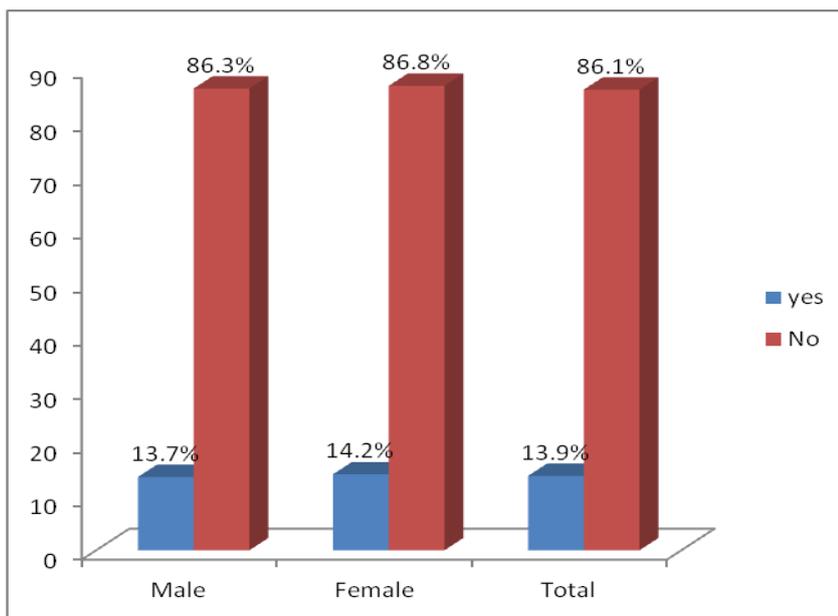


Figure 20: Access to improved storage facilities by cooperative

In addition to provision of storage facilities/inputs, the role of cooperatives in creating access to improved market services for smallholder is given consideration by this survey. As surfaced in the Figure 21 below, majority (74.2%) of smallholder farmers' sale some part of their produce to cooperatives while 25.8% reporting not selling produce to cooperatives. The cross gender analysis of access to the service shows that women have slightly less access to marketing farm products as compared to their men counterparts. Though the findings showed that the majority of survey participants sold produces to cooperatives, the FGD and KII have clearly indicated that the service provided by cooperatives in purchasing farmer produce is very low. The FGD discussants unanimously mentioned that the cooperatives have financial capacity limitations to purchase most of their farm produces. Hence, farmers sell only a portion of their produce to cooperatives.

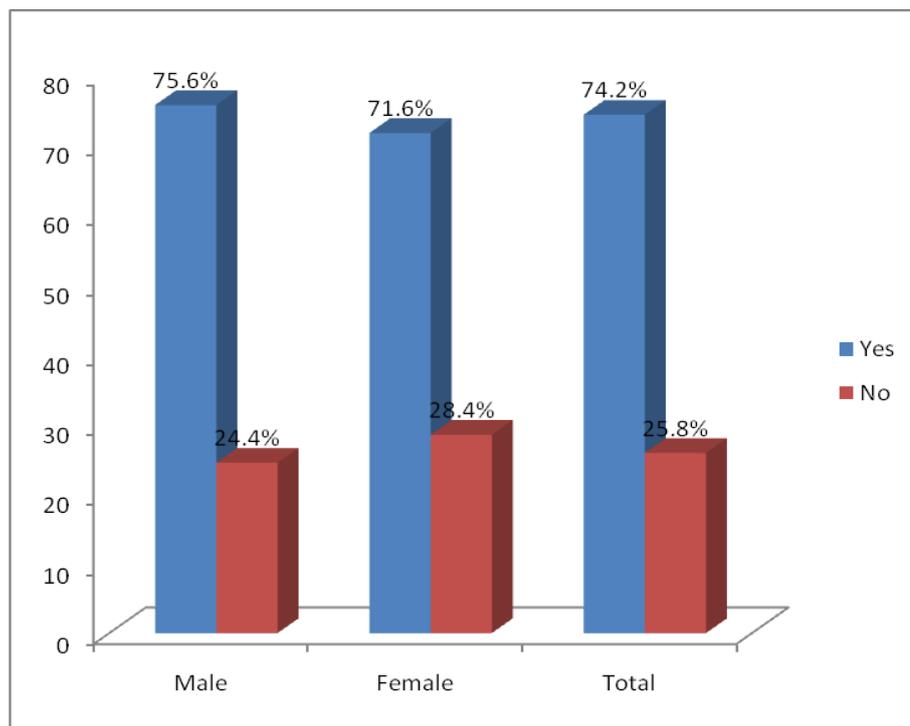


Figure 21 Role of cooperatives in creating access to market for farmer produces

It was also found that cooperatives are not providing fair pricing for their members and are purchasing in equivalent amount to local grain traders. The FGD participant reported that they have done their part in supporting kebele cooperatives through supplying farm produces on credit basis. They added that they are resorting to sell their products to local traders as financial capacity of cooperatives is not showing significant progress. These facts signal that the project needs to work in supporting the linkage of target cooperatives to financial institutions and in design strategies to enable them to become stronger in their financial capacity.

3.4.4. Women Negotiation and Communication Skills

Increasing the capacity of women smallholder farmers to participate as leaders in coops and communities is expected to boost their confidence in making their own negotiation and improve communication skills. This is to be achieved through improving the capacity of women in decision making process and support them become active development agent in their community. The evidence of gender survey as illustrated in the Figure 22 regarding access to capacity building training showed that only 29% of the women have access to business, entrepreneurship and related skills. On the other hand, 83% of their male counter reported access to this same training indicating high variation between male and female farmers.

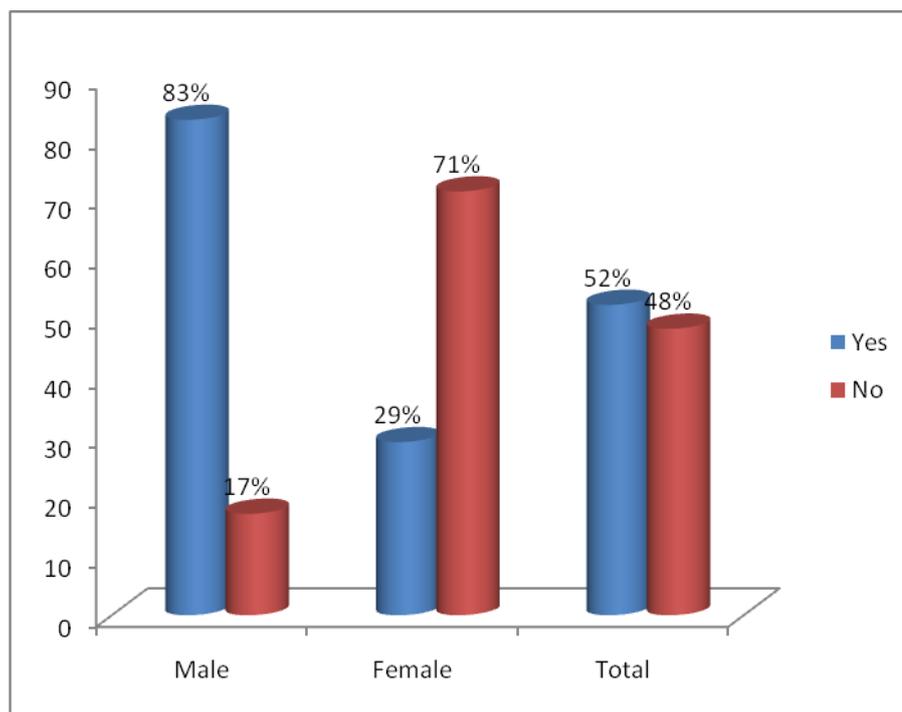


Figure 22 Participation in business and entrepreneurship and other capacity building trainings

FGD conducted with women groups in all surveyed kebeles surfaced that women have less initiative in taking part in training and workshop as they believe male participation in those initiatives is adequate and they feel it is men's role. They also added that burden of women with family activities doesn't give them time to engage in such events.

In the parameter of gender analysis regarding perception of rate of women in negotiation skill showed that only 25% of all surveyed respondents a higher negotiation skill, (very good and excellent combined). While 39% reported women have less negotiation skill (poor and medium ranks). About 35% of respondents believe that women have good negotiation skill. The inter gender review of survey evidence showed that there is no significant opinion difference among respondents of both genders.

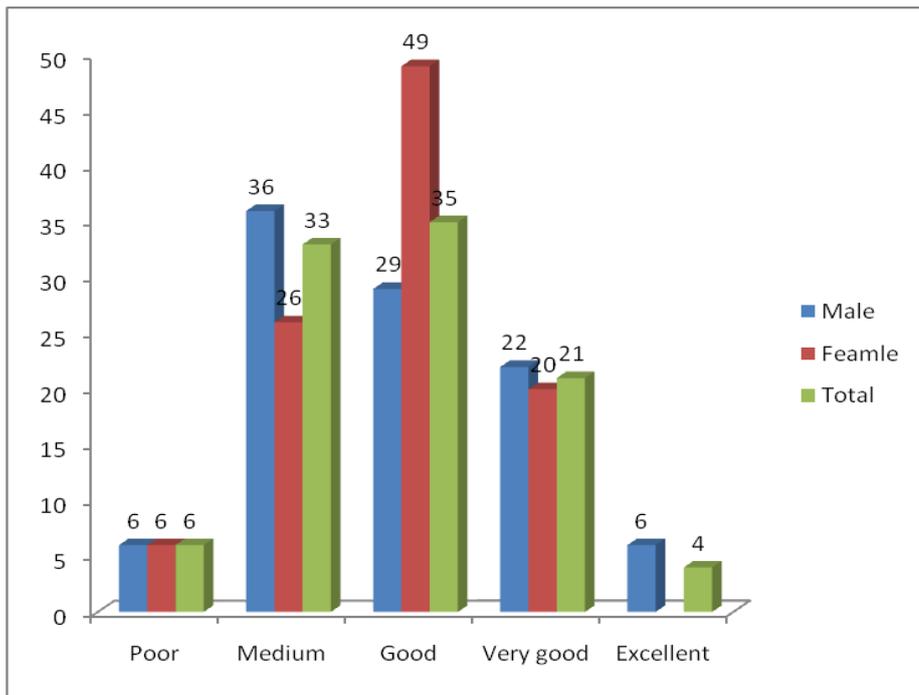


Figure 23 Percentage of Negotiation skill of respondents

The other parameter under review by this survey is participation of women as volunteer extension agent and sharing knowledge with other farmers. It was found that 47% of women reported they participate as volunteer agent (Figure 24). However, this evidence seems higher as compared to limited engagement of women in farm demonstration site as sourced from female FGD discussants. It becomes apparent that the witness of women which showed 34% are participating as extension agents makes closer to reality fact for the consulting team.

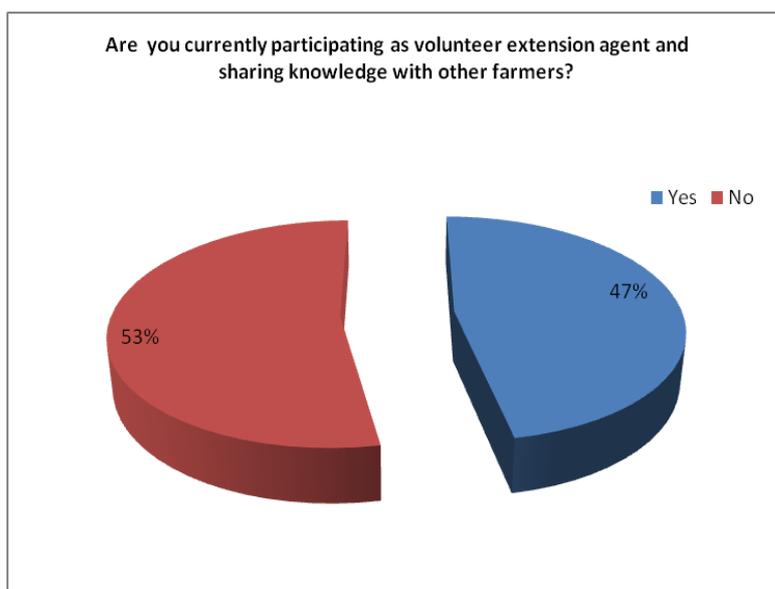


Figure 24 Participation in volunteer extension agent and sharing knowledge with other farmers

3.4.5. Community Perception of Women Leadership Position

In this particular survey, the perception of the community on women's role in leadership position was given a due attention. The quantitative facts of gender analysis of the survey summarized in the Figure 25 showed that 58% of the smallholders reported that they are willing to accept women as leaders. The alarming evidence surfaced by this survey 42% of the cases reported not willing to accept women as leaders. Inter gender analysis of the finding shows that 48% of the report comes from the women themselves while 35% of male reported non-willingness response. This shows a need to work more in capacitating women and improving the awareness of the community on gender equality.

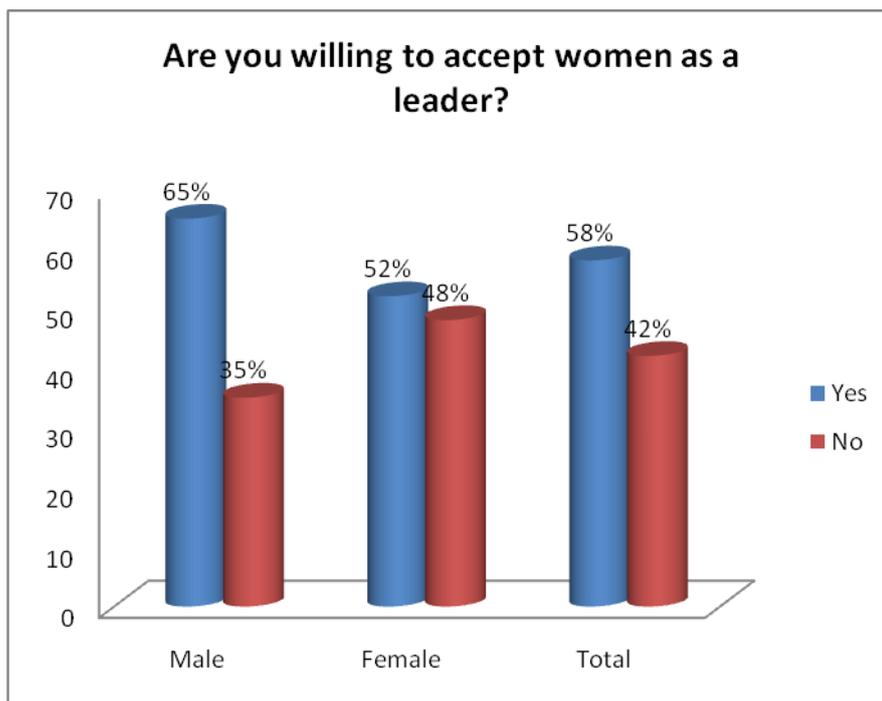


Figure 25: Acceptance of women as leaders

The investigation about perception of women willingness to run for election leading different community groups showed that those who have confidence in women for run for election leading different community groups makes-up 47% of the case. While 29% of the case reported that they don't believe that kebele women are willing to run for election leading different community groups. The overall findings pinpointed that there are vast activities to be implemented especially in enhancing capacity of women and in fostering their acceptance to participate in leadership position. The engagement in women groups is also found low when one thinks the need to have more outreach to women for undertaking project endeavors.

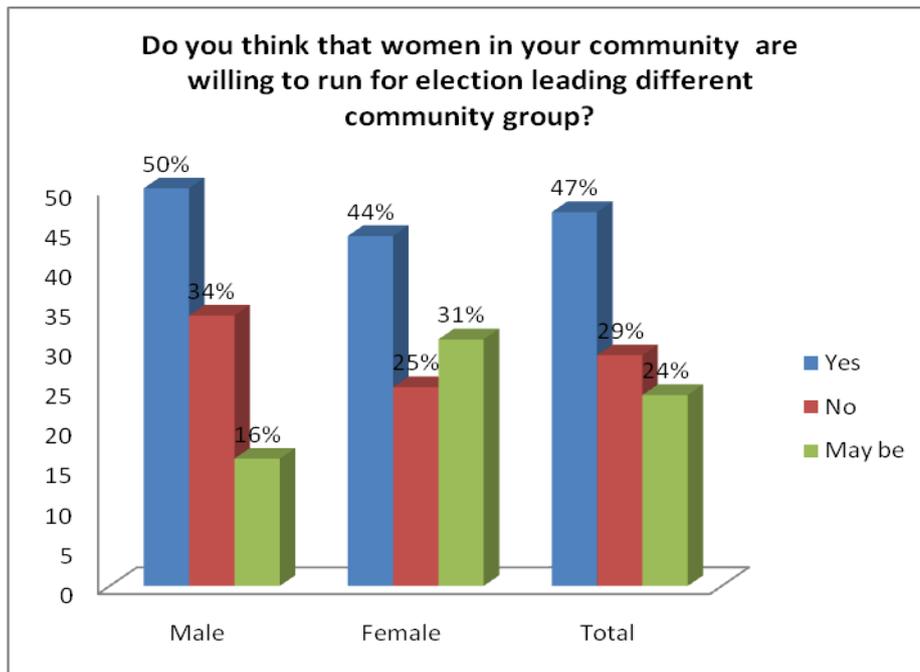


Figure 26: Perception of women willingness to run for election

3.4.6. Knowledge of 4R assessment at the institution level

Experts' knowledge relative to comprehensive understating of economics and environment benefits of 4R was done by interviewing experts working in different departments of woreda agriculture offices to determine baseline values for indicator under outcome 3 of the project log frame matrix. A four-point scale of excellent, good, average and poor was used for the assessment. The results of the level of understanding of 4R economic and environmental benefits are shown in Figure 27. The result shows that majority (62.5%) of the respondents had average knowledge of 4R, 25% had a good knowledge of it while 12.5% had a poor knowledge of 4R. In general, experts had little or average knowledge about 4R. The result suggests that the project needs to give due attention to improving the knowledge of experts working in different department of woreda agriculture office on the use of 4R.

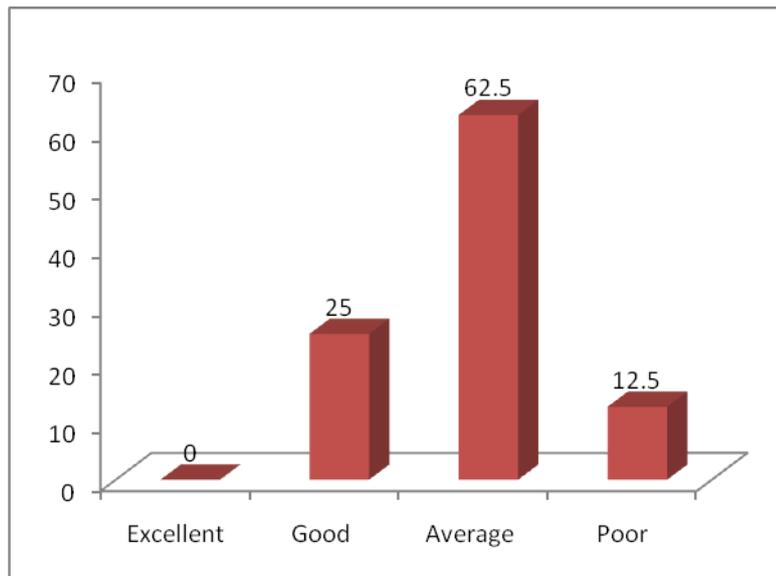


Figure 27 Proportion of Level of Knowledge on environment and economic benefit of 4R

3.5. Output Indicator

The results collected from the survey and secondary data for output indicators are shown in section 5(**Error! Reference source not found.8**).

3.5.1. Gender Sensitive Approach and Tools

Awareness about government programmes and policies related to 4R are in general low in the study areas. According to officials there are no gender sensitive guideline and policies related to 4R in the area. Within the government structure, the Woreda Women’s Affairs Office focuses on gender mainstreaming in governmental institutions, addressing what it refers to as “big gender blindness”.

3.5.2. Establishment of Demonstration Plot for Training and Outreach

An attempt was also made to collect data on number of demonstration plots established and training activities organized regarding 4R and the results indicated that there are no demonstration plots established related to 4R.

3.5.3. Policies and rules of 4R gender sensitive guidelines and policies

An attempt was made to understand the gender sensitive policies and rules of 4R. The result revealed that awareness about government programmes and policies about 4R are in general low in the areas surveyed. During discussions with government officials, it is observed that there are no gender sensitive laws and policies promoting 4R application.

4. Conclusion and Recommendations

Conclusion

The household baseline survey included 430 households. The majority of households in this study were male headed. About 97.8 % of Teff and 85% of wheat being cultivated by the surveyed HHs reflects significance of households' dependency on agriculture in the project area. Farming, however, is characterized by low crop productivity. The most common constraint to crop production was pest and diseases as reported by more than half of the households. Unreliable weather/little or too much rain, lack of fertilizer and lack of pesticides were also common constraints.

Food security was not a significant problem of the community. However, few households experienced food shortage for an average of 2.5 months. It was encouraging to note that women (wives) on male headed households are relatively making equal participation with men (husbands) on issues related with selling and buying of livestock and other agricultural resources. However, in some households (for 16.1% of the households), household heads are the sole deciders on issues related with selling and buying agricultural input while the spouse makes such decision in only 0.2 of the households.

Recommendation:

The following are recommended for action from the findings of the baseline survey. These are based on the focus areas of the target smallholder farmers.

- 1) Strengthen capacity of organization and institutions such as agriculture office, cooperative office and farmer cooperatives grassroots implementation staffs on 4R approach and Principle before further convey key messages to farmers in the areas
- 2) The households are challenged with several crop production constraints such pest and disease and have expressed strong need to have appropriate technologies and measures to curb these challenges. Efforts to teach and promote Integrated Pest management practice must be designed to control the incidence of pest and disease
- 3) Farmers need to be provided with regular training for preventing both the excessive and minimal use of fertilizers application. To make sure and realize 'seeing is believing', the project needs to educate the farmers on the better utilization of the fertilizer through establishment of demonstration plot at FTC.
- 4) The survey data revealed that there is a food shortage for some farmers in the study area. In order to resolve the problem of food insecurity problem of target community due to vulnerabilities to disasters it becomes important to incorporate disaster risk reduction interventions that mitigate risks of crop failure associated with unpredictable weather and crop diseases especially for legumes and volatile market price of farm produces
- 5) The survey examines respondents' knowledge level towards 4R. From the analysis respondents have poor knowledge on 4R. Farmers should be educated and enlightened

about the importance and benefits of 4R. This must incorporate local knowledge to increase awareness in order to enhance its adoption among farmers

- 6) Farmers' particularly female headed households (more than half) have limited access to improved seed may limit their ability to adopt in project -taught technologies and therefore limit project's impact in this area. Hence a due attention should be given to improve women farmers access to agricultural inputs
- 7) Some households run of their own stocks and yet the majority is also involved in selling of crop produce. This offers an opportunity for the project to focus on improved storage technologies such as super grain bag and PICS bag with 100 kg capacities so that they can use the proceeds in times when their own food stocks lasts.
- 8) The low knowledge of 4R by most of the experts at woreda was observed by this study. The project would utilize such an opportunity for targeting various interventions in the view to enhance participation of experts working in similar area
- 9) Contribution of Teff and Wheat to household's nutrition, income and food security is tremendous. Regardless of its contribution, however, their productivity is still low. For example, the rate of fertilizer application was not uniform among the farmers and its deviation from recommended rate was found partly. Therefore, it is necessary to address the key constraints that have been identified that are affecting agricultural performance in the target areas
- 10) The reducing trend of legumes crop production due to high vulnerability to wilting disease signals the need to curb the problem as it affects crop rotation and fertility of land which has an impact on objective of enhancing increase farm productivity.
- 11) Any interventions guided towards improved technologies should be viewed against the farmers' knowledge, perceptions, and practices pertaining to farming. The project can enhance the knowledge through establishing appropriate mechanisms (e.g practically oriented field demonstration) to ensure a wide engagement of farmers.
- 12) The low participation of women in leadership position at community level such as cooperatives deserves more attention in the implementation phase of this project through supporting their literacy and enhancing awareness in gender equality
- 13) The existing cooperatives are at low capacity in purchasing farm produces at attractive price and in supplying improve storage kits due to financial shortage and hence it becomes important to boost their financial capacity by linking them with financial institutions or design alternative mechanisms to resolve the challenge
- 14) Linking farmers with improved value chain system is important to create increased income from their produces.

5. Summary of Bench Mark Indicators

Table 8 A summary of benchmark indicators from which the impact of the project could be measured against overtime

Expected Results	Indicators	Measure		Baseline Value	Target Value	Comments
Ultimate Outcome						
1000 Improved socio-economic well-being and resilience of smallholder farmers, particularly women in Ethiopia	1000.1 Percentage change in poverty level (w/m headed households).	Poverty probability index (%)	W	30.1	26.6	
			M	28.2	25.2	
		Incidence of poverty (%)	W	29.7	26.2	
			M	15.4	12.4	
	1000.2 Number and percentage of smallholder farmers (w/m) reporting improvements in their livelihood and food security	Average number of months that households have adequate food	W	9.5	11	
			M	9.6	11	
		Percent of food secured households	W	80	85.0	
			M	91	95.0	
		Total value of household assets (in Birr)	W	4093.07	4215.86	
			M	6226.88	6382.55	
Intermediate Outcomes						
1100 Enhanced sustainable production using climate smart, best management practices	1100.1 %/ total targeted smallholder farmers (w/m) implementing 4R	Percent of farmers implementing 4R	W	0	60	
			M	0	60	
	1100.2 % change in yield	Wheat (Mt/Ha)		3	5	

in agriculture and increased value chain access and integration by women and men farmers in the targeted regions in Ethiopia, Ghana and Senegal	per unit area (hectares) of project supported key crops	Teff (Mt/Ha)		1.8	2.4	
		Sorghum (Mt/Ha)		4	4.5	
		Barley (Mt/Ha)		2.8	3	
	1100.3 %/total targeted smallholder farmers(w/m) who have reported additional income resulting from project supported key crops	Wheat income	W	11,313.5 ETB	18,855.83 ETB	
			M	17,072.5 ETB	28,454.17 ETB	
		Teff income	W	13,623.47 ETB	18,164.63 ETB	
			M	22,971.75 ETB	30,629.00 ETB	
		Sorghum income	W	7,500.00 ETB	8,437.50 ETB	
			M	13,136.84 ETB	14,778.95 ETB	
		Barley income	W	4,385.71 ETB	4,698.98 ETB	
M			2,000.00 ETB	2,142.86 ETB		
1200 Enhanced representation and influence of women in leadership positions & decision-making bodies, especially in co-operatives within targeted communities of Ethiopia, Ghana and Senegal	1200.1 % of trained women elected to leadership positions within the community, disaggregated by position and organization	Percent of women elected to leadership positions at the community level	Unit comm	14.08	25	
			Coop	21.6	30	
	1200.2 Proportion of decisions (by co-operative/community) driven by women	Percent of decisions driven by women	Comm	15.49	25	
			Coop	21.6	30	
1300 Increased integration of gender sensitive 4R principles in relevant standards and policies globally and nationally, particularly in Ethiopia, Ghana and Senegal	1300.1 Number of institutions that have integrated 4R principles in their policies and guidelines	Number of institutions that have integrated 4R principles in their policies and guidelines		0	5	
	1300.2 Number of new standards and/or policies within organizations that include gender sensitive 4R principles	Number of new standards and/or policies within organizations that include gender sensitive 4R principles		0	Info from FC	
Immediate Outcomes						

1110 Improved agricultural knowledge and skills of women and men smallholder farmers and extension agents, particularly in applying 4R for targeted crops	1110.1 %/total targeted smallholder famers (w/m) reporting improved agricultural knowledge and skills on the 4R approach	Percent of farmers with knowledge on 4R	W	0	70	
			M	0	75	
	1110.2 %/total targeted extension agents (w/m) reporting improved agricultural knowledge and skills on the 4R approach	Percent of extension agents with knowledge on 4R	W	0	90	
			M	0	90	
1120 Enhanced access of women and men smallholder farmers to value chains, including access to inputs, loans, pre- and post- production facilities and markets through co-operatives	1120.1 %/total targeted smallholder famers (w/m) with access to improved production resources <i>(Note: This includes but is not limited to seed, fertilizers, credit, agric mechanisation)</i>	Percent of farmers with access to seed	W	47.5	70	
			M	75.4	90	
		Percent of farmers with access to fertilizer	W	88.1	100	
			M	96.2	100	
		Percent of farmers with access to credit	W	68.1	90	
			M	68.7	90	
	1120.2 %/ total targeted smallholder famers	Percent of farmers linked	W	14.2	60	
			M	13.7	60	

	(w/m) linked by co-ops to post-harvest storage and markets	by coops to storage					
		Percent of farmers linked by coops to market in 2018	W	71.6	80		
			M	75.6	85		
1210 Increased capacity of women smallholder farmers to participate as extension agents and leaders in co-ops and communities	1210.1 % /total women trained who report improved capacity, especially confidence in their own negotiation & communication skills (4 or 5 on a 5-point scale)	Average capacity of women to negotiate (5-point scale, 5 is highest)		-Excellent =4% -Very Good=21% -Good=35% -Medium=33% -Poor= 6%	Excellent =8% Very Good=40% Good=32% Medium=20%		
		Average capacity of women to communicate (5-point scale, 5 is highest)		-Poor=6.3% -Medium=30.4% -Good=34.8% -Very good=22.3 -Excellent=6.3	Medium=20% Good=30% Very good=40 Excellent=10		
	1210.2 Number of Women Community Volunteer Agricultural Extension Agents (CVAEAs) sharing knowledge with other farmers	Number of Women Community Volunteer Agricultural Extension Agents (CVAEAs) sharing knowledge with other farmers		15	25	These are Agricultural Extension Workers who work under the government structure	
1220 Improved acceptance of women and men in targeted communities towards women's participation in leadership roles	1220.1 % of respondents (w/m) in project communities who are willing to accept women as leaders, disaggregated by respondent category (community leaders, government officials, and beneficiaries)	Percent respondents (w/m) in project communities who are willing to accept women as leaders	Comm mem	W	76.8	90	
				M	86.7	90	
			Comm lead	W	52	80	
				M	65	80	
			Coop	W	76.8	90	

			mem	M	86.7	90	
			Coop lead	W	73.6	85	
				M	69.8	85	
1310 Improved awareness by international policy makers, universities and agribusinesses of the environmental and economic benefits of 4R	1310.1 Percentage of institutions reporting 'substantial' or 'comprehensive' understanding of the environmental and economic benefits of 4R, disaggregated by type of organization (4 or 5 on a 5-point scale)	Percentage of institutions reporting 'substantial' or 'comprehensive' understanding of the environmental benefits of 4R			0	70	
		Average rating (5-point scale)				-Excellent: 20 -Very good: 35 -Good: 25 -Average: 20 -Poor: 0	
		Percentage of institutions reporting 'substantial' or 'comprehensive' understanding of the economic benefits of 4R			0	70	
		Average rating (5-point scale)			0	-Excellent: 20 -Very good: 35 -Good: 25 -Average: 20 -Poor: 0	
1320 Increased awareness of the importance of 4R within government ministries, farm groups and key rural development actors in the target countries	1320.1 Number of local government departments, institutions and key rural development actors reporting 'substantial' or 'comprehensive' understanding of the importance of 4R (4 or 5	Number of local government departments, institutions and key rural development actors reporting 'substantial' or 'comprehensive' understanding of the importance of 4R			0	5	

	on a 5-point scale)	Average rating (5-point scale)		0	-Excellent: 20 -Very good: 35 -Good: 25 -Average: 20 -Poor: 0	
Outputs						
1111 Gender sensitive assessments conducted on barriers to efficient production of key crops, including selection of most appropriate crops	1111.1 Number of gender-sensitive assessments conducted on barriers to efficient production of key crops	Number of gender-sensitive assessments conducted on barriers to efficient production of key crops		0	1	
1112 Gender sensitive tools, guidelines, scientific field trials and instrumentation developed to generate, collect and validate data for 4R	1112.1 Number of gender sensitive tools and guidelines developed to generate, collect and validate data for 4R, disaggregated by category	Number of gender sensitive tools and guidelines developed to generate, collect and validate data for 4R		0	1	
1113 4R demonstration plots established for training and outreach activities for women and men smallholder farmers	1113.1 Number of demonstration plots established	Number of demonstration plots established		0	Info from APNI	
	1113.2 Number of field days held for training and outreach activities	Number of field days held for training and outreach activities		0	Info from APNI	
1114 Gender-sensitive	1114.1 Number of individuals (w/m) trained	Number of farmers trained	W	0	2500	

training on agronomic best management practices (BMP), specifically 4R, provided to women and men extension agents and smallholder farmers	on agronomic best management practices, specifically 4R, disaggregated by type of individuals (smallholder farmer/extension agents /other)	on 4R	M	0	4100	
		Number of extension agents trained on 4R	W	0	30	
			M	0	50	
1121 Gender-sensitive assessments conducted on the business, strategic and governance capacity of co-operatives	1121.1 Number of assessments conducted on the business, strategic, governance and gender equitable capacity of co-operatives	Number of assessments conducted on the business, strategic, governance and gender equitable capacity of co-operatives		0	16	
	1121.2 Number of co-ops that are functional with active members	Number of co-ops that are functional with active members		6	16	
1122 Gender sensitive training program on good governance, management and business practices delivered to co-op leaders and managers	1122.1 #/ total targeted co-ops trained on gender-sensitive good governance, management and business practices	Number of co-ops trained on gender-sensitive good governance, management and business practices		0	16	
	1122.2 Number of participants (w/m) trained on good governance, management and business practices, disaggregated by training category and participant type (board members/staff/other)	Number of coop leaders trained on good governance, management and business practices	W	0	56	
			M	0	56	
1123 Women and men co-op members trained on roles and	1123.1 #/total targeted co-ops with a strategic business plan developed that reflect co-op	Number of co-ops with a strategic business plan developed that reflect co-op priorities and needs of		0	16	

responsibilities as coop members, and on strategic business planning and markets	priorities and needs of w/m members	w/m members				
	1123.2 a) #/total co-op members (w/m) trained on roles and responsibilities as co-op members b) #/ total co-op members(w/m) trained on strategic business planning and markets	Number of co-op members trained on roles and responsibilities as co-op members	W	0	200	
			M	0	200	
		Number of co-op members trained on strategic business planning and markets	W	0	200	
			M	0	200	
	1124 Revolving/guarantee fund for women and men smallholders established to facilitate purchase of inputs, including equipment and machinery	1124.1 Number of unique women and men smallholder farmers to whom loans are disbursed through the selected financial institution(s), disaggregated by loan category/purpose	Number of unique women and men smallholder farmers to whom loans are disbursed through the selected financial institution(s)	W	0	1600
M				0	900	
1125 Women and men co-op members linked to input suppliers and high-value markets	1125.1 Number of agreements signed per co-op with a) input suppliers and b) produce buyers	Number of agreements signed per co-op	With input suppliers	0	4	
			With produce buyers	0	1	
	1125.2 %/total co-op members (w/m) linked to	Percent of co-op members	W	0	60%	
			M	0	70%	

	input suppliers and produce buyers	linked to input suppliers				
		Percent of co-op members linked to produce buyers	W	0	60%	
			M	0	70%	
1126 Value chain inputs, technologies and facilities procured by co-ops	1126.1 Type of services provided by co-ops, disaggregated by category Note: -crop inputs (seed, fertilizer, pesticide); -Farm equipment (machinery/tools) -other facilities	Type of services provided by co-ops	Seed=22 Ploughing services=-0 Machinery=0 Tools =22	Seed = 8 Ploughing = 8 Machinery = 8 Tools = 8 Storage = 8 Output Market = 8		
1211 Rural Commercial Women's Groups (RCWG) established	1211.1 Number of Rural Commercial Women's Groups established	Number of Rural Commercial Women's Groups established	8	16	2 RCWG per kebele each with 10 members (2*8*10)	
	1211.2 Number of women trained on financial literacy and business skills	Number of women trained on financial literacy and business skills	34	112		
1212 Leadership training provided to members of RCWG	1212.1 Number of RCWG members who have completed the leadership training course	Number of RCWG members who have completed the leadership training course	6	48		
1221 Gender Equality Strategy (GES) developed based on gender analyses to inform implementation of gender-sensitive and gender-specific	1221.1 Number of gender equality strategies developed	Number of gender equality strategies developed	0	1		

interventions						
1222 Gender equality dialogue sessions related to women's economic empowerment and leadership roles held with community leaders, public sector officials as well as women and men small holder farmers	1222.1 Number of gender equality dialogue sessions held, disaggregated by topic	Number of gender equality dialogue sessions held		-	36	
	1222. Number of participants(w/m) attending the sessions, disaggregated by category	Number of participants attending the sessions	W	30	540	
			M	23	540	
1223 Gender Model Families (GMF) established showcasing positive gender roles	1223.1 Number of GMF established	Number of GMF established		The are some encouraging efforts but the number is not known	250	Starting 2 nd year, 10 GMFs per kebele
1224 Peer-to-peer gender equality and positive masculinities training provided to men and boys	1224.1 Number of unique individuals (men and boys) trained on gender equality and positive masculinities	Number of unique individuals (men and boys) trained on gender equality and positive masculinities	Men	14	200	
			Boys	14	200	
1225 Gender summit held in each of the 3 participating countries	1225.1 Number of gender summits held	Number of gender summits held		0	1	
	1225.2 Number of key gender institutions and other organizations that	Number of key gender institutions and other organizations that have		3	7	

	have made commitments	made commitments				
1311 Global 4R champions recruited	1311.1 Number of global 4R champions (w/m) recruited	Number of global 4R champions recruited	W	0	Info from FC	
			M	0	Info from FC	
1312 International workshops and events held to showcase 4R results	1312.1 Number of international workshops and events held	Number of international workshops and events held		0	Info from FC	
1313 Agreement on global 4R Standards Declaration signed	1313.1 Number of agreements signed	Number of agreements signed		0	Info from FC	
	1313.2 Number of organizations that have signed an MoU	Number of organizations that have signed an MoU		0	Info from FC	
1321 Standardized gender-sensitive 4R training materials developed for relevant government departments and stakeholders.	1321.1 Number of gender-sensitive 4R toolkits developed, disaggregated by target audience group	Number of gender-sensitive 4R toolkits developed		0	Info from FC	
	1321.2 Number of public and private sector stakeholders trained on 4R	Number of public and private sector stakeholders trained on 4R		0	5	
National events including exchange visits held to highlight the importance of 4R	1322.1 # of events and exchange visits held	Number of events and exchange visits held		0	Info from FC	

6. Reference

- 4R-Nutrient Stewardship Project (4R-NSP) Proposal
- 4R-Nutrient Stewardship Project (4R-NSP) log frame
- Central Statistic Authority 2007. Population and Housing Census of 2007. Addis Ababa, Ethiopia
- Minjar-Shenkora Woreda Agriculture Office Progress Report 2018/2019
- Progress out of Poverty Index, PPI Guide, March 2008.
- Planning and Development Commission, 2018. Poverty and Economic Growth in Ethiopia. Addis Ababa, Ethiopia
- Estimating Consumption Based Poverty in the Ethiopian Demographic and Health Survey, Mark Schreiner, February 2013

7. Annex

Annex 1 Household Survey Questionnaire

Consent with Survey Respondent

Hello. My name is _____ I am working with CDF team in this area. In order to get information about the socio economic conditions of the household, we are conducting a baseline survey for project entitled, "4R-Nutrient Stewardship program (4R-NSP)" which is to be implemented in Minjar Shenkora Woreda, Amhara Regional State for five and half years. Your household has been selected by chance for this baseline survey. I would like to ask you some questions related to the socio economic conditions of your household. The study is intended for the purpose of generating information for the baseline survey and will be used for planning of the project, tracking the progress and developing monitoring and evaluation plan. The information you provide will be kept confidential and will not identify you. It is up to you to decide whether you participate in the survey or not, but we hope you will participate in the survey given its importance to you and your community. If you have any question you can ask me now? Do you agree to participate in the survey now? 1) Yes 2) No. **For enumerator: continue only if the response is "Yes"**

3. Section One: Identification			
Questionnaire ID: _____		Interview Date: _____	
Woreda: _____	Kebele _____	Village: _____	
Name of Enumerator: _____		Telephone # of Enumerator: _____	

4. Section Two: Respondents Identification/Demographic Characteristics			
Q 2.1.	Name of the Respondent?		_____
Q 2.2	Sex of the Respondent?	1	Male 2) Female
Q 2.3	Age of the Respondent?		
Q 2.4	Types of household?	1	Female Headed (female adult only)
		2	Male Headed (male and female Adult)
Q 2.5	Educational Status of the Respondent	1	None (cannot read and write)
		2	Non formal education (can read and write)
		3	Primary First cycle (1-4)
		4	Primary Second cycle (5-8)
		5	Secondary education (9-12)
		6	Vocational training
		7	Higher education
Q 2.6	Education status of spouse of the responding family?	1	None (cannot read and write)
		2	Non formal education (can read and write)
		3	Primary First cycle (1-4)
		4	Primary Second cycle (5-8)
		5	Secondary education (9-12)
		6	Vocational training
		7	Higher education
Q 2.7	Are all household members aged between 6 to 12 ages currently attending school?	1	At least one member in the age between 6-12 is attending
		2	All members in the age between 6-12 attending

		3 4	All members in the age between 6-12 not attending › There is no children in the age between 6 to 12
Q 2.8	What is the current legal marital status of the household head?	1 2 3 4 5 6	Single Married (Monogamy) Married (Polygamous) Divorced Separated Widow
Q 2.9	Size of the household (including mother and father)?		
Q 2.10	Size of HH members		Male: _____ Female: _____
Q 2.11	How many people in the family are aged 0 to 17	1 2 3 4	0 to five six to 14 15-17 years more than 17 years
Q 2.12	Do any family members who are salary employed	1 2	Yes No

Section III. Asset Ownership						
A. Housing Condition						
	3.1. Do you have your own house? 1) Yes 2) No	3.2. Construction material of roof of your main house? 1) Plastic sheets, 2) Thatch 3) Iron sheets 4) Other	3.3. Number of rooms of your main house? 1) one 2) Two 3) Three or more	3.4. The types of wall of your main house? 1) wood with mud 2) wood with cement 3) bricks with cement 4) stone with cement 5) Other	3.5. The type of floor of your main house? 1) Mud or dung 2) Rough Cement 3) Cement with tails 4) other	
B. Ownership of Durable Asset						
3.6	Durable Assets	Response 1) Yes 2) No	Monitory value in birr	Durable Assets	Response 1) Yes 2) No	Monitory value in birr
3.6a	Stove			3.6g	Jawallery	
3.6b	sofa			3.6h	Table/chair	
3.6c	Bed and matrices			3.6i	Wheel barrow cart	
3.6d	Mobile			3.6j	Car	
3.6e	Radio			3.6k	Refrigerators	
3.6.f	Television			3.6l	Bajaj	
<i>Access to Water and fuel/energy for cooking</i>						

3.7	What is the source of drinking water? 1) Protected dug well/spring 2) Unprotected dug well/spring 3) River/lake/pound(surface water) 4) Piped into yard/dwelling/plot 5) Public tap/stand pipe 6) Tube well/borehole 7) Rainwater 8) Other	3.8.	Source of fuel for cooking (select all that apply) 1) Wood and charcoal 2) Crop residues/leaves 3) Dung/manure 4) Biogas stove 5) Electric stove 6) Other	3.9.	The condition of your toilet facilities? 1) Ventilated improved pit 2) Pit latrine with a slab 3) Pit latrine without slabs/open pit 4) Composting latrine 5) Flush to a pit latrine 6) Flush to septic tank 7) No facility/bush/field
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Section IV: Livelihood Sources, Income and Expenditure

4.1	In which of the following livelihood activity your household engaged in in the last 1 year? (circle all that applies) 1) Farming 2) livestock production 3) Grain Trading 4) Selling fresh farm produce 5) Livestock trading 6) Shop keeping 7). Casual labour 8) permanent employee 9) Petty trade 10) Other (specify)			
On-farm⁴ income of the HHs earned in the time between the first of October 2018 to Sep 2019 (last 12 months)				
4.2	Income from grain production and sale	Types of crops		Income in birr
		Maize		
		Wheat		
		Teff		
		Sorghum		
		Barley		
		Other grains		
4.3	Income from vegetable production and sale	Chili		
		Tomato		
		Onion		
		Garlic		
		Carrot		
		Beet root		
		Potato		
		other vegetable		
4.4	Income from fruits produced	banana		
		Mango		
		Papaya		
		Avocado		
		Other fruits		

⁴On-farm income: refers to income generated from own account farming whether on owners occupied land or land accessed through cash or share tenancy

4.5	Income from livestock products	milk and milk product	
		oxen and shoat fattening and selling	
		egg selling	
		poultry production & selling	
		Other	
Income from Off-farm⁵ Activities (in the time between October 2018 to Sep 2019 (in the last 12 months))			
Off-Farm Income sources			income gain in birr
4.6	Income gained from working on others farm as a daily laborer		
4.7	The financial value of agricultural products (grains, vegetables, fruits, milk and livestock) you receives in exchange of your labour, in the same year		
4.8	Income from sale of fuel wood and charcoal		
4.9	Income from sale of wood for construction purpose		
4.10	Income from sale of wild plant for medicinal purpose		
4.11	Income from sale of grass and other livestock fodder		
4.12	Other (specify).....		
Income from Non-farming⁶ activities ((in the time between July 1/2017 to June 30/2018)			
Off-Farm Income sources			Income gained in birr
4.13	Income from rural wage (salary) in non-agricultural activities		
4.14	Income from self-employment in non-agricultural activities (e.g. petty trade, carpentry...etc)		
4.15	Income from renting/leasing a house		
4.16	Income from leasing a land		
4.17	Income from local remittance		
4.18	Income from pension payment		
4.19	Income from transfer either by government or NGOs or other		
4.20	Income from remittance from abroad		
4.21	Other (specify).....		
How do you mainly spend your income			In birr
4.22	Food Related expenses		
4.23	Purchase of agriculture inputs (fertilizer, seed, pesticides)		
4.24	Education		
4.25	health		
4.26	closing		
4.27	Travel		
4.28	Religious event		
4.29	House Repair		

⁵ Off-farm income refers to a wage or exchange labour on other farms (i.e. within agriculture)

⁶ Non-farm refers to non agricultural income sources

4.30	Dowry	
4.31	Loan payment	
4.32	Labor (if they hire) to engage in plowing, weeding, harvesting,)	
4.33	Leisure/entertainment	
4.34	Other (specify)	

Section V: Livestock Ownership and availability of grazing resources,

Does your household currently own any of the following animals? Record the answer in the space provided

	<i>Types of livestock</i>	<i>1 yes</i>	<i>2 No</i>	<i>If yes, how many do You own?</i>	<i>Monitory value in birr</i>	<i>Who own the animal? 1. Husband 2) wife 3) Both Jointly</i>
5.1	<i>Cattle (Ox, caw ...</i>					
5.2	<i>Equines</i>					
5.3	<i>Small Ruminant (sheep, goat)</i>					
5.4	<i>poultry</i>					
5.5	If yes what is the source of feeding for livestock multiple choice is possible			1) Open grazing (Rangeland) 2) Crop residues 3) Agro-industry by-products 4) Hay 5) Other(Specify)		
5.6	For how many months of the Year does grazing provide enough feed for your livestock?					
5.7	Are there cattle camp (grazing) committees in your village?				1) Yes 2) No	
5.8	Is there any soil and water conservation activities taking place in the Rangeland or cattle camp areas?				1) Yes 2) NO	
5.9	Did any member of your household participate in such activity?(yes No)				1) Yes 2) No	
5.10	List the constraints that you face in livestock production. (multiple choice is possible)				1) None, 2) lack of feed, 3) Shortage of water, 4) Diseases 5) Shortage of veterinary services and drugs 6) Low producing animals (breeds)	
5.11	Is there sufficient animal health facilities and services				1) Yes 2) NO	
5.12	Milk cow per day					

Section VI: Household Food Security and Shocks

6.1	What was the main source of the dominant food item consumed in the HHD (<i>Select all options that apply</i>) 1) From own harvest 2) From own livestock 3) Purchased (with own income) 4) Borrowed (food or cash to produce food 5) Gifts from relatives/neighbors/community 6) Food Aid (from NGO, School or Other). 7) Food for cash
6.2	How many meals did your household members eat yesterday 1) One meal 2) Two meals 3) Three or more meals

6.3	For how many months you faced food shortages in the past 12 months?	_____
6.4	Is your household food secured?	1) Yes 2) No
6.5	You were worried you would run out of food because of a lack of money or other resources?	1) Yes 2) No
6.6	You were unable to eat healthy and nutritious food because of a lack of money or other resources?	1) Yes 2) No
6.7	You ate only a few kinds of foods because of a lack of money or other resources?	1) Yes 2) No
6.8	You had to skip a meal because there was not enough money or other resources to get food?	1) Yes 2) No
6.9	You ate less than you thought you should because of a lack of money or other resources?	1) Yes 2) No
6.10	Your household ran out of food because of a lack of money or other resources?	1) Yes 2) No
6.11	You were hungry but did not eat because there was not enough money or other resources for	1) Yes 2) No
6.12	Have you or someone in your household had to restrict consumption by adults for small children to eat?	1) Yes 2) No
6.13	You went without eating for a whole day because of a lack of money or other resources?	1) Yes 2) No

6.14	In the past 12 months during which months did your household NOT have enough food from the household's Production or income?											
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug
6.15	Negative shocks encountered by households over the past 12 months?								Response 1) yes 2) No			
6.15a	price raise of food item											
6.15b	increase in price of inputs											
6.15c	illness of household member											
6.15d	Reduced employment and trade opportunities											
6.15e	Lack of access to farming land											
6.15f	Lack of access to basic services e.g. school, hospital											
6.15g	Loss of livestock											
6.15h	Other (specify)											
6.16	Copping mechanism against shocks (Circle responses that apply)								Response 1) yes 2) No			
6.16a	<i>Relied on own savings</i>											
6.16b	Sell firewood and charcoal											
6.16c	Sold livestock											
6.16d	Changed eating habit											
6.16f	<i>Sold land</i>											

6.16g	Sell labor	
6.16h	Migrate to urban areas to find work	
6.16i	Migrate to another rural area	
6.16j	<i>Sold Durable Asset</i>	
6.16k	<i>Depend on aid</i>	
6.16l	<i>Cash for work participation</i>	
6.16m	Other	

Section VII. Agricultural Practices and Management

7.1	Does your family have farmland?					1) Yes 2) No						
7.2	Source of cultivated land (circle all that apply)					1. Own plot, 2. Rented in 3. Share-cropped						
7.3	Total size of land your HH own in hectare and their current value?					a. Size _____ha		b. Current monetary value _____				
7.4	Number of fields your HH own?					_____ fields						
7.5	Number of fields leased					_____ fields						
7.6	Number of main field plots your HH owns?					_____ main plots						
7.7	Did you cultivate/plant crops in the 2011/2012EC season					1. Yes 2 No						
7.8	Do you have adequate knowledge on using 4R?					1. Yes 2 No						
7.9	Have you received training on 4R Approach?					1. Yes 2 No						
7.10	Are you currently applying 4R methods in your farm?					1. Yes 2 No						
Crop types	7.11. do you produce the crop 1) yes 2) No	7.12. Area cultivated last year in Timad (2010/11EC)	7.13. Yield last Year 2010/11 (Quintal/Timad)	7.14 Area cultivated this year by timad (2011/12 EC)	7.15. Expected amount of yield this year (2011/12)	7.16. Did use improved seed for planting 1) Yes 2) No	7.17. How much is the seed rate in kg	7.18. Types of fertilizer 1) NPS 2) UREA 3) NPS-B 4) NPS Zink Boren 5.NPS+UREA 6. UREA + NPS Zink Boren 7. other	7.19 Fertilizer rate in kg	7.20. Timing of application of fertilizer (Apply all that applies) 1. At planting stage 2. At seedling stage 3. At flowering stage	7.21. Method of fertilizer application 1. broadcast 2. Row 3, Row and broadcast ing	
Wheat												
Barley												
Teff												
Maize												
Sorghum												
Chick pea												
Faba bean												
Pea												

Haricot bean										
Soybean										

Crop types 7.22	7.23. do you produce the crop 1) yes 2) No	7.24. Types of field 1) main 2) not main	7.25. Average field size per Timad	7.26. average distance from the homestead(minuet)	7.27. Soil fertility 1) Good 2)moderately fertility 3) poor fertility	7.28. Did you store any of your harvest in 2010/11? 1) Yes 2) No	7.29. If yes, what is your storage method? 1) traditional 2) improved(e.g. Metalo selo)	7.30.Time of planting 1. Before rains onset 2.during the rain onset 3. after the rain onset
Wheat								
Barley								
Tef								
Maize								
Sorghum								
Chick pea								
Faba bean								
Haricot .bean								
Soya bean								

7.31	Did you plough your plot on time	1) Yes 2) No
7.32	If no what is the reason for not plowing on time? Circle all that apply	1) Drought 2) Lack of seed 3) Shortage of draught animals 4) Shortage of tractor service 5) Shortage of labor 6) Poor soil fertility 7) Fallow 8) Floods 9) Other (specify)
7.33	What equipment did you use to plough the plot (Circle all that apply)	1) Ox 2) Donkey 3) Hoe 4) Tractor 5) other
7.34	Frequently of tillage before planting	1)None 2) once 3) twice 4) three times 5) four time 6) five
7.35	What are the constraints to efficient tillage	1) Lack of oxen 2) Lack of money to rent in oxen and tractor 3) Lack of labour 4) Other
7.36	Methods of sowing the seeds	1. Broadcasting 2. Broadcast followed by light covering 3. Row planting 4. Broadcasting and row planting 5. Other
7.37	Constraint for efficient sowing	1. Lack of Labour 2. Limited knowledge 3. Other, specify
7.38	how do you control weeds	1. Use of herbicides 2. Manual weeding 3. Other, specify
7.39	frequency of weeding	1)None 2) once 3) twice 4) three times 5) four time
7.40	constraint for efficient weeding	4. Lack of Labour 5. Limited knowledge 6. Other, specify
7.41	Soil fertility status of your fields	1. Good 2. Moderately fertility 3. Poor fertility
7.42	Is soil fertility constraining your farm?	1) Yes 2) No
7.43	Do you apply fertilizer?	1) Yes 2) No
7.44	If not what is the reasons/ Apply all that apply	1) Lack of money to buy fertilizer 2) Limited knowledge to use fertilizer 3) Lack of Availability of fertilizer 4) Other
7.45	Perception towards fertilizer use?	1) It does not improve productivity 2) It improves crop yield 3) Others
7.46	Do you get the required amount and types of fertilizer?	1) Yes 2) No
7.47	How do you get the fertilizer?	1) On Cash 2) On Credit 3) Both
7.48	Credit sources for fertilizer?	1) Union/cooperatives/farmers groups 2) Private dealers 3) NGOs 4) Government 5) Other
7.49	Do you apply organic manure?	1) Yes 2) No
7.50	If not what are the reasons? multiple choice is possible	1) Lack of knowledge 2) Lack of labour to make it 3) Lack of livestock 4) Other

7.51. Do you use Organic manure? 1) yes 2) No	Crop types	7.52 organic fertilizer 1. animal manure 2. compost 3. crop residue 4. other	7.53. quantity Applied (*see code below)	7.54. Source 1. Own farm 2. outside farm	7.55 application time (**see code below)	7.56. Application methods (***)see code below)	7.57. who applies 1. male 2. female 3. both
	Maize						
	Wheat						
	Teff						
	Barley						
	Sorghum						
	Pulse						
	Oil seed						
	Vegetable						
Application time: 1) before Planting 2) during planting 3) after planting *Application Method 1) broadcast 2) apply in rows 3) apply in holes 4) other *Quantity applied: As per local measurement (decided at field level)							

7.58	Does your household grow vegetables	1) Yes 2) No
7.59	If yes, which vegetables do you grow? Circle all that apply	1) Cabbage, 2) lettuce, 3) tomato, 4) Onion, 5) Cauliflower 6) Garlic 7) Potato 8) pepper 9) other
7.60	Which season do you normally plant your vegetables	1) Dry season 2) Wet season 3) both dry and wet seasons
7.61	For what purpose your households produce vegetables?	1) Home consumption, 2) For sale 3) for consumption and sale 4) Other (Specify).....
7.62	How are you producing the vegetables if you are producing?	1) Irrigation 2) using rainwater 3) both irrigation and rain water

7.63	In this past year, have you implemented any of the following practices?	1) Yes 2) No
7.63a	Crop rotation	
7.63b	Intercropping	
7.63c	Making and using compost	
7.63d	No burning (keeping crop residues)	
7.63e	Animal manure	
7.63f	Agro forestry	
7.63g	Planting food trees to improve soil fertility	
7.63h	planting fruit trees	
7.63i	Mulching	
7.63j	Contour planting	
7.63k	Other	
7.64	What are the major constraints or problems limiting your HH's crop production? Circle all that apply 1) Lack of money to buy the necessary inputs (or lack of credit) 2) Lack of draught power/mechanical power (or too expensive) 3) Lack of other tools and equipment (or too expensive) 4) Lack of fertilizer (or too expensive) 5) Lack of improved seeds (Inadequate availability) 6) Lack of household labour 7) Lack of pesticides (or too expensive) 8) Lack of knowledge, skills or experience on best agriculture practices 9) Bad/unreliable weather (including too little or too much rain) 10) Pests and disease 11) Poor soil fertility 12) Lack irrigation facilities 13) Other	

Section VIII. Access to financial, seed and market services and support

8.1	Are there any financial institutions that provide loan to engage in agricultural/business activities in your local area	1 yes	2 No
8.2	Can your HH take/receive loan or credit services from (sources) when you want?	1 yes	2 No
8.3	Sources of Loan/Credit	8.4. Have you or any household member taken a loan or credit services in the last 12 months? 1 Yes 2No	
	1. From Financial Institutions (Bank/other financial institutions)		
	2. SACCOS		
	4. VSLA		
	4. Informal credit and saving groups (iqub, Idir)		
	5. Informal Lenders (Arata)		
	6. Friends and relatives		
	7. Other		
8.5.	Purpose of taking loan? 1) Purchase house 2) Build/maintain housing 3) Lease land 4) Input for food crops 5) Business start up 6) Expand business 7) buying food and clothes 8) Basic services like health and education 9) Other(specify)		
8.6	Do you have access to improved seed? 1) Yes 2) No		
8.7	What is your source of improved seeds for farming? 1) Market 2) Farmers association/Cooperative/union 3) Agriculture research Center/University 2) NGO 5) Own purchase 6) Storage from previous season 7) From relatives/ neighbor 8) Other		
8.8	Have you received Agriculture Extension Services/support in the Year 2011 1) Yes 2) No		

8.9	What type of extension service was given to you in the last 12 months? (CIRCLE ALL THAT APPLY) 1) Input supply 2) Advice on land preparation, Planting, weeding, harvesting and post harvest storage 3) Advice on livestock production 4) Advice pest management service 5) during application of fertilizer (types, amount....) 6) Others (Specify)
8.10	Do you find the extension service useful to improve your agriculture production 1) Yes 2 No
8.11	From where Agriculture Services/support have received? Circle all that apply 1) Government/DA 2) Agriculture Research Center/University 3) NGO 4) Private companies 5) Media(TV/newspaper 6) Relatives/friends 7) Other
8.12	Did your household sell any crops during the last 12 months 1) Yes 2 No
8.13	Were you able to access information on prices for the main crop before you sold it? 1) Yes 2. No
8.14	If you were able to access information on prices, where did you get this information from? 1) Radio/TV 2) Family 3) Cell phone 4) Peer Farmer 5) Association/cooperative 6) NGO/other organization 7) Dealer/broker 8) Other (specify) _____
8.15	Did you know the price for your main crop at the nearest market town at the time of sale? 1) Yes 2) No
8.16	Where did you sell your main crop? Circle all that apply 1) Own village 2) village Market 3) Market town 4) Other (specify)
8.17	Which means of transport do you usually use to take your Products and inputs to and from the market? 1) Puck animals 2) bus tracks/tractor/small car 3) human labor 4) Donkey 5) camel 6) other(specify)
8.18	Average travel time to the market place in hour? _____hr
8.19	What are the constraints that you face in marketing? Circle all that apply 1) Lack of Transportation 2) Lack of diversified products for markets 3) Shortage of packing materials and containers 4) Low prices 5) High prices 6) absence or long distance of markets 7) Poor quality inputs 8) Lack of credit 9) Other (Specify).....

Section IX : Availability of training and learning opportunities			
9.1	Have any member of your household participated in any agricultural training program in the last 12 months?	1	Yes
		2	No
9.2	How many times have members of your household participated in agricultural training in the last 12 months?	Number of Times ____	
9.3	Indicate type of training provided in the last 12 months? (Circle all that apply)		
	1) Soil and Water Conservation 2) Crop production 3) Soil fertility improvement 4) Grain Storage 5) Crop protection and management 6) Livestock production 7) Bee keeping 8) soil erosion and control, 9) Group based savings and marketing 10) seed multiplication, 11) Other		
9.4	Do you find the training useful to improve your agricultural production? 1) Yes 2) No		
9.5	Have you attended demonstration/visit on Agriculture practice and management in 2011 1) Yes 2) No		
9.6	Which Institutions Disseminated these Demonstrations 1) Government 2) NGOs 3) Private companies 4) Religious Group 5) Others		
9.7	Do you think the visit helpful to your agricultural practice 1) Yes 2) No		

Section X. Existing Producers' Groups/ Group Activities			
10.1	Is there any cooperative/.association/farmers group in your area?		1) Yes 2) No
10.2	Are you a member of a Farmer Group or Cooperative?		1) Yes 2) No
10.3	If yes, what is your position in the Farmer group or Cooperative 2) 1= Chairman 2 = Secretary 3 = Treasurer 4 = Member 5 = Other (specify)		
10.4	Do you get storage facilities (e.g. PICS Bag) from Cooperatives?		1)Yes 2) No
10.5	Do you sale your farm products to cooperatives?		1)Yes 2) No
10.6	What is the purpose/theme of your Farmer Group/cooperative? 1) Crop cultivation 2) Saving and Loan 3) Multipurpose cooperative, 4)irrigation/ water users association 5) Livestock 6) Irrigation 7) grain trading 8) Other (Specify)		

Section XI. Gender dynamics and leadership			
11.1	Is there discussion between all members of household before deciding on matters of the household (e.g. selling/buying of cattle, farm land and other big assets)	1	Yes
		2	No
11.2	Who actually decide on matters of the household (e.g. selling/buying of cattle, farm land and other big Asset, types of crop to be cultivated)	1	Husband
		2	Wife
		3	both husband and wife Jointly

11.3	If there are cooperatives/associations/unions in your areas, do women have leadership position?	1	Yes
		2	No
		3	I do not know
11.4	Do you believe that women can be good leaders of cooperatives/association/union?	1	Yes
		2	No
		3	I do not know
11.5	Who involved in the following activity		
	Activity		1) Husband 2) Wife 3) Children 4) Husband and wife jointly 5) All household members
	Land Preparation		
	Planting		
	Weeding		
	Harvesting		
	feeding livestock		
	Milking		
	Child caring		
	Cooking		

Section XII. Climate Change Resilience	
12.1	Do you perceive that the local climate change is occurring? 1) Yes 2) No
12.2	Have you experienced some kinds of loss as a result of climate change impact/hazard 1. Yes 2 No
12.3	What is the Manifestation of Climate Change in your areas? Circle all that apply 1) Rainfall Pattern is Unpredictable 2) Temperature is Increasing 3) Flooding 4) Pest Outbreak 5) Outbreak of Disease 6) Crop failure 7) other specify _____
12.4	How do you feel about climate change? 1) fearful/afraid 2) Confused 3) Angry 4) sad 5) No feelings 6) hopeful (we can do some things to adapt) 8) I do not know 9) other ____
12.5	Have you taken any actions to adapt/cope to climate change ⁷ ? 1) Yes 2) No 3) I don't know

⁷ When we say 'adapt to climate change' we mean those things in our lives we change to respond to the impacts of climate change.

12.6	<p>If yes, what have you done already to mitigate/adapt the change in climate?</p> <p>1) Planted trees 2) Protect and care for trees 3) Engage in the construction of physical structure to conserve soil and water (e.g. soil and stone bund) 4) Planted short maturing seed 5) Destocking 6) Other</p>
12.7	<p>Impact of climate change on the livelihood of your household(Circle that apply)</p> <p>1) Decline in agricultural production 2) Raise food prices 3) Lower rural wages 4, changes in sale of agriculture commodities 4. other</p>
12.8	<p>What kinds of resources do you need for climate change adaptation?</p> <p>1) Irrigation water 2) Credit facilities 3. Climate information/extension services 4) subsidize farm input 5) potable water 6) improved seeds 7) other</p>

Annex 2. Qualitative Data Collection Tools

Agriculture and Natural Resource Office

A. Information Needs from Agriculture Office that explain Biophysical feature of the District

1. Total areas of the district in km square or hectare? Number of rural kebeles/villages?
2. Climatic feature (rainfall and temperature)?
3. Agro-ecologic zone of the districts?
4. Land use pattern (forested __%, Wood land ---%, bush land __%, cultivated land __%, marginal land ---%, built up areas __%)
5. Soil types at district level in terms of colour, texture and fertility status?
6. Vegetation types and vegetation cover

B. Crops crown/livestock raised, productivities assessment and opportunities and challenges of crop cultivation and livestock grown?

1. List major crops grown in the district (in terms of annual and perennial crops and in terms of cereals, pulse, vegetables, fruits, etc)?

No.	Annual crops cultivated (fruits and cash crops)	Perennial crops grown		
		Cereals	Vegetables	Pulse
1				
2				
3				
4				
5				

2. Average land holding size at woreda level and by agro-ecology by household types?

HH types	Dega area	Woinadega	Kola areas	Total average
Male headed				
Female headed				

Average productivities of agricultural crops at woreda level per hectares? Can be secured from secondary document of the office)

No.	Types of crops	Average yield per hector in previous year by agro ecology				Expected yield in current year by agro ecology			
		Dega	Woinadega	Kola	Average	Dega	Woinadega	Kola	Average
1									
2									
3									
4									
5									
6									
7									
8									

3. Cropping systems being practices by the farmers (crop rotation, mixed cropping, mono-cropping, crop rotation)?

4. How do you see the crop sowing methods? Have the farmers adapting raw planting methods?
5. What are the opportunities/advantages of producing different types of agricultural crops?
6. What do you think are the challenges/gaps that constraints crop production in your districts?
7. What are the major types of livestock's raised by the farmers?

	Types Livestock kept according to their	Rank as per their
1		
2		
3		
4		
5		
6		
7		
8		

8. Opportunities and challenges, (economic, climatic, etc.) of livestock raring?

C. Post Harvest Storage Technologies

What major activities is your office doing to adopt the now post harvest storage technologies that can reduce post harvest loss?

1. What is/are the perception of the farmers towards these post harvest storage technologies?
2. What are the key challenges that you facing related to post harvest storage technologies?

D. Expert/Officials Reflections on 4R-NSP Approach

1. What do you know about 4R approach?
2. Do you have a comprehensive understanding of Economic and environmental benefit of 4R?
3. Is your office familiar with this approach and is making use of the approach currently?
4. Did your office receive any training related to 4R approach?
5. Are there any gaps in the proper application of 4R in your districts?
6. Do you think, capacity building supports, including trainings important for proper understanding and application of 4R approach?
7. Do you have demonstration plot in your farmers training center (FTC) for 4R application?

E. Reflection of Expert/official on Climate Smart Agriculture

1. How do you conceptualize Climate Smart Agriculture? Do you think your office will acquainted with climate smart agriculture?
2. Have you received training or any capacity building supports on climate smart agriculture? If so from which institution?
3. Have you incorporated the practice of climate smart agriculture by in your extension program? Do you have demonstration in your FTC about climate smart agriculture?
4. Do you feel you have capacity gaps in the proper implementation of climate smart agriculture? Please explain?

F. Experts' reflection of the prevalence of natural calamities and mitigation mechanisms?

1. What are the natural hazards that directly and indirectly affect the agricultural activities? Drought, flooding, outbreak of pest, diseases? How do you explain the trends of the happening of these calamities?
2. What is the mitigation mechanism both at community and household levels?

G. Expert reflection on access to farm inputs/ extension services

1. Do you think the farmers have sufficient supply of fertilizers, improved seeds, pesticides, insecticides and other farm inputs? Is there any difference between women and men farmers?
2. If not what is/are the major reasons for the unavailability of the inputs?
3. What is the perception of the farmers in access and application farm inputs (fertilizers, seeds and pesticides)?
4. Do farmers have access to loan to purchase farm inputs or do they access the inputs on credit basis?
5. Do you think that the farmers have sufficient skill and knowledge in the right application of fertilizers, pesticides, insecticides and seeds?
6. What is the trend of application of organic fertilizers?
7. Do the farmers have sufficient access to farm machineries like combine harvester, tractors, row planters ...etc

H. Additional Information to inform indicators at outcome and output level

- Number of institutions that have integrated 4R principles in their policies and guidelines (qualitative)
- Number of new standards and/or policies within organizations that include gender sensitive 4R principles (qualitative)
- Number of Women Community Volunteer Agricultural Extension Agents (CVAEAs) sharing knowledge with other farmers
- Percentage of institutions reporting 'substantial' or 'comprehensive' understanding of the environmental and economic benefits of 4R, disaggregated by type of organization (4 or 5 on a 5-point scale)
 - a. Percentage of institutions reporting 'substantial' or 'comprehensive' understanding of the environmental benefits of 4R
 - b. Average rating (5-point scale)
 - c. Percentage of institutions reporting 'substantial' or 'comprehensive' understanding of the economic benefits of 4R
 - d. Average rating (5-point scale)
 - e. Number of local government departments, institutions and key rural development actors reporting 'substantial' or 'comprehensive' understanding of the importance of 4R
 - f. Average rating (5-point scale)
- Number of unique women and men smallholder farmers to whom loans are disbursed through the selected financial institution(s)
- Number of demonstration plots established (
- Number of field days held for training and outreach activities
- Number of global 4R champions recruited
- Number of international workshops and events held

- Number of agreements signed
- Number of organizations that have signed an MoU
- Number of gender-sensitive 4R toolkits developed
- Number of public and private sector stakeholders trained on 4R
- Number of events and exchange visits held

Information to be collected from Cooperative Promotion office

Existence of farmers cooperatives, their institutional set up, the role of women

1. Are there farmers cooperatives established in your woreda? Please mention their number and types?

No.	Types of Cooperatives	Number of cooperatives	Number of members by Gender	
			Male	Female
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

2. What supports have you been providing for the cooperatives?
3. How do you see the performance of these cooperatives in helping the agriculture sector improve its productivities/facilitating value chain in the agricultural sector? This can be seen in terms of availing agricultural inputs to the farmers and facilitating marketing of agricultural products, etc.
4. Do you think that the available cooperatives have facilitated value chain in the agricultural sector?
5. What do you think are the major challenges and gaps that have been constraining the performance of cooperatives?
6. How do you see the participation of Women in the cooperative both as a members and leaders(Women member in the executive committee)
7. Have you assess the needs of training and capacity building supports? If so, what trainings and capacity building supports required by the cooperatives?
8. What key activities being undertaken by cooperative? And what benefits are they earning from cooperative(loop access, , socio-economic empowerment of women, more information exchange among cooperative members ...etc)?

Additional Information to inform indicators at outcome and output level

- Number of assessments conducted on the business, strategic, governance and gender equitable capacity of co-operatives
- Number of co-ops that are functional with active members
- Number of co-ops trained on gender-sensitive good governance, management and business practices
- Number of coop leaders trained on good governance, management and business practices

- Number of co-ops with a strategic business plan developed that reflect co-op priorities and needs of w/m members
 - Number of co-op members trained on roles and responsibilities as co-op members
 - Number of co-op members trained on strategic business planning and markets
 - Number of unique women and men smallholder farmers to whom loans are disbursed through the selected financial institution(s)
1. Number of agreements signed per co-op with a) input suppliers and b) produce buyers
 - a. Number of agreements signed per co-op With input suppliers
 - b. Number of agreements signed per co-op With produce buyers
 2. %/total co-op members (w/m) linked to input suppliers and produce buyers
 - a. Percent of co-op members linked to input suppliers
 - b. Percent of co-op members linked to produce buyers
 3. Type of services provided by co-ops, disaggregated by category
 - a. crop inputs (seed, fertilizer, pesticide);
 - b. Farm equipment (machinery/tools)

FGD Checklist for Target Beneficiary HHs

Name of Kebele where FGD conducted _____

Agricultural Practices, Productivity Management

1. What are the major crops grown in your areas? Please list in order of importance?
2. How many times do you produce per year? Explain timing of land preparation, planting, weeding, harvesting for each major crops and for the different agro-ecologic zones?
3. Do you use modern technology to prepare/plow the land, planting, harvesting and storing (i.e. tractor, raw seeder, combine harvester, plastic back, PICS bag, etc)
4. How do you explain the trends of productivity and yield? Please estimate yield per hectare for each major crop by agro ecology?
5. Is there a change in yield over time? If so please explain the reasons?
6. Do you apply fertilizers on your farm land to increase productivities? If so where do you get the fertilizer? Do you face any problems related to the availability and accessibility of fertilizers? Can you get fertilizer on credit basis?
7. Do you have knowledge about the amount, rate and timing of fertilizer application? Which types of fertilizers are you applying? Have you got training on how, when and how much amount of fertilize you should utilize?
8. Do you use improved seeds? If so please mention the sources? Is the seeds sufficiently available and accessible?
9. Opportunities for accessing and utilizing financial services.
10. Access to price information and marketing especially for main crops
11. Barriers' to input access and market
12. Do the weather conditions of the area changing? Please explain
13. What are the major natural related hazards? How frequently this happens?

Training and capacity Building

1. Have you ever received training on agricultural practices like soil and water conservation, fallowing, crop rotation, mixed cropping, black soil draining, proper application of fertilizers, the importance and preparation of compost, application of utilization of post harvest storage technology, etc demon
2. It there FTC in your locality? If so what types of technology and practices being demonstrated?
3. Do the extension agents frequently visit you and your farm land? How do you see their technical support?
4. Are their model farmers in your areas who are sharing their good experience in their agricultural practice?
5. Have you received training on methods of planting, crop rotation, time of cultivation, fertilizer application(types, rate, placement, timing)

Livelihood activities

- What are the main economic activities/main means of livelihood of the people of the areas
- Estimated sources of income in households
- Understand who controls income and who makes decision on what to spend money on
- Understand whether other members of the household are also involved in farming and the other types of livelihoods they are engaged in apart from farming
- Current situation of poverty in the area, including number of Poor and Poor households

Annex 4

Table 9 Crops Calendar Day showing important operations of major crop grown in Minjar-Shenkora Woreda

N°	Major Crops	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
1	Teff			■	■	■	■	■	■	■	■	■	
2	Wheat			■	■	■	■	■	■	■	■	■	
3	Barley			■	■	■	■	■	■	■	■	■	
4	Sorghum			■	■		■	■			■	■	
5	Chick Pea			■	■	■	■		■	■	■	■	

