Degehabur District Hodale Kebele 5 year watershed development plan

Jun 2021

Introduction

1. Woreda background

Degehabur Woreda is found in [illegible] of Somali regional state and the area of Degehabur woreda is 12,500Km² and is located on the geographical coordinate of 8° 09' 08" North latitude and 43° 10' 34" East Longitude and it is about 160 km far to the south east of Jijiga City on the main road Jijiga to Gode. It has 16 rural kebeles. From the total population of the Woreda about 47% is Agricultural sector and 53% is non-agriculture and from the 47% agriculture sector (8 %) is pastoral and the rest 19% is a farmer. the woreda bounded on southeast Gunagado, east Yoo'ale, north Birqod and West Dihun, bour and south west Degeh medow and north Araarso woreda. It is bordered with [illegible]. The rainfall is mainly featured [illegible] modal, with erratic occurrences over the season and high variability from one year to the other. August to September is the short rainy season while April to July is the main rainy season. Total annual rainfall received is estimated to average 440mm.The rainfall is generally low, with uneven distribution and variability over cropping season and crop years, and is generally unfavourable for pastoralists and agro-pastoralists. Its topography also ranges from 500m to 670m a.s.l and characterized by 85% flatlands and 15 [illegible] and it is highly suitable for crop and cattle production. The climatic condition of the Woreda is low land. According to Ethiopian Agro-Climatic zone the woreda is classified in to [illegible] climatic zone (From woreda 2017 EFY annual report). [illegible] km and the monthly temperature is 28°c. The Woreda have different soil types 97% Orthic Solonchaks, 3% Calcaric Vertisols (woreda [illegible] study document 1985) and the major crops that are commonly produced by the farmers in the Woreda are sorghum. woreda is Degehabur one of the woreda which is challenged by such [illegible] drought, erratic rain fall, low rainfall events and

From the woreda annual report of 2017 EFY basing on 2007 Ethiopian population census report, the Woreda's total population is estimated to be 120,695 taking in to consideration 3% growth rate. The Woreda consist of 16 Kebele administrations

1.2 Background of Hudale Kebele

Hudale kebele is located on the geographical coordinate of 7° 55' 05" North latitude and 43° 4' 26" 52" East longitudes. It is about 3km south from town of Degehabur the road which links to Jijiga to Gode and it has 3 rangeland sub Kebeles.

From the total population of the Kebele 64% is pastoral, 33% is Agro-pastoral. The main hazards occur in the area is drought, erratic and low rainfall.

The area obtains bi-modal type of rainfall classified as small (main rain season) and short rain season, the main rain season usually occurs from March to April and the short rain season occurs from September to October.

The altitude of the study area ranges from 500m – 550masl. So according to Ethiopia agro-climatic zone the study area is grouped in [illegible] (from woreda 20[illegible] annual report).

The total population of the Hudale Kebele estimated to be 10,920 from this 56% and 44% is men's and women's respectively.

2 Planning Procedures

The planning process had been carried out through support of different disciplines, Agriculture & Natural Resource Office and cooperative office, Kebele administrators and the community. The integration starts from community based plan preparation. To accomplish the planning work properly we follow the following planning procedures.

Biophysical and Socio-economic survey

Based on the prepared Annexes all the Biophysical and Socio-economic data of the watershed have been filled out by the DA's together with Community watershed team. In addition to that participatory Problem Identification (PI) and Ranking done by the Community watershed team (CWT). Participatory mapping have been done by the Community watershed Team (CWT). During the field work; all the community watershed team members, the DA's of the kebelle and experts from the woreda have been participated. In order to express their feelings freely and without any pressure & confidence of men, to identify and priority of their problems we give special attention to the women.

Figure – Village map drawn by the Qorah learning [illegible] Kebele team members

Based on the above Figure 1 All the women and men are made their own village map together and finally they present on the prepared kebele and village map. They use different materials to represent their Kebele and to represent every land use/land cover types of the watershed (example school, Mosk, gully, cultivated land grazing land, etc ...).

3 Location of Hadale Kebele

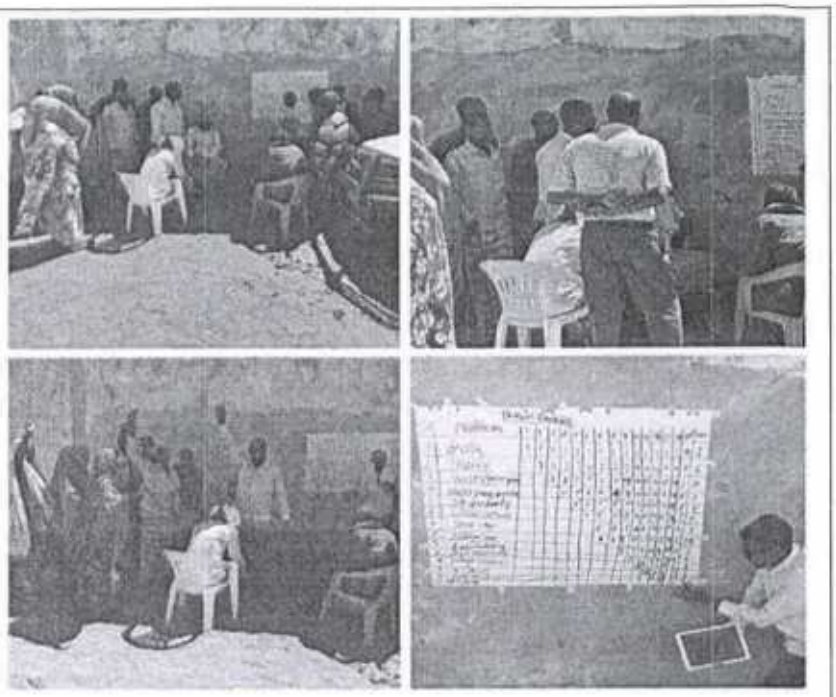
Hadale Kebele is located on the geographical coordinate of 9°20'58" North latitude and 43°X 38'36" East longitude. It is about 39 km far from Degahabur town towards south west on the main road from jijiga to Gode. Since sparsh meander is found near to the source of the Kebele it has almost the same location with the Kebele. However the sub kebele the main road or asphalt the south west far distance near to 5km for the center of Hadale is situated main road between saaxahare and ....

4 Community Observations & prioritization problems in the watershed Kebele

The community priority their problem based on participatory way of men and women discussion and finally they give their vote to list down the problem according to its severity.

Figure 2 List of the identified problems with community watershed team exercising pair wise ranking

S/n	Identified problems	
1	Gully formation	
2	Lack of water	
3	Water for irrigation	
4	Water pump generator	
5	Lack of Job opportunity	
6	Lack of Health service	

7	Lack of Crop seeds	
8	Lack of fertilizer	
9	Lack of capacity building	
10	Lack of pesticide	
11	Lack of livestock feeds	
12	Rail worm	
13	Lack of farm tools	
14	Lack of AB school	

Based on the community watershed plan ranking pair wise work up on most identified problems gully formation become the major one and Lack of AB school, Soil erosion, Lack of potable borehole and lack of credit service became the second up to the five priority of plan problem that they need to including in their plan respectively.

5.Socio-economic analysis of the Kebele

5.1 Critical socio-economic problems

The identification of problems were done by men and women separately, but the problem pair wise ranking was done by both men and women together through discussion and it is by they come to the conclusion by voting system. Based on the Table 2 below, the CWT members after they finished problem ranking the problems possible solutions also proposed by community members themselves.

5.1.2 Proposed solutions for the identified problems

No	Description	Proposed solution
1	Gully formation	To be treated by constructing gabion box, water spreading weir, check dam and trenches or terracing and re-vegetation
2	Lack of AB school	AB school to be constructed inside the village.

3	Soil erosion	Biophysical soil and water conservation measures should be taken.
4	Lack of capacity building	Create different types training opportunities related to create options for livelihood diversity.
4	Lack of credit service	Create an access to credit service for rural and women and road groups.
4	Lack of crops pesticide	Create additional access to crop protection through DA diversity.
5	Lack of job opportunity	Create different job opportunity through PW activities and through different types of job creation activity by linking with credit service.
6	Lack of market	Create availability of market service with low cost transport cost
7	Lack of livestock forage	Create access to production water for forage through irrigation system.
8	Lack of farm tools	Create access to get all hand tools which is appropriate for agriculture sector.
9	Lack of improved seeds	Create access for the proper supply of improved seeds
9	Lack of water pump generator	Create access to get water pump generator through credit or grant
10	Lack of irrigation water	Construction micro level water harvesting structures (pond and gabion) and also weir construction at valley side.
	Lack of forage seeds	Create access for the proper supply of different types of forage seeds.

6 Biophysical characteristics of the Jarraine watershed kebele

6.1 Topography

Topographically the Jarraine watershed area is characterized by all ages, landscape and altitude variability.

6.2 Land Use and Land Cover

Base Map of Qorahi Sub Kebele (Jarraine Watershed)

Base Maps are maps constructed major features of an area. And it is a map showing certain fundamental information, used as a baseline data for the Sub Kebele and specifically in this project used for assessment the impact of Climate Smart Implementations.

In the base map the following elements will be included to show the current and existing situation of the Jarraine Sub Kebele.

Current Land Use/Cover Map of Hodale Kebele

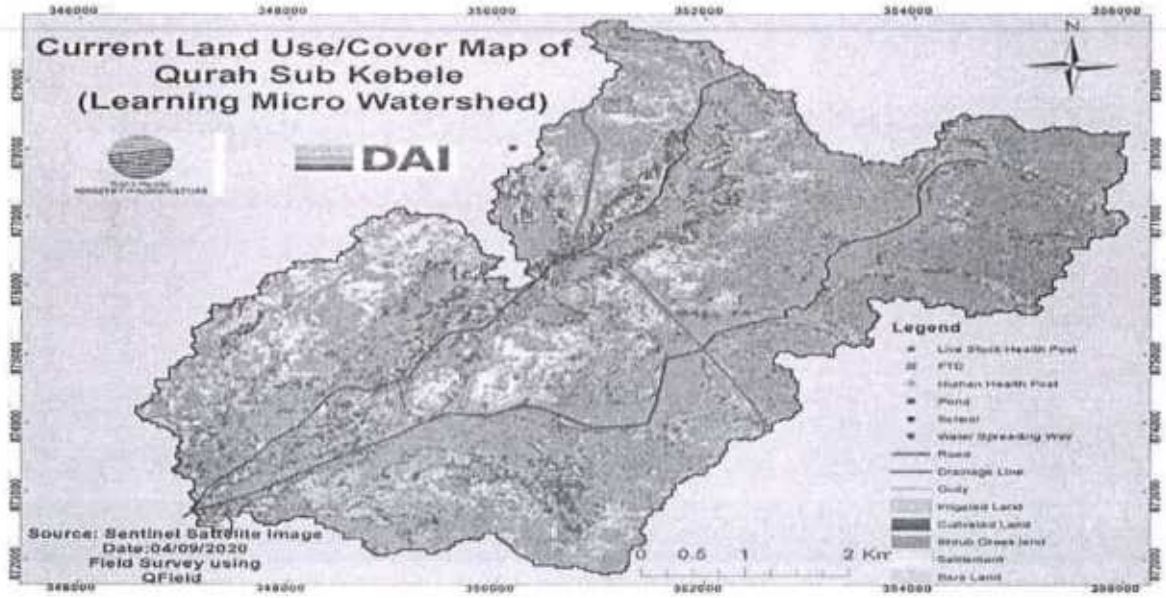
The current land use/cover map of Qorahi Sub Kebele is prepared using and the image analysis technique. The software used for the image analysis in this assignment is QGIS 3.14 and the satellite image used is Sentinel-2

the year 2020. In this assignment Semi Automatic Classification Plugin in QGIS is used to produce the land use/cover map of the Sub Kebele. ROIs based on NDVI values types is used to extract statistics for classification and other operations. And image map has been taken as back ground and the field observation and ground truthing exercise using QField software (QField is an open source mobile application that allows to edit QGIS projects on a mobile device) is used for accuracy assessment.

And the following table shows the land use/cover type, size of each land use/cover and their percentage of proportion.

Land use Type	Size in Ha	Proportion in %
Cultivated Land	564	15
Shrub Grass Land	2637	70
Settlement	274	7
Bare Land	300	8
Total	3775	100

The following map shows the current land use/cover of Qurah Sub Kebele after analysis of the Sentinel Image of the year 2020.

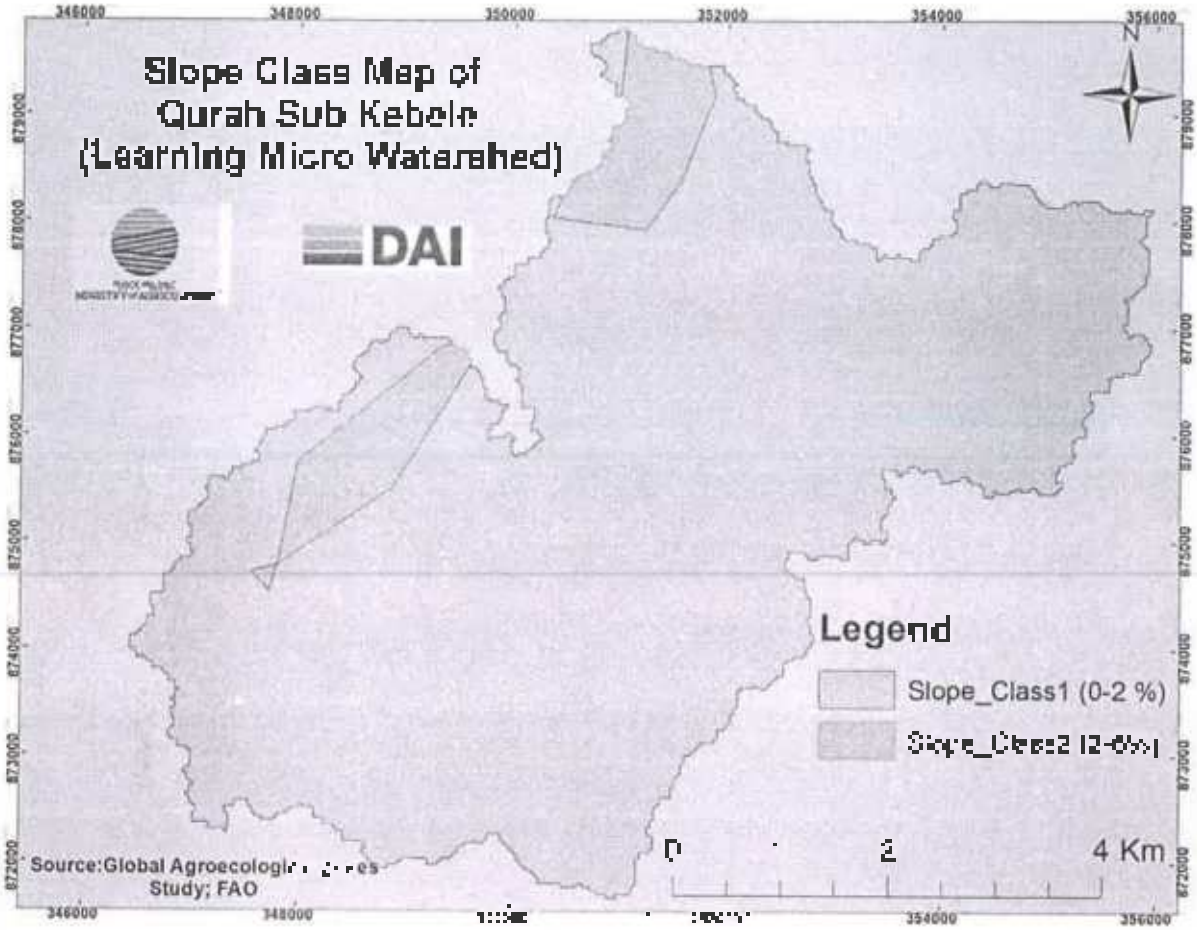


c. Slope Class Map of Qurah Sub Kebele (Learning MWS)

The slope class map is adopted from the Global Agro-Ecological Zones Study, Food and Agriculture Organization of the United Nations (FAO), Land and Water Development Division (AGL) with the collaboration of the International Institute for Applied Systems Analysis (IIASA), 2000.

The following table and subsequent map show the type, size and proportion of the Slope classes and its spatial distribution in the Learning Sub Kebele.

S/N	Slope Class	Area Ha	Proportion in %
1	0-2%	3822	93
2	2-6%	[illegible]	7
Total		3775	100



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The following table shows the type, size and proportion of the soils in the learning Sub Kebele

Soil Type	Area in Ha	Cover in %
eutric cambisols	[illegible]	97
chromic vertisols	[illegible]	3

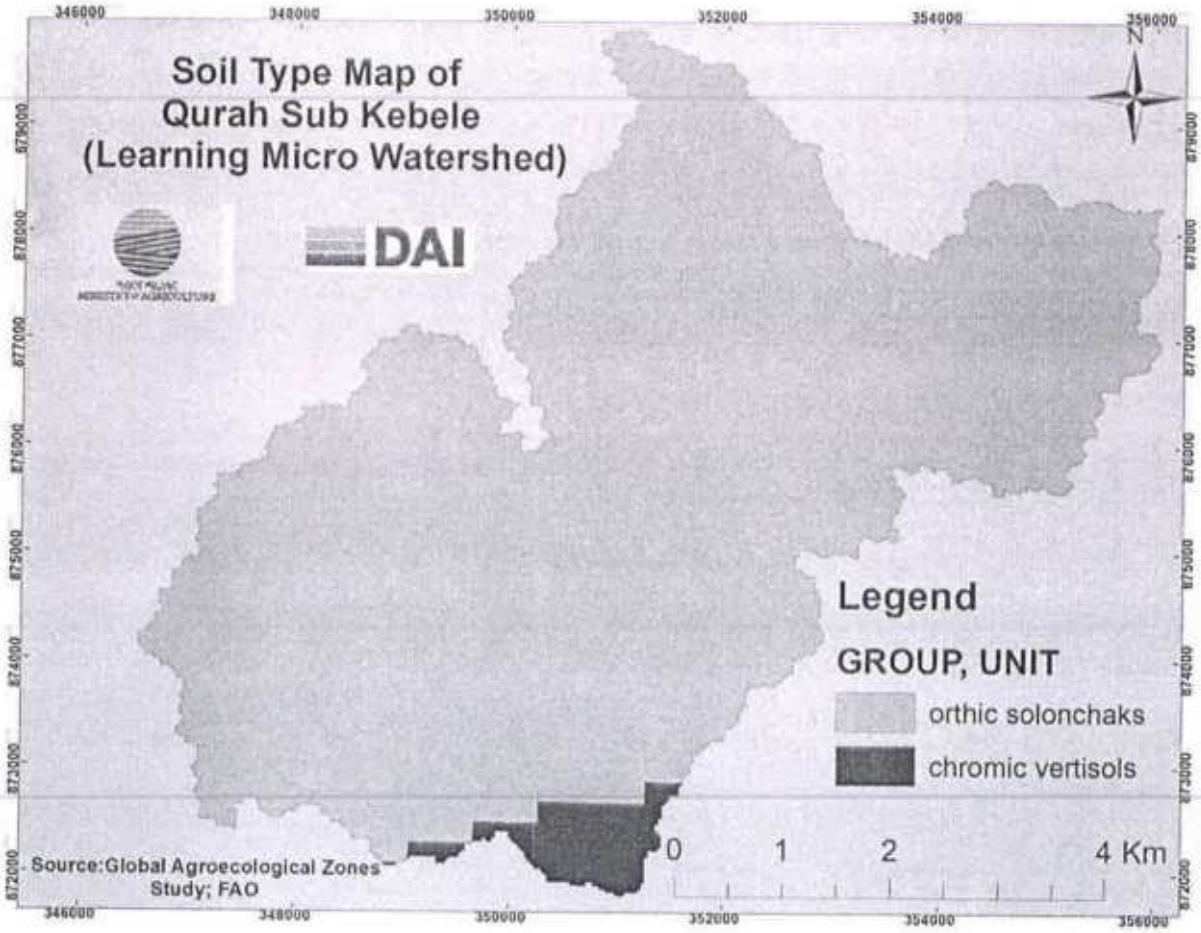
Total	9775	100

The major soil type as it has been shown in the above table and subsequent map is orthic solonchaks and there is also orthic solonetz in the southern tip of the Sub Kebele.

Solonchak, one of the 30 soil groups in the classification system of the Food and Agriculture Organization (FAO). Solonchaks are defined by high soluble salt accumulation within 30 cm (1 foot) of the land surface and by the absence of distinct subsurface horizons (layering), except possibly for accumulations of gypsum, sodium, or calcium carbonate or layers showing the effects of waterlogging. Solonchaks are formed from saline parent material under conditions of high evaporation and salt accumulation in closed basins under warm to hot climates with a well-defined dry season, as in arid, Mediterranean, or subtropical areas.

Owing to their high soluble salt concentrations, solonchaks require irrigation and drainage if they are to be used for agriculture. They are similar to the salorthids of the Aridisol order of the U.S. Soil Taxonomy.

Vertisols are soils with 30% or more clay. Clays usually active, cracking when dry and swelling when wet. Extremely difficult to manage (hence only cultivated) but very high natural chemical fertility if physical problems overcome



- Development Plan Map of Qorsa Sub Kebele (Learning MWS)

The Development Plan Map of the watershed is used to show the spatial distribution and definition of the different measures planned to be implemented in the specified project period. For development plan map is prepared the land capability classification. In this case, the land capability classification which needs an expert input is included.

- Land Capability Class Map of Qorsa Sub Kebele (Learning MWS)

The land capability classification land form is the one developed in the FAO approximation by Dengrad (1986). The field data is collected using the QField Software.

In March 2019 QField for desktop released, which is an open-source mobile (Android) application that allows working QGIS projects on a mobile device. It is built with the QGIS rendering engine so QGIS project (including symbology) will look exactly the same in QField. It supports most of the formats that QGIS supports including embedded and PostGIS databases and works fully when off line. QField functionality include feature digitizing, geometry and attributes editing, attribute search, forms customization prompt, QGIS, GPS support, and camera integration. QField supports creating and editing points, lines and polygons. A plugin for QGIS called QFieldSync makes packaging QGIS projects for QField a breeze.

Procedure for land classification

The land classification table is designed to identify the land classes in a uniform and objective way. The procedures in using the table are: Use the data collected in the field, which has been coded in the SOILSLAND FORM description Form as follows.

Soil and land form description standard form

INFORMATION NEEDED FOR LAND CLASSIFICATION			
SLOPE (L)		Soil Depth (D)	
0-2%	L1	>150CM	D
2-8%	L2	100-150CM	D2
8-15%	L3	50-100CM	D3
15-30%	L4	25-50CM	D4
30-50%	L5	<25CM	D5
>50%	L6		
SOIL EROSION (E)		TEXTURE (T)	
None	E0	Sand	T1
Slight	E1	Sandy loam	T2
Moderate	E2	Loam	T3
Severe	E3	Silty loam	T4
Very severe	E4	Clay loam	T5
		Silty clay	T6
		Heavy clay	T7

Water Logging	W	DOMINANT COLOUR
None	W1	Black _____ Brown _____ Red _____
Intermittently waterlogged	W1	
Regularly waterlogged	W2	Yellow_____ Grey _____ White _____
Swamps	W3	
INFILTRATION (I)		
Good		
Moderate	I2	
Poor	I1	
STONINESS OR ROCKINESS	(S)	
<15%		
15-35%	S2	
35-90%	S1	
>90%	S0	
Size ....m	S1	

Table LAND CLASSIFICATION TABLE

Limiting factor		Range of codes permitted for each class							
Slope (S)	S	S2	S3	S4	S5	S6	S7	S8	S9
Soil Depth (D)	D	D1	D2	D3	D4	D5	D6	D7	D8
Soil Erosion (E)	E	E0	E1	E2	E3	E4	E5	E6	E7
Top soil Texture (T)	T3	T2	T1	T1	T2	T2	T2	T2	T2
Water logging (W)	W	W0	W1	W2	W2	W2	W2	W3	W3
Climate (C)	C	C0	C1	C2	C2	C2	C2	C2	C2
Surface stoniness or rockiness (S)	S	S0	S1	S2	S3	S3	S3	S4	S4
SOIL CONSERVATION SOURCE CLASS	I	II	III	IV	VI	VII	VIII	V	
		Land suitable for annual crops			For pasture or perennial crops	For forestry	Unsuitable for agric.	Swampy areas, Mixed lands etc	

Slope Class (%)	Slope	Depth	Erosion	Texture	Water Logging	Infiltration	Stoniness	Capability Class	Limitation
0-2	S1	D1	E2	T3	W0	I0	S0	IV	Erosion
3-8	S2	D2	E3	T2	W0	I0	S1 & S2	IV	Erosion

Total

The following table shows the recommended land use based on the land capability class of Qeto Sub Kebele.

Land Class unit	Major limiting factor	Cultivated land	Grazing land	Forest land
IVE	Moderate steep erosion	a) Cut off drain + Waterways b) Selective conservation crops • Forage crops a) Contour cropping b) Strip cropping c) Grass strip d) Alley cropping Waterways + cut off drain	a) Convert to cultivated land b) Convert to agro silvopasture c) Control gully by cut off drains & waterways	a) Convert to cultivated land b) Convert to agro silvopasture (multipurpose forest including tree species)

7 Gender, nutrition and social development analysis of the learning watershed sub kebele

7.1 Major activities of men and women

Men's activities	Women's activities
Rearing livestock	Rearing small ruminants
Farming activities	Milking cows
	Local home construction
	Keeping of children
	Local home activity

7.1.2 access to and control of resources

For men's	For women's
- Treats/sale/control of livestock	- Treats/sale/control of [illegible]
- Treats, sale and control of farm land	- Treats/sale/control
Treats for crop production	

The kebele shows the simple livelihood trends depends on rain fed agricultural system, their vulnerability status shows the same as before. And also the Severe degradation of natural resources, drought occurrence, frequent disease outbreak, prevalence of stunting among children under 5 years of age 38%, prevalence of underweight among children under 5 years of age 24%, prevalence of wasting among children under 5 years of age 10% and

prevalence of low birth weight(less than 2.5kg) of children whose birth weight are above 19% (Based on woreda Health office 2012 annual report and UNICEF 2017). The learning watershed sub kebele [illegible] member are also suffering in seasonal malnutrition.

CLIMATE ANALYSIS AND PLANNING FORMAT

Identification and prioritization of major problems, and solutions for addressing and resolving them (As compiled Socio-economic and Biophysical Analysis Results)

No	Problem	Rank	Suggested Solution
1	Drought	2	Diversify their livelihoods system, change breeding [illegible] capacity.
2	Land degradation		Constructing different types of biological soil and water conservation structures with [illegible]
3	Scarcity of rain	5	Constructing different types water harvesting structures.
4	Gully formation	1	Constructing [illegible]
5	Shortage of foods	1	Sowing different types of fodder seeds in the site of [illegible]
6	Lack of credit service	4	Creating access of credit service for both men & women.
7	Market for livestock	5	Creating market access with the existing [illegible] & [illegible]
8	Lack of awareness	7	Organizing capacity development programs at all levels of the community
9	Desert locust	9	Providing early warning information to [illegible]

Kebele/sub kebele/village climate analysis, prioritization and screening

Step 1: Climate Change Context: Identify and document climate change observations and projections from both scientific sources and community knowledge. Consult secondary sources, such as the National Adaptation Plan, for scientific observations. For the community observations, refer to the discussions on the Seasonal Calendar and the Historical Timeline (Steps 1 and 2)

Observations of Climate Change	Future Climate Change Projections
Community Observations (by individual Kebele/village level)	According to our past experience we expect drought occurs every 5 to 10 years The extent of future climate change depends on what we do now to reduce green house gas emission. The more we emit, the larger future climate change will be.
Continuous drought, increasing temperature [illegible] scarcity of rain	
Scientific Observations (NAPA, [illegible])	
Direct and indirect impacts of climate change Changing in rainfall and weather pattern An increase in the frequency of extreme weather events. Loss of productivities	
sea level rise.	

Step 2: Sensitivity of Livelihood Resources to Climate Impacts: List livelihood activities and resources needed for each livelihood activities. Then use the table below to analyse the sensitivity of the Livelihood

resources to climate impacts. Assign each resource a ranking: 0 = Not sensitive at all, 1 = Low sensitivity to climate impacts, 2 = Medium sensitivity to climate impacts, 3 = High sensitivity to climate impacts

Livelihood Activities	Resources Needed for Livelihood Activities	Sensitivity to Climate Impacts (0 = None, 1 = Low, 2 = Medium, 3 = High)
Women's Livelihood Activities	[illegible] Women's Livelihoods	
Milk trading	[illegible] resources for their livestock	3
Small ruminants rearing	[illegible]	2
Small scale business	Credit services for their enterprise	0
Men's Livelihood Activities	[illegible] Livelihoods	
Livestock production and marketing	Fodder resource for their livestock, vet. service & livestock market	3
Agriculture production	Agricultural land, improved seeds, pesticides & agricultural inputs	3

Step 3: Vulnerability Matrix (VM): Identify climate related hazards (e.g. drought, flood, erratic rainfall, heavy rainfall, etc) affecting the identified Livelihood resources. Determine the level of loss of these assets on the resources, Rate the level of loss as 3 = significant impact, 2 = medium impact, 1 = low impact, 0 = no effect on resource.

Livelihood resources	Hazards			
	Hazard 1	Hazard 2	Hazard 3	Hazard 4
Milk production	3	1	2	0
Meat production	3	1	2	0
Improved seeds	3	2	1	0
Agricultural produce	3	3	3	3
Small Scale Business	1	1	0	0

Step 4: Historical Timeline: The objective here is to give an insight into past hazards, changes in their timing, intensity and behaviour, make people aware of trends and changes over time and document community observations of changing hazard trends. It is advised to have the same material as in the previous analysis

Year	Event	Year	Event
1977 EC	Drought, livestock disease		
1986 EC	[illegible]		
1992 EC	[illegible]		

ISIC EC	[illegible]		

Step 6: Seasonal Calendar: This is to show you seasonal changes in activities and periods of stress or scarcity, to identify important livelihood activities, document community observations of emerging trends in seasonal patterns and to highlight the increasing uncertainty associated with climate change. It is advisable to have the same material as in the previous analysis.

EVENT/ACTIVITY	S	O	N	D	J	F	M	A	M	J	J	A
Planting	•						✓					
Sowing		x						•				
Weeding		x						•				
Harvesting					•						x	

Step 8: Impacts of Climate Hazards on Livelihoods and response strategies: Fill in the table below, summarizing the direct impacts of the different hazards on livelihoods, as identified by the community members during the Vulnerability Matrix exercise (Step 5)

Hazard	Direct Impact (on Women's/ Men's Livelihoods)	Current response strategies	Alternative responses
Hazard 1	Livestock & Agricultural production	Aid from Govt. & NGOS	Livelihoods diversity
Hazard 2	Agricultural production	Seed support from Government	Livelihoods diversity & proper land Management
Hazard 3	Agricultural production	Seed support from Govt.	Giving Agrodoc disease information
Hazard 4	Agricultural production	Seed support from NGO'S	Giving early warning information

Step 7: Proposed Interventions to Reduce Climate Change Vulnerability

Impacts Identified by Communities	Interventions to Reduce Climate Change Vulnerability		
	Pastoral range land Management Interventions	Livelihoods Interventions	Other Interventions
Hazard 1			
loss of livestock	[illegible]	create Livelihoods diversity	credit services for small scale business
loss of crops	water harvesting for irrigation	create livelihoods diversity	credit service for small scale business
Hazard 2			
loss of Agricultural land	water spreading [illegible]	create livelihoods diversity	credit service for small scale business

Soil erosion	Physical soil and water conservation measure	Income [illegible] activities	
Drought			
Loss of Agricultural products	Construct water harvesting structure for supplementary irrigation	Increase livelihoods diversity	Credit service for small scale business

Step 8: Climate-Smart Prioritization of Interventions (Prioritizing watershed development interventions)

Proposed rangeland management interventions	Resources that are climate-sensitive and/or important for livelihoods	Criteria (tick √, if the answer is yes)									Total number of √s for the intervention
		Does the intervention reduce the impact of the hazard on the resources?			Explain how	Does the intervention increase the quality or availability of the resource?		Explain how	Did the community identify this action as a priority?	Does the action contribute to CC mitigation?	
		Hazard #1	Hazard #2	Hazard #3		Quality	Availability				
Intervention 1	Livestock	*	*	*	[illegible] production by [illegible]	*	*	Increase water capacity	*	*	7
	Agricultural products	*	*	*	through water harvesting	*	*	Increase water availability	*	*	7
Intervention 2	Agricultural land	*	*	*	Through Gully Rehabilitation	*	*	Increase moisture availability	*	*	[illegible]
	Rangeland	*	*	*	--	*	*	Increase moisture availability	*	*	[illegible]
Intervention 3	Agricultural production	*	*	*	by soil & water conservation measure	*	*	Increase moisture availability	*	*	7
	Rangeland	*	*	*	--	*	*	Increase moisture availability	*	*	7
Intervention 4	Agricultural production	*	*	*	Water harvesting for supplementation	*	*	Increase water availability	*	*	7

					[illegible]						

Step 9: Climate-Smart Prioritization of Interventions (Prioritizing livelihoods interventions)

Proposed livelihoods intervention	Does the intervention make livelihoods less climate-sensitive?			Explain how	Does the livelihoods intervention enable risk management (RM) and climate change (CC) adaptation in livelihoods?				Explain how	Did the community identify this action as a priority?	Does it contribute to CC mitigation?	Total no of Ys for the intervention
	Does it adjust existing LH activities to become less sensitive?	Does it support diversification of LH activities?	Does it promote efficient use of LH resource?		Does it increase access to climate information?	Does it increase flexibility in LH options?	Does it increase knowledge and skills on RM and CC adaptation?	Does it increase access to services that support RM and CC adaptation?				
[illegible]	*	*	*	[illegible]	*	*	*	*	[illegible]	*	*	9
[illegible]	*	*	*	[illegible]	*	*	*	*	[illegible]	*	*	9
[illegible]	*	*	*	[illegible]	*	*	*	*	[illegible]	*	*	9
[illegible]	*	*	*	[illegible]	*	*	*	*	[illegible]	*	*	9

				practice.								

NB: Please tick √ if the answer is yes. If yes, explain how. If not, identify adjustments or complementary activities to address this.

Step 10: Climate-Smart Prioritization of Interventions (Linking livelihoods options and watershed management interventions)

Prioritized livelihoods interventions	Is the activity at risk from any of the climate-related hazards identified in Step 1?	If yes, identify NRM activities to address this	Does the success of the activity rely on access to any of the climate-sensitive resources identified in Step 1?	If yes, identify NRM activities to address this.	What other interventions are needed to maximize the potential for success of the intervention?
Livelihoods intervention 1	No	—	No	—	Capacity building
Livelihoods intervention 2	Yes	Through proper RL mant practices	Yes	Rangeland Development	Soil & water conservation measure with area closure.
Livelihoods intervention 3	Yes	Through proper RL mant practices.	Yes	Rangeland Development and livestock Forage Production	Water Harvesting for supplementary Irrigation
Livelihoods intervention 4	Yes	water harvesting	Yes	prepare Irrigation Canal.	Provide vegetable & short season variety seeds.

Step 11: Prioritized watershed Management Interventions and Livelihoods Options
Based on the previous three steps, list the prioritized rangeland management interventions and livelihoods options in the table below. These are the activities that should be included in the action plan. Where activities are linked (from Step 7 – Proposed Interventions to Reduce Climate Change Vulnerability), list them side-by-side. These priorities must be combined with priorities identified based on other criteria (step 3 – problem analysis and solutions) to decide which interventions will be included in the Community Watershed/ Pastoral Community Action Plan.

Prioritized Rangeland Management Interventions	Prioritized Livelihoods Interventions	Other interventions
Physical soil & water conservation measure with area closure.	Bee keeping and poultry production	Creating credit access for both men & women
Water spreading weir construction with Check dams	Creating small scale business on small ruminants & livestock fattening and marketing	Creating credit access for both men & women
Construct Water Harvesting structures with Irrigation Canal	Creating vegetable production & small scale business marketing	Creating credit access for both men & women

Step 12: The Climate Screening of Pastoral Community Action Plan: It is a final check on the Community Pastoral Community Action Plan, to ensure that the climate smart priorities have not been lost when combined with other priorities *(under Section (I) – Compiled Socio-economic and Biophysical Analysis Results)*, and to look at the plan in its entirety to ensure it is addressing different dimensions of vulnerability to climate change,

achieves mitigation co-benefits if possible and is gender-sensitive. To do this consider the following points to refine the action plan.

No	Key questions/ points to consider	Answer
	Does the plan include interventions that reduce exposure to climate hazards identified in the Climate analysis?	Yes
	If yes, which interventions? If no, explain why not. Both SWC & L[illegible] interventions.	
	Does the plan include interventions that reduce sensitivity of livelihoods to climate hazards identified in the Climate Analysis?	Yes
	If yes, which interventions? If no, explain why not. Both creating livelihoods diversification options	
	Does the plan include interventions that enable disaster risk management and climate change adaptation in livelihoods?	Yes
	If yes, which interventions? If no, explain why not. Both livelihoods diversification options.	
	Does the plan include interventions that achieve climate change mitigation co-benefits?	Yes
	If yes, which interventions? If no, explain why not. Rangeland restoration & water harvesting structures will [illegible] long term [illegible].	
	Were future climate scenarios taken into account in the development of the plan?	Yes
	If yes, how? If no, explain why not. Through both Rangeland Development & Livelihoods diversification interventions	
	Does the plan address the needs and priorities of both women and men?	Yes
	If yes, how? If no, explain why not. Small scale business on small ruminants, vegetables & fattening address women and beekeeping & livestock marketing address men and fodder/forage production address both men and women.	
	Based on the responses to the above questions, provide an overall assessment of the plan in terms of how climate-resilient it is. Suggested scale: Answered yes to 1-2 questions: Weak Answered yes to 3-4 questions: Medium Answered yes to 5-6 questions: Strong	99%

Participatory watershed development

Participatory watershed development can be defined as the rational and socially acceptable utilization of all the natural resources for optimum production to fulfil the present need with minimal degradation of natural resources such as land, water, and environment. It should be underlined that people's needs and aspirations drive the planning process. Local farmers, other land users and the wider community who depend on the land must be involved from the very beginning of the planning process since they are the ones that will live with the end result. Consequently, it should be emphasized that the adequacy of planning depends on the human element and not only on the physical or technical aspects. Therefore, planning must start from the people living on the land. Participatory watershed development and planning must go beyond initial consultations with the "target population" after which the project designers go back to the office to write up a detailed project proposal. Participation in planning requires a mechanism for prioritizing and decision-making at the local level. People need to be informed about available alternatives. They need to feel that their concerns are being addressed. Initial planning must be followed by a system of monitoring and evaluation so that local people themselves will be able to follow and assess the progress made on joint decisions, and make changes if necessary to ensure satisfactory results.

It can also be explained as the involvement of communities and households in the stages of planning, implementation and monitoring of the watershed development. The key for success will be the full participation of men and women and their engagement in the selection and integration of various technologies within the natural boundaries of a watershed area for optimum use of land and water resources. This includes land improvements, rehabilitation, and other technical works as well as betterment of people. Water can be developed and managed if a watershed is taken as a planning unit. People's activities depend on the watershed for their livelihood and survival and in turn are responsible for the proper or improper use of the resource. Therefore, people's participation is critical for the success of participatory watershed development as it aims to create a self-support ing system essential for sustainability. The essence of participatory watershed development and management emphasizes a multidisciplinary and multi institutional approach for an integrated intervention, which includes effective use of any form of assistance and community contribution, as well as the sound management of basic resources. Human resources development and participation of the whole community in planning is essential since it is the people who have to benefit from watershed development and manage their resources. Participatory watershed development is also intended to promote group cohesion within the society and provide its poorest members to benefit from the various assets created and eventually to overcome their food insecurity.

1.9 Main Objectives of The Community-Based Participatory Watershed Development Plan

The overall objective of Participatory Watershed Development plan is to improve the livelihood of communities/households in the project area through comprehensive and integrated natural resource development. It aims at productivity enhancement measures for improved income generation opportunities, enhanced livelihood support systems and high resilience to shocks.

Specific Objectives

1. To conserve soil, rainwater and vegetation within the area for productive use.
2. To develop surplus water harvesting water sources in addition to ground water supply.
3. To promote sustainable farming and stable crop yields by adopting suitable soil, water, nutrient and crop management practices.
4. To rehabilitate and reclaim marginal lands through appropriate conservation measures and mix of trees, shrubs and grasses based on land potential
5. To enhance the income of individuals by the diversified agriculture production, increased employment opportunities and village enterprises, particularly for the most vulnerable, linked to the sustainable use of natural resources.

Size Of The Watershed

A watershed may be only a few hectares as drainage area for filling small ponds or hundreds of square kilometers for rivers. The size of the watershed should be based on the community or communities depending on the watershed. A suitable watershed size is required for effective planning for conservation and maximum production. Efficient management of watershed resources is possible through an appropriate unit so that the resources are managed and handled effectively, collectively and simultaneously. The maximum size of the watershed that should be chosen as a planning unit is suggested to range from 200 to 500 ha. Less than 200 ha may occur and may be considered in few cases, but usually these smaller units are to be included as sub watersheds within community watersheds.

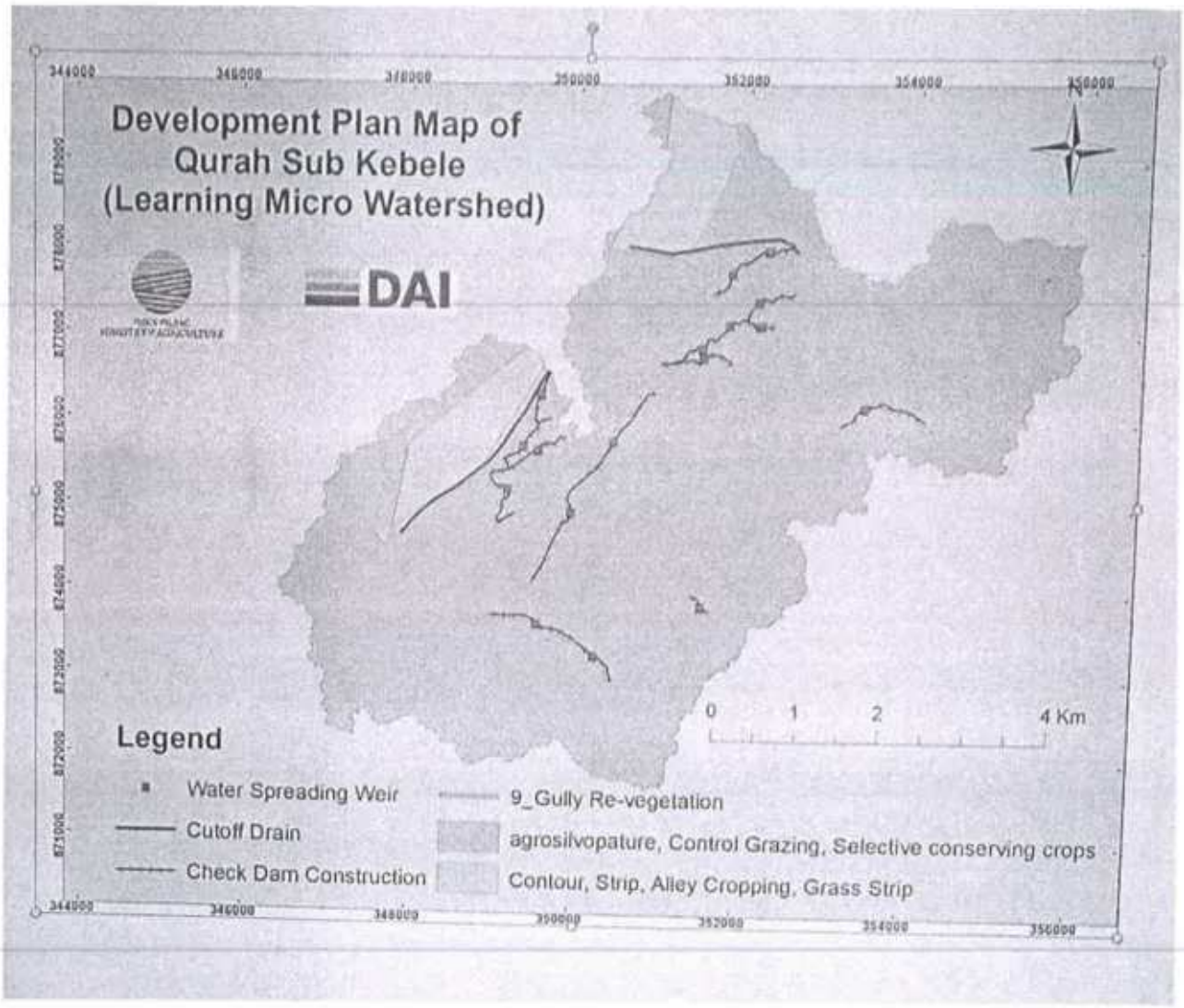
So, the watershed size of the site is 1645 hectares.

10.2 Proposed Interventions

S/N	Description	Interventions
1	Natural Resource Management	Biophysical soil & water conservation measure
		Micro level water harvesting structures and shallow well construction
		Small scale irrigation canal construction
		Water spread weir construction
		Water diversion construction
		Nutrition based PW activities
2	Livelihoods	Poultry production
		Small ruminant animals fattening and trading
		Vegetable production
		Livestock Fattening
		Bee Keeping
3	Integration of NRM and Livelihoods options for improved	Area closure cut and carry and Bee keeping
		Compost Making

	CS outcome.	Micro pond and groundwater
		Water diversion and irrigation use
		Water spread weir construction
		Shallow well construction.

11 Development Map of the Learning watershed Sub-Kebele



12 Implementation Plan

This watershed plan is will be implemented in Somali Region, Dembel Woreda Kebele Jadale Qorah Mender Total Household 69. Available working labor force.

The watershed cooperative is established in Jadale zones in the cooperation of regional bureau of agriculture, regional cooperative promotion agency and GIZ.

The Name of watershed Users Association is Jadale Association. The number of the association members is 95 members.

12.1 Five (5) years Strategic Plan

Type of intervention	Unit	Work norm	5 year Plan		Yearly Breakdown									
					1st, year		2nd, year		3rd, year		4th, year		5th, year	
			Qt	PD	Qt	PD	Qt	PD	Qt	PD	Qt	PD	Qt	PD
Physical Plan														
Biophysical SWC	Ha													
Area closure	Ha													
Fencing	M	[illegible]	[illegible]	800			0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	202
Clearing unwanted tree species	Ha	56pd/ha	[illegible]	2240			0	[illegible]	16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Cut and carry	Ha	[illegible]	40	[illegible]			10	200	[illegible]	200	10	200	10	200
Hay making	Ha	[illegible]	[illegible]	[illegible]			6	156	[illegible]	156	6	[illegible]	7	182
Rangeland	Km	[illegible]	20	[illegible]	12	2592	13	2800	7	1750	[illegible]	[illegible]	[illegible]	[illegible]
Half moon	No	[illegible]	20000	20,000	2000	1400	[illegible]	[illegible]	[illegible]	[illegible]	2000	[illegible]	2000	1400

					Year - 1			Year - 2			Year - 3			Year - 4			Year - 5		
		M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
…en closure …and carry	No	90	40	100	--	--	--	15	10	22	15	10	23	15	10	25	[illegible]	0	25
…eekeeping	No	30		30	--	--	--	[illegible]	---	12	12	---	12	12	---	12	2	--	2
…apes. …king	No	120	200	320	24	40	64	[illegible]	40	64	24	40	64	24	40	64	24	40	64
…and Sand …construction … PSNP …T	No	--	200	200	---	[illegible]	[illegible]	---	40	40	----	40	40	----	40	40	----	40	40
… …ubsurface …ter …vesting	No	50	50	100	10	10	20	10	10	20	10	10	20	10	12	22	15	12	25
…ter …ension and … indigenous …al	No	120	200	320	24	40	64	24	40	[illegible]	24	40	64	24	40	64	24	40	64
…ter spread … …mation	No	600	---	500	100	---	100	90	---	100	100	---	100	100	---	100	100	---	100

User Group Formation Based on Linked to Livelihood Options for 5 Year Plan

S/N	Types of activities	unit	No of Plan to organize groups			Number of PSNP Beneficiaries														
						Year-1			Year-2			Year-3			Year-4			Year-5		
			M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
	Poultry production	No	--	10	10	--	2	2	-	2	2	--	2	2	--	2	2	--	2	2
	Small ruminant animals fattening and trading	No	--	20	20	--	4	4	-	4	1	--	[illegible]	4	--	4	1	--	4	4
	Vegetable production	No	5	25	30	1	5	6	1	5	6	1	5	6	1	5	6	1	5	6

Strip grass sowing	Km	[illegible]	[illegible]	2,250	17	550	17	550	17	550	17	550	17	550
Check dams construction	M^3	[illegible] M	[illegible]	2,100	300	420	300	420	300	420	300	420	30	420
Water spread weir construction	Mt	[illegible]	[illegible]	15,000	1	3000	1	3000	2	3000	1	3000	1	3000
Gully reshaping vegetation	M^3	[illegible]	10	7,000	2	1400	2	1400	3	1400	2	1400	[illegible]	1400
Compost making	Nu	[illegible]12M^3	240	2,400	48	480	48	480	48	480	48	480	48	480
Area closure	Ha	[illegible]	20	[illegible]	[illegible]	[illegible]	10	[illegible]	[illegible]	40	10	40	10	40
Water point	Ha	[illegible]	[illegible]	4,400	[illegible]	80	[illegible]	80	4	40	4	80	4	80
Geo-membrane construction	M^3	[illegible]	[illegible]	[illegible]	658	953.2	658	953.2	658	953.2	658	953.2	658	[illegible]
SSI canal Construction	Km	[illegible]	[illegible]	1,250	0.6	420	0.6	420	0.6	[illegible]	0.6	[illegible]	0.6	420
Community road rehabilitation	Km	[illegible]	20	14,000	4	2800	4	[illegible]	[illegible]	[illegible]	[illegible]	2800	4	2800
Feeder road	10	4200[illegible]	4200.0	[illegible]	8400	[illegible]	[illegible]	2	[illegible]	3	8400	3	8400	2
Social infrastructure	No	[illegible]	1	2,500							[illegible]	[illegible]	2	[illegible]
Nutrition Based PW activities	No	[illegible]	20	[illegible]	4	[illegible]	4	[illegible]	4	[illegible]	4	[illegible]	4	[illegible]

4	Livestock Fattening and trading	No	10	--	4	2	--	2	2	--	2	2	--	2	2	--	2	2	--	2
5	Bee Keeping	No	10		20	2	--	2	2	--	2	2	--	2	2	--	2	2	--	2
6	Cut and Carry	No	3	3	10	1		2		1	2		1	2		1	2	1	1	2

Korah Mender Learning watershed Sub-Kebele Annual PW Plan
For the Year 2024Gc

Types activities	Unit	Work norm	Total plan		Quarterly Break Down							
					1st - Quarter		2nd - Quarter		3rd - Quarter		4th - Quarter	
			Qt.	PD	Qt.	PD	Qt.	PD	Qt.	PD	Qt.	PD
Biophysical SW conservation	Ha.											
Soil bund	Km	[illegible]	[illegible]	2,550	[illegible]	[illegible]	[illegible]	600	[illegible]	600	5	600
Half moon	No	[illegible]	2000	1,[illegible]20	500	350	500	350	500	350	500	350
Strip grass sowing	Km	30PD/Km	7	[illegible]	1	[illegible]	[illegible]	120	[illegible]	120	5	120
Stone check dams construction	M³	[illegible]	300	420	75	105	75	105	75	105	75	105
Water spread weir construction	No.	[illegible]	1	[illegible]					1	[illegible]		
Gully reshaping and vegetation	M²	[illegible]	4	2,80[illegible]	1	700	1	700	1	700	1	700
Compost Making	M³	[illegible]	48	480			24	240			[illegible]	[illegible]
Area closure	Ha.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			20	80		
Forage Development	Ha.	420PD/ha	4	1,680			2	840			2	840
Water project Micro level Pond construction	No	[illegible]	[illegible]	88[illegible]	2	442			2	442		
Water diversion and SSI canal Construction	Km	700PD/Km	0.5	350	0.25	175			0.25	175		
Community road rehabilitation	Km	[illegible]	2	[illegible]	1	[illegible]			1	[illegible]		
Gabion check dam	M³	[illegible]	150	[illegible]	75	420			75	420		
[illegible] construction	No	[illegible]	[illegible]	[illegible]			344	481.6			344	481.6
Nutrition Based PW activities	No	138PD/No	8	[illegible]	4	[illegible]			4	[illegible]		

Kurah Member PW Linked to Livelihoods Annual Plan

For the year 2024 G.C

S	Types Activities	Unit	Total plan			Quarterly Break Down												Remark
						1st Qr.			2nd Qr.			3rd Qr.			4th Qr.			
			M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	
	Water spread weir construction	No	1		1	--	--	--	--	--	--	1	--		--	--	--	
	Compost Making	No	24	40	64	--	--	--	24	21	45	--	--	--	24	40	64	
	Forage Development	No	4	--	4	--	--	--	2	--	2	--	--	--	2	--	2	
	Water project Micro level Pond construction	No	--	10	10	--	20	20	--	--	--	--	20	20	--	--	--	
	Water diversion and SSI canal Construction	No	21	10	61	12	20	32	--	--	--	12	20	32	--	--	--	
	Bio-enrichment construction	No	10	10	20	5	5	10	--	--	--	5	5	10	--	--	--	

User Group Formation at kurah Member Based on Linked to Livelihood Options Annual Plan for the year 2024 G.C

S	Types Activities	Unit	Total plan			Quarterly Break Down												Remark
						1st Qr.			2nd Qr.			3rd Qr.			4th Qr.			
			M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	
	Poultry production	No	--	2	2	--	--	--	--	--	--	--	2	2	--	--	--	
	Small ruminant animals fattening and trading	No	--	4	4	--	--	--	--	2	2	--	--	--	--	2	2	
	Vegetable production	No	1	5	6	--	--	--	1	3	4	--	--	--	--	2	2	
	Livestock Fattening and trading	No	2	--	2	--	--	--	--	--	--	2	--	2	--	--	--	
	Bee Keeping	No	2	--	2	--	--	--	2		2	--	--			--		

	Cut and Carry	Na		1	2	--	–	--	–	–	–	--	--	--	1	1	2	