



# Support for Sustainable Development (SSD)

## Terminal report Of Gibe-kechema Irrigation Based Integrated Development Project (1<sup>st</sup> January 2019 – 31<sup>st</sup> March 2022)



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April 2022  
Addis Ababa, Ethiopia

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## **Acronym**

CSA	Charities and societies agency
WUA	Water user’s Association
SSD	Support for Sustainable development
CFW	Cash for work
MfM	Menschen fur Menschen
PME	Planning, monitoring and Evaluation
HHs	Households
Ha	Hectare
CSO	Civil society organization
ETB	Ethiopian birr
EIA	Environmental Impact Assessment
WAO	Woreda Agriculture office

### 1. Introduction

Support for Sustainable Development (SSD) is a national, non-profit making charity established in May 2003 to support the development initiatives of the marginalized poor communities of Ethiopia in general, and Afar pastoralists in particular. SSD has registered with Charities and Societies Agency (CSA) with registration number 0034.

SSD intervened in Afar National Regional state following the severe droughts occurred in 2001 and 2003 with a food security project. The intervention had focused on promoting livelihood diversification through Irrigation based integrated agricultural development. SSD had continued its service for the last 18 years in different parts of the country; to this end it has implemented 20 food security and poverty reduction projects, 3 climate proof disaster Risk Reduction projects in Afar region. As a result of these interventions, about 2,560ha of land could be developed for irrigation agriculture and benefited over 10,000 HHs to improve their food security status.

The livelihood support programs of SSD have contributed towards poverty reduction and creating resilient food self-sufficient households. In recognition of these successful and sustainable life changing projects, SSD received significant amount of funding from the government account, a number of trophies, certificates and medal awards.

This report covers the performance of Gibe Ketchema Irrigation Based Integrated Development Project against the planned/target during three years and three months of project periods. It also shows the detail budget performances of the project.

## **2. Gibe Kechemia irrigation based integrated development project**

Gibe Kechemia Irrigation based integrated development project is located in Jima zone, Seka Chekorsa woreda at about 13km away from Jima town. The project has been initiated by the community and local government realizing the available land and water resources at the proposed kebele. This irrigation based project has integrated programs/activities that directly or indirectly linked with irrigated agriculture. The Gibe project has the capacity to irrigate 200ha and benefit about 600 households. The project was started as of January 1<sup>st</sup> 2019 and end in March 30, 2022. In the three years and 3 months project periods the following activities were accomplished as outlined below.

## **3. Planning and Coordination**

### **3.1. Conduct baseline and EIA and produce reports**

One of the planned activity in this project is to conduct a base line study and environment impact assessment to be used as a reference or bench marks to measure impacts as well as any changes at the project caused by the project intervention at different stages of the project implementation period and to evaluate the final successes against the planned goals. This helps the project to do mitigation measures if negative impacts happened due to the project intervention as well as natural hazards around the project areas. Thus a base line and EIA surveys conducted as per the plan in the quarter.

During the survey, the project collected the necessary quantitative and qualitative information for analysis and report preparation. To this effect, 80 persons who were selected from different community groups like elders, youth, men and women including kebele officials had participated during the baseline assessment. Besides, about 15 people separately participated on EIA group discussion and the necessary information collected. To collect the information tools called individual and key informant interview and group discussion applied. In addition, data collectors are employed from government sector offices from Seka town.

### **3.2. Organize project Inception work shop**

Organizing project inception work shop is one of the planned activities that have been accomplished during the report period of the year. Accordingly, 40 people from Buyo-kechemia main beneficiary kebele and Andoyu-Alaga kebele who have small share from the project, 15 people from woreda sector offices and 5 experts from zonal finance and economy and agriculture offices totally 60 people participated on the session. The inception workshop has been done by presenting brief explanation about the project objective, working norms, contribution or participation and the responsibilities of each stakeholder on the implementation of the project. In addition, the discussion focused on how the project is going to be implemented in the area, importance of giving awareness to the target community about the strategy of the organization and the required collaboration of the local community while implementing the project activities.



**Figure 1 : Inception workshop participants**

During the session, Menschen fur Menschen officials from Ethiopia program office attending the discussion and presented their advice on what could be their contribution and commitment to implement the project so as to get the intended project benefits. Different issues were raised from the participants and brief explanation has been given by SSD and woreda officials.

Finally, common understanding shared among the participants about the project, its implementation systems and anticipated out puts and benefits.

### **3.3. Access road construction**

Construction of access road is also one of the planned activities during the reporting period, and accordingly length of 650m and width of 7m access road has been constructed to enable truck and machine movement. The road is now gives service to transport construction materials and as well as for field vehicle movement to the project construction site. Even though the plan for the quarter is 6 km, the project performed 650m road which is enough to reach at the current headwork construction site. In addition the project maintained 265m farm road which is damaged by the unexpected rain so as to transport construction materials and to ease small vehicle movement to the site.



**Fig 2: Access road maintained**

## **4. Project out puts**

### **4.1. Output 1: Water diversion weir and irrigation infrastructure construction**

All diversion head work and canal structures such as weir, retaining wall, flumes, drainage canals, drops, culverts, division boxes construction, lined canals, main, branch and secondary earth canals excavation activities were the

major activities undertaken in the reporting periods. Details of accomplished construction activities under this output are described below.

### i. Diversion weir construction

The diversion weir consists of the weir body which is built across the river bed is the main structure that helps to raise the river height to certain level and guide the water to be conveyed into the main canal through the intake gate to the farm areas and upstream and downstream apron structures. The diversion weir structure is designed to have 27m length and 100% or fully completed in the year. The construction work had been done according to its design by keeping its quality and workmanship by using quality materials like river sand and 12 Ø iron bar and skilled labourers so as to withstand any external force and serve for the designed period (25 years).



Figure 3: Weir body constructed & completed

### ii. Retaining wall construction on both sides of the weir

It was planned to construct 60m long retaining wall masonry structure both sides of the river to support the weir and protect river side erosion at the head work areas. Accordingly, about 80m long retaining wall which is 40m long at each side have been built and completed in the project period. During the period, 33m<sup>3</sup> of foundation excavation and 24m<sup>3</sup> masonry work for stair construction (to serve for climbing to the top of the retaining wall to open and close the main canal gate) and 58m<sup>2</sup> of pointing work have been done and fully completed.



Fig 4: Retaining wall & walking stair completed

### iii. Intake and sluice gate purchase and installation

The intake structures is the area where the water is conveyed through to the main canal and the sluice gate is also used to manage or control the amount of the conveyed water as per the farmers demand to irrigate their farm plots. These two structures have been constructed at the retaining wall at left side where at the junction of the

weir and retaining wall structures. As a functional unit of the diversion system, intake and sluice gates have been incorporated in the design both having different functions. In this reporting period the operation slab at the top of the retaining wall, sluice and intakes gate have been fixed and serving for the intended purpose.



**Figure 5: Divide wall constructed b/n retaining wall & weir body and sluice gate fixed**

**iv. Main canal lining**

The main canal just starting and living the retaining wall at a length of 135m has planned to be constructed with masonry structure. In the reporting period, 272m of the main canal lining is done for the purpose of avoiding scouring effect of the diverted water as it comes with high speed while entering the main and branch canal system. In addition, pointing and plastering work of 285m<sup>2</sup> area of the main and branch canal is done so as to fully complete the canal structure.



**Figure 6: Lined canal constructed**

**v. Main canal excavation**

Main canal excavation is one of the project activities planned in the year to be done simultaneously with the construction of the head work structure. Accordingly, in the reporting period about 1.46km main canal is planned to excavate and 100% of it or 1.46km long main canal is excavated and completed including all slope cutting and soil cart away activities. The project used excavator machine to the canal which has high cut or very deep and difficult to excavate with labour force. As a result, out of 1.46km main canal about 453m high cut canal areas excavated by machine and 847m by human labour.





Fig 7: Main canal excavated by machine and human labour

#### vi. Branch canal excavation

It was planned to execute 3km branch canal excavation after crossing main asphalt road in the left and right side direction. Thus, the main canal is branched into two just starting after crossing the main road from Jima to Mizan. Accordingly, a total of 3.805km branch canal is excavated in both directions to address the farm areas found left and right side of the gibe river. All the necessary work like canal slopping and soil cart away from the canal edge is fully done completed.



Figure 8: Branch Canals excavated

#### vii. Secondary anal excavation

Secondary canal is serving as water distributary directly to the farmland from the main and branch canals. These canals branched from main or Branch canals starting from the division boxes to feed water to the farm channels and then to the farm areas. Hence, it was planned to excavate 4km long secondary canals and 3.888km of them have been excavated and completed which is almost 100% of the plan.



Figure 9: Completed Secondary Canal sections

#### viii. Drainage canal excavation

Drainage canals are planned to dispose excess water accumulated in the field which will be caused due to either run off as a result of rain fall or excess application of irrigation water. These canals will be laid in the farm

depending on the topographic nature of the farmland. The existence of drainage canal also serves to avoid water logging effects. AS to avoid water logging in the farm areas due to excess water application and to drain the canal water during off period, drainage canals would serve in collecting and disposing this water directly in to the natural gullies. The other use of the drainage canal is take off the floods collected by the cut off drain to safely drain into the small gullies and rivers without permitting any scouring of lands. In the project periods, 3.5km drainage canal is planned, of which, 0.71km of drainage canal excavation is performed at different canal areas and swampy areas. The reason of deviation from the plan was the revision of this structure and plan to do what is needed to actually dispose of the flood and canal water during off period.



**Fig 10: Drainage canals excavated**

**ix. Foot Bridge construction**

Foot Bridge is smaller in size as compared to culvert structures but contributed to protecting the canal from damage by animals while crossing it. The foot bridge structure is built only to pass animals and human to get into the farm areas during wet and dry seasons but not allowed for vehicle. During the project periods, Construction of three foot bridges were planned to facilitate access to the farmland and cross the project area by foot. However, depending on the length of branch canals to be prepared, the number of the structure was exceeding the plan. Accordingly, 6 foot bridges were constructed both sides of the branch, main and secondary canals to ease movements of human as well as animal to in and out of the farm areas.



**Figure 11: Completed Foot bridges**

**x. Flume construction**

The flume structure is used to cross the depressed land areas and natural river to convey canal water into the other parts of the canal areas. It was planned to build two flume structures one is to cross the low land areas at main canal few distance from the weir area and the other is to cross the gibe river to the other part of farm areas. To

this, the total length of the flumes constructed was 135m which is 94m of canal length constructed at the depressed area suspended over to reach at next main canal and 41m long flume structure to across the gibe river to the right side of the farm areas. And hence, 100% of them were constructed and completed.



**Figure 12: Depressed area and Gibe River Crossing Flume construction completed**

**xi. Road culvert construction**

The road culvert structure is built to use as a passing road for vehicle, animal and human to cross the canal line. In order to protect the damage of the canal line and its structures, road culvert is playing great role to save canal by inviting the three mentioned risk factors to come and easily cross and join the place where attempted to get. Road culvert is mostly built for to use as passing road or way for vehicle.

During the reporting periods, it was planned to build 5 road culverts on the main, branch and secondary canals, however, 8 road culvers have been constructed on the canals both at the left and right side where more human and animals use to cross the canal and join the farm as well as to access the river water for animals to drink. This is achieved 160% of the plan. The over accomplishment is due to community request to newly add during 3 months project extension.



**Figure 13: Completed Road culverts**

**xii. Drainage culvert construction**

The purpose of drainage culvert is to dispose the incoming surface runoff towards the natural gully or river. In addition to this it can be also serves as a crossing way or road for the animals and human through it to the farm areas. Thus, this structure is built to keep the canal safe during the rainy season when a lot of water is also coming and inundating the farm areas.

In the reporting periods, 6 drainage culverts are planned to construct on the canal lines but 10 were constructed at left and right side canal lines so as to drain upland water to the other side of the canal areas.



**Figure 14: Drainage culvert constructed**

**xiii. Drop structure construction on main and secondary canal**

Drop structures were planned to construct on the branch and secondary canal to drop the canal the canal line so as to maintain the designed canal free board and attain consistent water flow in the canal to the farm areas. In the reporting periods, it was planned to construct 22 drop structures, however due to shifting the canal line to the upper side and to attain good flow of the canal water to the other side of the farm areas, only 6 drops and 26m long chute masonry structure are constructed.



**Figure 15: Drop Structures constructed**

**xiv. Division box construction combined with drop and separate boxes**

Drop structure is planned to be built on the main, branch and secondary canal to easily turn or open the conveyed canal water to the farm channels and then to the farm plots or planted crops. One division box structure may serve to let water to the farm areas for two or more directions controlled by division box gates. It is allowable only to take water from this structure. In the reporting period, it was planned to construct 28 water flow regulating division boxes structures to the farm land. However, 30 division boxes were built on main, branch and secondary canals.



Figure 16: Division boxes constructed on main & Branch Canal

**xv. Division boxes gate purchased and installed**

Water conveyed through the canal system to the farm land needs to be equitably distributed among the canals or farm plots. Division boxes are designed to function as water dividing structure and water diverted through each outlet of the structure in a controlled manner in amount and frequency. The gates are designed to be prepared from locally available materials such as wooden timbers. Accordingly, 34 planned canal gates were totally installed and 100% completed.



Fig 17: Division box gates fixed into the division boxes slots

**xvi. River bank protection works by gabion boxes completed**

Protection works by gabion was planned to protect or strengthen fragile soil part. The susceptible part of the area are found along the river banks where the river banks and canal tends to approach each other and the water coming from both the river and canal moistens soil at banks and finally causes the river bank to collapse. This problem is very high at the space where the gap between river bank and canals become narrow. Thus, protection works at these specified areas had been done and protect the fragile soil.

In order to protect the sliding canal embankment areas, the project installed gabion structure at the upper side of the right side branch canal. The soil at this area is so very clay it attempt to be cracked during dry periods and soon loses its strength when getting water or rain in the wet season. To cope up this risk, the project plan to install 600m<sup>3</sup> gabion structures and perform 254m<sup>3</sup> gabion structure to support the upper canal embankments and river bank side walls.



Figure 18: River Bank and canal embankment Protected by Gabion wire

**xvii. River bed protection by gabion (impervious apron)**

In order to support the impervious apron below the concrete apron to support the weir system, 132m<sup>3</sup> gabion structure has been planned to install in the year. Accordingly, the project construct 132m<sup>3</sup> concrete after the end sill instead of gabion boxes to adjust the level between river bed and the concrete apron end sill which is part of the weir body.



Fig 19: concrete end sill constructed

Concrete end sill

**xviii. Geo-membrane lining on the branch canals**

The canal both the main and branch were done as per its engineering design and with care but when the irrigation water is let to flow along its length water leakage is identified both at right and left side branch canals. To avoid this risk many options are applied to close the leakage areas but the risk is continued even though doing some mitigation measures. Finally, the project is decided to close or cover the leakage areas with Geo-membrane sheets so as to stop the risk and continuing irrigation application. Accordingly, 14 roles of Geo-membrane sheets were bought from Addis Ababa water works manufacturing industry and has made to cover 1.9km all identified canal leakage areas both at right and left side branch canal areas. In doing this, leakage risks are avoided and achieved leakage free delivers of water to the intended farm areas.



Fig 20: Leakage canal areas protected by covering with Geo-membranes

#### 4.2. Output 2: Target Households received Irrigable lands

##### i. Facilitate distribution of irrigable land to target beneficiary

The irrigable farm areas that are addressed by the canal system have been distributed to the beneficiary as soon as after irrigation infrastructure construction is completed. SSD plays facilitation role while woreda agriculture office has been involved as the main actor in selecting the beneficiary who receives irrigable farm land. Accordingly, it was planned to facilitate and distribute 200ha of farm lands to 600 target beneficiaries and thus all 200 ha of the irrigable farm lands were distributed to 600 HHs (513 males & 87 Females) by the respective woreda agriculture office.

##### ii. Provision of improved seeds of vegetable fruits and other oil crops

In the reporting period it was planned to distribute 200kg of different vegetable and improved seeds, fruits and other oil crops and thus a total of 36.75kg of different vegetable seeds such as 5kg beet root, 5.75kg cabbage, 12.5kg pepper, 5.5k tomato, 5kg onion and 3kg carrot were distributed to 375 farmers (39 women). During distribution, explanation was given how and where to plant the vegetables and when it needs water.



Fig 21: Different inputs provision to target farmers

In addition to vegetable crop development, about 15 quintals of potato for 27 farmers (of whom 1 was woman) were bought and distributed to plant at their farm areas. In order to facilitate and support the farmers' irrigation cultivation, different farm hand tools were bought and distributed to target farmers who are lack of these hand tools. Accordingly, 218 different hand tools such as 72 shovels, 73 digging hoe and 73 sickles have been bought and distributed to 176 target farmers (of whom 24 were women).

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In addition to vegetable crop development, about 3,800 quintals of maize, 4,837 quintals of wheat, 7.5quintals peppers, 11,700 quintal potato and 90 quintals soya bean have been harvested during the reporting period. In the project period, farmers are engaged on maize, wheat and vegetable crop production on the target 200ha of farmlands.



**Fig 22: Different crops planted at the project**

### **iii. Establish project nursery and demonstration site management**

The purpose of the nursery site at the project is to use it as learning centre for local farmers by demonstrating different irrigation methods (including water application and frequency for various crops types and vegetables at different growing stages) and methods of cultivation. In addition to this, the nursery site also serves in production of different fruit and vegetable seedlings for the farmers. Besides, the site is serving for demonstrating irrigation methods, water application and frequency of watering for different crops and vegetables at different growing stages.



**Figure 23: Different crops grown at the demonstration site**

### **iv. Provision of agricultural extension service in collaboration with WAO**

The project is planned to address 600 target famers with agricultural extension service in collaboration with woreda agricultural office. Accordingly, in the project periods, a total of 964 target farmers were addressed with extension provision on land preparation, crop sowing, weed control, crop harvesting while matured. The program was designed to support the farmers while they are doing their farming practice especially during land



preparation, crop sowing and watering periods and also weed control and proper harvesting time. This is done to bring changes or improve on their previous crop farming techniques by following better land, crop and water management in the way to perform all the crop development systems.



**Figure 24: agricultural extension participants**

SSD organized a meeting program and gave some farm hand tools such as 3 shovels, 2 digging hoe and 1 sickle to 5 men model farmers who actively perform well their farming practices. The award is given to model farmers so as to aware others to be active on their agricultural works and to be one of the award recipients in future from government or any other stakeholders. On this program a total of 70 target farmers were invited and participated on the meeting and awareness session.



**Fig 25: Hand tools provision for active farmers**

**v. Organize farmer’s field days at project demonstration site**

A field day is organized and conducted at the project demonstration site and practically briefed the target farmers on different irrigation techniques and proper watering of crops, pest control and early harvesting. This is to transfer knowledge and skill to farmers and build them with improved working practices and how to produce quality farm products. During the event, farmers have learnt more experiences in cultivation techniques, irrigation water application and management and other cultural practices by participating on on-farm visit conducted at project demonstration site and on farmers’ plot and on spot discussion. This help them understood well and copy the lessons provided and applied to their farm areas to maximize efficiency in water utilization and increase crop productivity. On this program, it was planned to carry out 4 field days but a total of 7 field days organized and 395 farmers (335 Men & 60 Female) have been participated on the field day programs.



Fig 26: Farmers field day program organized and conducted

### 4.3. Output 3: Community based sustainable management of natural resources

#### i. Construction of soil and stone bunds

To safeguard the irrigation infrastructures from destructive incoming surface flood, physical soil and water conservation measure has to be implemented along the irrigation system. Soil bunds are such structures proposed to effectively trap excess flood, suspended soil particle, and save the canals and structures from silting up. The conservation structure is more effective in functioning during rainy season when properly prepared at appropriate place

Taking this into consideration, the project has planned to excavate 10km soil bund in the year and completed 8.175km soil bunds or 81.752 of the plan. The soil bunds are constructed in the farm lands that found above the main and branch canals at the farmland and bare lands covered with scattered bushes. This structure will keep safe the canal as well as farmlands areas from soil erosion and canal silt up with sediments which may block the smooth flow of the canal water to the farm areas.



Figure 27: Soil bunds excavated to protect the canal and canal structures

#### ii. Construction of cut off drains

As most of the areas above the canal catchment areas are prone to floods, cut off drain is playing an important role to mitigate the flood risks on soil bunds, canals and farm areas by collecting and draining the incoming flow safely into rivers and/or other water ways before entering and silting in the canal system. In the project periods, it was planned to excavate 300m<sup>3</sup> of cut off drain and hence 335m<sup>3</sup> of cut off drain structure is excavated by the project which is 117% of the year plan.



Fig 28: Cut off drains excavated above the canal areas

**iii. Production of multipurpose tree seedling (unit price includes transportation digging holes and planting)**

To contribute to the balancing of environmental ecosystem, SSD project tried to raise different multipurpose tree and fruit seedlings at its nursery site. In doing so it was planned to raise 6,000 different seedlings and a total of 7,375 different tree and fruit seedlings have been produced in the project periods. The types of seedlings raised and bought were papaya, pepper tree (schinus molle), pins and banana seedlings.



Fig 29: Seedling produced at the nursery site

**iv. Plantation of multipurpose trees along the canal**

In order to diversify the household income generation in addition to the field crop production, the project tried to promote the cash crop such as avocado and papaya plants to the target farmer. Accordingly, about 345 grafted avocado seedlings have been bought and distributed to 44 men and 11 women totally 53 model farmers and planted around their farm areas.



Figure 30: Seedlings planted at the project

Besides, 5,055 different multipurpose seedlings (800 pines, 200 gravilia, 1550 papaya seedlings and 400 peppers tree, 130 banana and 1975 coffee seedlings) were planted along the canal and around the farm areas. Thus, each 97 target farmers who have allocated planting areas have got 15 to 16 papaya seedlings each and accordingly a total of 1550 papaya seedlings provided and planted at their farm areas. In general, a total of 5400 different multipurpose seedling were distributed and planted by the project.

**v. Plantation of vetiver grass along the canal**

Vetiver grass has a capacity to protect the canal as well as an area which is suspected for land slide during the rain by the effect of erosion and land slide problems. To cope up this problem, the project planned 14,158 vetiver grass splits at both side of the canal and lose soil areas both at the right and left side branch canal areas and in addition to these 946 Elephant grass planted at the canal areas where it is near to the river side.



**Fig 31: Vetiver planted at the canal and soil bund embankment**

Currently, the vetiver grass planted is established well and grows fast to cover the bench areas as shown below in the pictures.



**Figure 32: Vetiver grass planted in the bench cuts**

**4.4. Output 4: Farmers trainings, field days and exposure visits completed**

**i. Environmental conservation training**

Building the capacity of the local people on environmental conservation and development will contribute to reduce the negative impact on the natural environment caused by the human factors or interference. At the same time it will contribute for the improvement of biophysical environment so as to then reduce the climate change effect to the area. In the reporting year, it was planned to train about 100 community members. Accordingly it was planned to train 200 target people, however 230 people (182 male and 48 female) have been trained in environmental conservation by the project. The training has been given in collaboration with Seka agricultural office.

The topics of the training given were environment and conservation, physical and biological mitigation measures, the impact of deforestation to the local environment and afforestation, care of the existing natural resources and land management. On these topics participants discussed well and agreed to care their natural resources and environment from damage by the action of human interference.



Figure 33: Training participants on Environmental Conservation

### ii. Organize training on irrigation agronomy

Farmers need to acquire some skills prior to starting irrigation agronomy. In order to fill this gap, series of trainings were arranged for the farmers who are going to start irrigation agronomy. Thus, to build the knowledge and skill of target farmers on irrigated agriculture, irrigation agronomy training was organized and conducted at Seka and farm areas. The training was planned to reach all 600 target farmers and a total of 632 target farmers (532men and 100 women) were theoretically and practically being trained by the project in collaboration with the woreda agriculture office. During the training, farmers taught basic farming practice such as land preparation, seed sowing, crop watering, weeding, pest control and harvesting times. This training helps the farmers to get additional knowledge to their indigenous skills which have on crop agronomy. Besides, scheme management and care is also given to the participants to bring their attention to give more care and focus while using the constructed structures and other installed canal and division boxes gates.



Fig 34: Farmers trained on irrigation agronomy

### iii. Organize and conduct crop marketing and market development training

Before doing or starting crop farming, farmers need to know about the market and to think what types of crops need to be produced and supply to the consuming communities. Thus, In order to build the knowledge of crop growers to focus on producing market oriented crops, training was organized and conducted in the reporting periods. To do this, it was planned to train 400 target farmers but a total of 597 target farmers (451 men and 76 women) were trained and motivated to plan and search market areas to fetch good price or income for their crops. During the discussion, it is well understood that Jimma market is the second near major market area to the project and can accommodate their produce for sale next to Seka market. In general farmer's knowledge and skill is built on crop marketing system such as price bargaining and fetching good income for their households.



Fig 35: Farmers trained on crop marketing

#### 4.5. Output 5: Water Users Association established and strengthened

##### i. Organize awareness raising session on the need for WUA

Ahead of establishment of Water Users Association, a common understanding among all beneficiary groups on the role of the institution to be established was created. It is clear that completion of irrigation infrastructure and beginning of irrigation practices does not guarantee for sustainability and efficient management of the project. Hence, SSD aimed to see long lasting and efficient project operation by the users themselves even after project phase out. Therefore, it was with this intention that five awareness creation sessions was planned for the community in the project years. In doing this, 5 meeting sessions organized and conducted and on this 240 HHs (198 male and 42 female) have been involved or participated.

Based on the common understanding on the role of the institution among the beneficiaries, the community established legal institution to link the project with external bodies and coordinate the entire beneficiary in operating and managing the scheme properly. The legally established institution (WUA) has been equipped with the necessary orientations, trainings and exposure visits.



Figure 36: WUA awareness conducted

##### ii. Organized and train WUA leaders on management and leadership

The committee leaders elected by community representatives has taken the responsibility to manage water distribution among the irrigation users and resolve any disputes arising from water related issues. The committee has also a role in mobilizing the beneficiary to undertake regular, periodical maintenances of the canal system. Accordingly, it was planned to train 160 and all 160 WUA leaders and other members of Target communities (130 men & 30 women) trained on management and leadership skills required to perform better management to their association and the scheme constructed to them. On top of the training, they have visited every components

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of the project and have got clear understanding including which part of the scheme needs close attention and regular inspection during project operation. Experience of water distribution and offering of equal services to each irrigation water users association members is raised and discussed thoroughly and gave some amendments to the problems created while doing their services. Finally, the trainees are agreed to help each other's and transfer the knowledge they got it from the training to their neighbour farmers while doing their farming businesses.



**Figure 37: WUA leaders training on management and leadership of irrigation scheme**

### **iii. Facilitate legal registration of WUA at woreda level**

The project facilitates the process of legal registration together with woreda agriculture cooperative desk office by fulfilling or arranging all the necessary or required documents. The prepared documents as per the requirement of the legal registration were stamp, legal receipt, ledger, box file, fastener, stapler etc. were prepared and the name of association members and other credential documents were prepared and delivered to Jimma zone Cooperative office for its final approval and registration. Based on this, WUA is established and is registered and has got certification license as Gibe modern irrigation water users association since 13 October 2021 from Jimma irrigation development authority.

### **iv. Organize experience sharing visit for WUA and women groups**

Experience sharing visit is one of the methods to build the capacity of community representative on the management and way of handling community based development schemes in a better and effective way. To achieve this, a total of 80 target people are planned to participate on the exposure visit. Accordingly, a total of 86 community representatives and 5 woreda and kebeles government experts visited different agricultural developments such as coffee and wheat cluster in Gera district and fruit plantations including Papaya, Banana, and Avocado and Pineapple farming in Merewa district.

In Gera woreda farmers grow coffee under the tree shade and in Merewa woreda farmers grow fruit plants and used compost than inorganic fertilizer. So that our project farmers have learned during the visit and advised to avoid and replace the eucalyptus trees with coffee and grow cash crops such as fruit plants as indicated above. In addition to these, they visited spices and tea farming to generate household income and also use of drip irrigation at Jima agricultural research institution.



**Fig 38: Farmers exposure visit at Gera and Merewa woredas and Jima university**

During this experience sharing visit, Gibe project beneficiaries has gained more experiences on land preparation including land grading, row planting, irrigation time, frequency of irrigation for different crops at different stages of growth.

## 5. Community volunteer work

The target communities have cleared the canal from silt and any debris so as to early start irrigation farming. Accordingly, about 1,640 m canal is cleared from silt and any debris in three days by 250 target people.



**Figure 39: Canal clearing by community participation**

## 6. Project Monitoring

The team, at head office regularly communicates as well as travel to the site and provides the necessary support on time and follow up the progress of the planned activities. In addition, as the owner of the project, Jimma zone Agriculture and finance offices, Seka woreda agriculture and administration offices were also frequently visiting the project during the project periods. On top of this, tow experts from Oromia Agriculture and natural resource bureau drive to the project and monitored the progress of the project and gave appreciation to the office for its effort and hard working to make such quality and durable work done. In addition, Oromia region government,



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Jimma University and representatives and Menchen für Menchen officials have also been visited the project and expressed their appreciation to SSD in realizing the project and the quality of work done.



**Figure 40: Different government & donor officials visit Gibe Project**

### 6.1. Annual survey conducted

An annual survey was conducted at the project during 28<sup>th</sup> – 31<sup>st</sup> Dec 2021 to assess and verify the overall performance of the project at field level through discussion with project beneficiaries, field staff and key stakeholders (at Woreda and Zonal level). According to the survey findings, more than 98% of the construction activities of the irrigation infrastructures have been carried out as per the plan. Canal stabilization and natural resources management activities were performed more than 100% of the plan to reduce soil erosion and ensure sustainability of the irrigation infrastructure.

Survey respondents reflected that the farmers' capacity building interventions and provision of improved technologies such as fruit seedlings and vegetable seeds have contribute to improved production and productivity. Farmers have also been producing wheat and maize to ensure food security as per the government policy direction. This helped farmers to have got the opportunity to produce twice per year using rain fed and irrigation agriculture. Based on the assessment, farmers have got an average yield of 26 quintal of wheat per hectare in the first season using irrigation which has had an increment of 18% yield compared to rain fed agriculture. This has great contribution to target farmers to ensure their food security at household level. The respondents were also commented that if it is well planned and managed the irrigation infrastructure will enable them to produce twice by using irrigation farming and once in rain-fed farming.

According to discussion with key government stakeholders and farmers, production of wheat has advantage to the household in general and women in particular especially to have food access at household level. Moreover, there is also market opportunity since there are flour factories in the nearby Jimma City and cooperative unions that are working towards creating market linkage to other areas to benefit more producer farmers. The importance of production of vegetables and fruits were also discussed with respondents. They have commented that the production of vegetables and fruit is high in terms of production per unit area and market value. However, these

practices need a well- planned marketing channel considering the perishability of the product, and also checking the gender aspect (who is selling the product - husband and/or wife, and how this is benefiting the family. There are encouraging practices by farmers in practicing fruit and vegetables growing. However, these experiences are challenged by government policy direction which favours production of cereal crops.

Respondents from Woreda and zonal offices have appreciated the establishment of WUA for overall management of the scheme. This to be effective, the capacity of WUA leaders need to be enhanced to the level of self-management, and increased responsibility in managing the scheme. In discussion with WUA leaders, they emphasized the importance of having an office and mini-store. These facilities will enable them to have a contact point to farmers and/or other stakeholders to meet them. Accordingly, the WUA secured a small plot of land for construction of Office and mini-store with the support of Woreda and kebele Administration. The WUA has also officially submitted a request for SSD support for realizing the construction of the office in extension period.

### 6.2. Project extension

Most of the project activities especially the physical structures were successfully implemented and the intended results have been achieved. The initial project schedule was up to December 2021 and the remaining project activities are on good progress to be completed as per the intended schedule. However, SSD has critically examined the project performance and officially requested the funding partner to extend cost extension for a period of 3 Months (January to March 2022) for successful accomplishment of the intended results.

## 7. Problems encountered

The following problems are encountered during the reporting period:

- Covi-19: slow down implementation of activities and incurred more cost and time.
- The continuous rains and high floods impede the construction work activities.
- The cost of construction materials (iron bars, cement, sand, stone and gravel) shows increment at the market and negatively impacted on the project budget especially the construction works.
- In this reporting period, some land areas below the main and branch canal areas along its length shown water leakage during irrigation times.

Actions / Measure taken

- Awareness/ orientation about Covid-19 caution measures given to target beneficiaries. Supply of face masks and sanitizer during training and labour work.
- To avoid water leakage, the project tried to close mole holes along the canal but couldn't succeeded and finally the canal areas both at right and left sides which invite or expected the leakage risks covered with Geo-membrane sheet and was attained smooth flow of water in the canal.

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### 8. Detail activities and Financial Reports

#### 8.1. Gibe project Activity report (January 2019 – March 2022)

s.no	Type of construction activity	unit	Annual plan (Jan-2019- March 2022)	Activity accomplishment in 2021	%
<b>1</b>	<b>Planning and coordination</b>				
1.1	Camp establishment by renting house that can accommodate all project staff	year	1	1	100%
1.2	Conduct EIA and base line survey	No.of doc	2	2	
1.3	Organize and conduct inception work shop	no	1	1	100%
1.4	Access road clearing	km	6	0.915	15%
<b>Output 1</b>	<b>Water diversion weir and irrigation infrastructure constructed</b>				
1.2.1	Diversion Weir Construction	m	27	27	100%
1.2.2	Retaining wall construction on both sides of the weir	m	60	60	100%
1,2,3	Intake and sluice gate purchase and installation	No	2	2	100%
1.2.4	Main canal lining	m	135	272	201%
1.2.5	Main canal excavation	km	1.46	1.46	100%
1.2.6	Branch canal excavation at the right side	km	3	3.805	127%
1.2.7	Secondary canal excavation	km	4	3.888	97%
1.2.8	Drainage canal excavation	km	3.5	0.705	20%
1.2.9	Foot bridge construction	no	3	6	200%
1.2.10	Flume construction	no	2	2	100%
1,2,11	Road culvert construction	No	5	8	160%
1,2,12	Drainage culvert construction	no	6	10	167%
1.2.13	Drop structure construction on main and secondary canal	no	22	6	27%
1.2.14	Division box construction combined with drop and separate boxes	no	28	30	107%
1.2.15	Gate purchase and installation for division box	No	34	34	100%
1.2.16	River bank protection works by gabion box at U/S& D/S part of the head work stricker	M3	600	254	42%
1.2.17	River bed protection work by gabion after impervious apron	M3	132	132	100%
<b>Output 2</b>	<b>Target households receive irrigable land</b>				
2.1	Facilitate distribution of irrigable land to target beneficiary	He	200	200	100%
2.2	Provision of improved seeds of vegetable fruits and other oil crops	Kg			
	. Vegetable seeds	Kg	200	36.75	18.4%
	. Potato tubers	Qtl	15	15	100%
	. Fruit seedlings	No	150	150	100%
2.3	Established project nursery and demonstration site management	no	1	1	100%
2.4	Provision of improved seeds of cereals	qtl	30	0	0%
2.5	Provision of agricultural extension service in collaboration with ADO	no of HHs	600	964	160%
	. Hand tools	No	150	218	145%

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2.6	Organize farmers filed day at the project demonstration site	No	4	7	175%
<b>Output 3</b>	<b>Community based sustainable management of natural Resources</b>				
3.1	Construction of soil and stone bund	km	10	8.175	82%
3.2	Construction of check dam	M3	225	0	0%
3.3	Construction of cut of drain	M3	300	335	112%
3.4	Production of multipurpose tree seedling (unit price includes transportation digging holes and planting	No of seedling	6000	7375	123%
3.5	Plantation of multipurpose trees along the canal	No of seedling	5400	5400	100%
3.6	Plantation of vetiver grass along the canal	no. of seedling	6000	14158	236%
<b>Output 4</b>	<b>Farmer training field day and exposure visits completed</b>				
4.1	Organize and conduct environmental conservation training	No of people	200	180	90%
4.2	Organize training on irrigation agronomy	No of people	300	332	111%
4.3	Organize and conduct crop marketing and market development training	No of people	400	397	99%
<b>Output 5</b>	<b>Water users association established and strengthened</b>				
5.1	Organize awareness raising session on the need for WUA	No of meeting	5	5	100%
5.2	Organized and train WUA leaders on management and leadership	People	100	100	100%
5.3	Facilitate legal registration of WUA at woreda level	No of WUA	1	1	100%
5.4	Organize experience sharing visit for WUA and women groups	No of people	80	77	96%
<b>6</b>	<b>Monitoring and Evaluation</b>				
6.1	Regular monitoring visits	No	12	12	100%
6.2	conduct annual surveys and prepare annual reports	# of report	3	3	100%
6.3	Conduct project terminal evaluation	No	1	1	100%

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### 8.2. Financial Expenditure Report (January 2019 - May 2022)

Item No	Descriptions	Total Approved Budget the year 2019-2022	Actual Expense for the Year 2019-2022	Remaining Balance	Variance %
I	Planning and Coordination	579,500.00	531,929.93	47,570.07	92%
Output 1	Water Diversion Weir and Irrigation Infrastructure Constructed	13,479,272.88	14,607,382.06	(1,128,109.18)	108%
Output 2	Targeted households receive irrigated land	1,070,000.00	610,353.60	459,646.40	57%
Output 3	Community Based Sustainable management of Natural Resource	497,300.00	221,020.00	276,280.00	44%
Output 4	Farmers trainings, workshops experience sharing and exposure visits completed	752,145.00	590,744.38	161,400.62	79%
Output 5	Water users Association established and strengthened	376,685.00	315,781.24	60,903.76	84%
6 & 7	Project Staff Salary and Benefits	5,003,470.90	3,715,113.53	1,288,357.37	74%
8	Monitoring and Evaluation	995,000.00	823,583.25	171,416.75	83%
9	Operation Costs	1,969,000.00	2,159,091.56	(190,091.56)	110%
10	Head office Costs (20%)	4,454,959.90	5,368,337.25	(913,377.35)	121%
	<b>Total Budget</b>	<b>29,177,333.68</b>	<b>28,943,336.80</b>	<b>233,996.88</b>	<b>99%</b>