SUPPORT FOR SUSTAINABLE DEVELOPMNET

TERMINAL REPORT

On

Subuli Irrigation Based Development Pproject

(January 2016- 31 December 2019)






DECEMBER, 2019

ADDIS ABABA

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1. PROJECT SUMMARY

Name of implementing organization	Support for Sustainable Development (SSD)
Project title	Subuli irrigation based development project and Subuli Environmental and Capacity Strengthening project
Project location	Gelealo (Buremudaitu) Woreda ,Zone 3,Afar National Regional State
Project goal	Improve food security in Subuli kebele, Buremedaytu woreda and to address problem of food insecurity and contribute towards enabling subuli, Hengage and Dire ella kebeles communities to be food self sufficient.
Project beneficiaries	300HHs of Subuli & Hengege kebeles and dire ella kebele communities
Project budget	ETB **24,704,011.00** (20,633,500 + 4,070,511)
Project duration	Four years (January 1-2016- December 31, 2019)
Reporting period	January 2016-December 31,2019(Four years summary)
Report submitted by	Subuli field coordination office on annual basis and compiled at the head office
Donor	Menschen für Menschen Switzerland
Project's condition	Project completed

2. EXECUTIVE SUMMARY OF THE PROJECT'S FOUR YEAR PERFORMANCE

Subuli Irrigation Project was commenced in 2016. It was a three years project but so as to make the target community to well adopt irrigation farming and ensure their food security at household level, one year extension is made from January 2019 to Decemeber 2019. Therefore the project period is ciovered four years from 2016-2019. The name of the second extension project is titled as Subuli Environmental and Capacity Strengthening project, as its name indicates the goal of the extension project was to lay a better ground for the community to sustainably use the constructed irrigation scheme.

The project completed different project activities like physical, biological and software components during its project life time and delivered its intended use to the community. Major project activities implemented were river diversion, canal and canal structure, river training, soil conservation work, tree as well as fruit seedling plantation and different trainings. In addition to this, different farm inputs, seed money for women to use in the form of revolving system and exposure visit for model farmers both for men and women organized out of their areas and conducted.

Moreover to easily and practically train the target farmers on crop farming, the project established demonestration area and trained farmers learning by doing at this site as well as at the model farmers' farm plots.

Hence therefore, all project activities implemented by the project has improved agricultural and livestock management practices, enhanced community based sustainable management of natural resources, strengthened local government institutions, and improved women participation as well as benefit from the project.

Despite, all the natural and manmade challenges encountered every year, successful achievements were registered and impact was seen on the livelihood of the beneficiary community. Therefore, the project's activities, outcome and impact have been discussed and summarized in this report. .

3. PROJECT AREA CONTEXT DURING THE FOUR YEARS (2016-2019)

At the beginning of the project intervention (2016), there was a kind of reservation seen from the community side as the new innovation is new to their area. They used to depend only on livestock production which is affected by drought and feed shortage from time to time. However, they received small rain around end of April and helped for grass and shrubs to grow .On the other hand there was an incidence of Arso River over flooding due to the ‘’kiremt ‘’ or main rain at the high land of Amhara region. Thus, about 70 households were affected; many shoats were taken away by the flood, it was a hard time for the resident communities'. The flood incidence had also slowed down the project activities by about two weeks.

The year 2017 was relatively a better year. The area received both the small rain and big seasonal rain which had supported good growth of pasture. As a result they could get better milk yield which is a stable food of the pastoralist community. On top of that, the people in the area started working in the project and they were paid cash, this has improved the livelihood of the households. The government food assistance to the community had gradually decreased as the community started benefiting from the project intervention.

The last year of project intervention (2018) was by far better as compared to the previous two years. The cumulative effect of the three years intervention has brought a significant change on the attitude of the community as well as on their livelihood status. It can be safely concluded that, the irrigation project intervention had brought an alternative and additional option to their well-being. Agriculture (crop production) was a new innovation for that community. Hence it required maximum effort and persuasion with the community to familiarize them crop farming.

In the year 2019, an extension program is designed with the name "Subuli environmental and Capacity strengthening project" to enable the community sustainably manage, protect and further strengthen the constructed irrigation scheme and by then ensure food security through crop production and other income generating activities. Accordingly, the community is actively managed and protects the constructed irrigation scheme and secures their food security by producing food crops and generating income.

4. PLANNING AND COORDINATION

4.1. SSD Staff residence or camp constructed

In the 2016 as starting, staff residence or camp has been constructed in Hengage kebele one of the project kebeles. The selection of the camp site is made to be accessible to both potable water and near to the construction areas. The staff residence includes different facilities like staff shelter, kitchen, cooking and dining rooms, sanitation corners (latrine), project office, material store and site store.

Figure 1: Staff residence or Camp established

4.2. Staffing and cooperation activity accomplished

To implement the project, the required staff members like construction supervisor, construction Forman, project coordinator, finance & administrator, surveyor, store keeper and agro-ecology expert and small vehicle

driver were assigned and stationed and lived in a camp and execute the project activities planned for the project. In addition to this, a project committee consists of four people had been formed to mobilize the local community for labor works and to act as liaison between the community and the project. Besides the district pastoralist and administration offices have been also participated on awareness creation and community mobilization with the project committee and kebele administration.

Labor force which were used to implement the project activities during the four years period have been selected by the joint action of kebele administration, project committee and clan leaders. In general Subuli project is implemented by the joint action of the project staff, project committee, kebele and clan leader and district government offices. All carried out their responsibility to complete the project as per its plan.

5. Project out puts

During the year 2016-2018 Subuli project is designed to irrigate 150 ha of land to benefit 300 HHs of Subuli, Hengage and Dire Ella kebeles target farmers. To attain this result, five different outs which consist of a number of activities had been planned and executed by the project. The output achieved by the project were focused on improved agricultural practice, improved livestock management practice, community based sustainable management of natural resources, strengthened local government institutions, CBOs and practices and Improve women participation and benefit at all levels of project implementation. Based on these, details of activities accomplished during the project periods were stated here under.

In the extension project of 2019 the Subuli Environmental and Capacity Strengthening project is implemented so as to strengthen the weak or vulnerable areas for floods around the river embankments to avoid side scouring by the river floods and also to protect the canal and farm lands from erosion caused by the overland flow during raining. To protect the anticipated risks to the constructed structures and build and strengthened the capacity of the farmers, different activities have been planned and executed by the project in the extension year and are giving the intended use. This report comprises the activities implemented from the period 2016 till the year 2019.

5.1. Output 1- Improved Agricultural practices

5.1.1. Project inception workshop organized

In order to build strong relationship with stake holders and target beneficiaries, awareness creation with inception workshop was a primary job for the project. The purpose of the workshop was to familiarize the community with the project goal (objectives) and illustrating the working procedures and norms of the organization before commencing project activities. Accordingly, the inception workshop conducted around the

middle of March 2016 and about 60 community members of which 9 were females and additional 15people (3 females) from the district sector offices have been participated.

Figure 2: Participants of inception workshop

During the workshop clear briefing on the objectives of the project, SSD's & Afar pastoral communities contribution's, working procedures and work norms, the amount of wages, payment schedules and details of planned activities in the project life were communicated. Obligations of the project, the communities and other stakeholders were also stated thoroughly discussed.

5.1.2.. Conduct baseline and EIA

In order to have a bench mark to measure the project impact at different stages of the project implementation period and to evaluate the final successes against the planned goals, it was a requirement to undertake socio economic assessment and Environmental Impact assessment study of the project area. To collect the information for both baseline and EIA, participatory rural appraisal (PRA tools) and secondary information were used. Thus, during the assessment, key informant interview, focus group discussion and secondary data collection applied. Using these three methods, the project collected the necessary quantitative and qualitative information for analysis and report preparation. To this effect, 75 persons who were selected from different community groups like elders, youth, and men and women including kebele officials had participated during the session. As a result, the project conducted a base line survey and EIA within the project communities as per the plan.

Figure 3: Baseline survey and EIA

5.1.3. Access road clearing

The project area is characterized by lack of basic infrastructures such as roads, potable water, and access to market places…etc. Considering the topography of the area and road rout, the project planned to clear and maintain 10km off roads but 10.9km access roads cleared and maintained for vehicle and heavy trucks movement to transport local materials to the project site.

Figure 4: Access road constructed

This road help to connect the project camp to potable water point, to construction site and to sources of construction materials.

5.1.4. Diversion head work structure

Diversion headwork and infrastructure constructed:-the following activities have been executed under this component

1. **Concrete cut off wall construction**

A concrete cut off wall is the second largest head work structures that requires excavation work with machinery, different types of construction materials and more labor. In order to construct the cut off wall and detour line to divert the river water, about 600m or 639.9m3 soils from a cut off line across the river and detour site is dug with machine. Detour the river water to the other side is helped to facilitate and speed up the construction works.

Figure 5: Concrete cutoff wall constructed across the river to intake hole

In order to implement the cut off wall across the river bed, 258m^2 formwork made of corrugated iron sheet and 42.9m^2 lumber and also 5,765.7 kg reinforcement iron bar and 165kg black wire have been used. The total concrete cut off wall size done has 80 meter length with 3m depth and a volume of 197.34m^3. To do this, a total of 321 unskilled (85 women) and 5 skilled laborers participated on the labor work.

2. Retaining wall construction

This is a concrete and masonry structure made at the initial point of river water diversion commonly called head work. It comprises the main in late gate at its middle masonry wall to allow irrigation water flow in to the main canal, protect the river embankment at the side of the intake canal and also helps to protect flood entrance in to the irrigation canal. The Retaining wall is the largest structure in terms of volume of work as compared with other construction activities.

During the project period the project constructed 67 meter long retaining wall with an average width and height of 1.75 m and 6.4m respectively. The total volume of the retaining wall is 620 m^3 and to give more strength and durability to the masonry structure about 234.3m2 areas from its river side is pointed with cement mortar. In addition, 27.5m^2 area of the retaining wall top plastering has also been done to finalize the construction of the retaining wall structure.

Figure 6: Retaining wall constructed

Besides the construction of the retaining wall, about 6.5m3 masonry stairway is constructed at its back to facilitate climbing up to the top of the retaining wall and operate the intake gate.

Figure 7: Stair way constructed to walk on top of retaining wall

3. Gabion cut wall d/s of cut wall

In order to protect the concrete cut off wall structure from scouring caused by furious flood, a total of 515m^3 or 61m long gabion reinforcement cut off wall is installed and completed at the downstream side of the concrete one. For this, about 232 gabion boxes have been used.

Figure 8: Gabion cutoff wall constructed below the masonry cutoff

Besides, a total of 647 m^3 of excavated soil has been back filled and compacted well around the installed both sides of the gabion cut off wall structure.

4. Main outlet gate

To facilitate easy control of the canal water flow, opening and closing of the inlet hole, metal gate is fixed or installed on the retaining wall at the point of the water intake perpendicular to the main canal. The gate is easily movable or rotates by hand to close or open the inlet opening to convey the river water to the main farm via the canal and used to block the river flood during off time or rainy period.

Figure 9: Main gate installed or fixed on the retaining wall

5. River abutment around the river work

To avoid side scouring risk and protect the river embankment, a retaining wall made of gabion boxes has been installed at the left side and above the cut off wall structure. This protection wall helps to avoid potential flood over flow towards the canal as well as river bank erosion.

In order to strengthen the protection of the retaining wall, a total of 232 m^3 gabion protection wall was constructed and for this about 116 pieces of gabion boxes are used. The gabion protection wall has a dimension

of 30 meter length by 5 meter height at the downstream and upstream sides of the masonry retaining wall. The project uses 44 gabions from other source in addition to the plan 72 gabions for this project to avoid flood over toping and also stabilize the river embankment at the intake side. In general 114 gabions had been in use for constructing this structure.

Figure 10: Gabion retaining wall built u/s and d/s of the masonry wall

Besides, 36 gabion boxes are used to construct deflector with a volume of 108m^3 at the upstream side of the retaining wall for the purpose of deflecting the direction of the furious floods to attain the main course of the river so as to avoid or minimize the flood pressure and the scouring effect on the retaining as well as gabion protection wall.

6. Main canal construction

Main canal construction had been undertaken according to the annual plan set for the project periods. Accordingly, the project planned 5km long canal to execute in the project periods and hence excavated a total of 6.672km main canal in the project life. In addition to main canal excavation, about 1.3 km main secondary canal is excavated to address 50 ha of land that newly proposed target farmers who came from the third kebele or Dire Ella from Hadel Ella district. The main canal and the additional main secondary canal serve to irrigate 150ha of farmlands which is owned by 300HHs.

Figure 11: Main canal excavated

7. Main canal lining

The total lined canal planed for the project life has been 50 meter. However due to the nature of the soil at the area the project planned to increase the lining work to further stabilize the fragile soil and avoid it's sliding into the canal. As a result, the total length of the lined canal for the project life had become 115.15 meter long

starting from the intake hole. This construction work has been done by Afar youth who have been trained by the project.

Figure 12: Main canal lining constructed

8. Drop structure construction on main and secondary canal

Drop structure is used to reduce the speed of water flow to a normal or none scouring effect when flowing in the canal. Drops constructed from stone masonry and its dropping height is varied depending on the gradient of the land where this canal is laying. In the project life, the project planned to construct 15drop structures along the main and secondary canals however, a total of 22 drop structures are constructed by the project. The additional drops constructed from the plan are done so as to address the new farm areas surveyed to address all the 300 farmers.

Figure 13: Drop structures constructed on main canal

9. Road and drainage culvert

These drainage and road culverts are among a number of canal structures required to be constructed on the irrigation canal. This structure helps to bypass the surface run of coming from the above catchment to the main canal and also serves as a rout to the movement of human as well as animals to across the main canal without affecting the canal embankment. As a result, from the planned 6 roads and drainage culverts, 7 have been constructed and fully completed and gives service as planned. This road and culvert structure has been designed for vehicle movement as well.

Figure 14: Drainage and road culvert constructed on the canal

10. Division boxes

The division box structures helps to convey irrigation water from the main canal to the secondary canals and to the farm fields. This division boxes are also used to share the water resource equally to the farmers who are organized under each blocks established.

The plan for constructing division box structure for the project is 20; however the total constructed division box so far is 23, where the four of the division boxes had been constructed on the secondary canal. The reason of constructing additional division box is for the purpose of covering all the irrigable land which is extended to address farmers from Hadel Ella woreda.

Figure 15: Division box constructed

11. Gate purchase and installation

Apart from the main water out late gate, division boxes are also fitted with wooden doors to control the water flow as required. During the project's life 36 wooden gates were prepared and supplied to the farmers to use it to channels the water to their crop field as required. It is the simple type of technology which can be adopted or copied by the farmers to replace the broken gates or to install additional new gates as required.

Figure 16: Wooden gates installed on the division box structures

12. Secondary canal construction

A total plan for secondary canal construction was 8km. However, the accomplishment for the whole period was 9.672km. About 1.6km additional secondary canal was excavated due to farm land expansion made by the farmers. Water is drawn from the main canal to the farm channels through the secondary canal structure. This helps to avoid or protect the main canal from being destroyed by the farmers when they want to divert water to irrigate their farms from the deeper canal areas.

Figure 17: Secondary canal excavated for the new farms

13. Gabion river bank protection

Gabion river bank protection planned for the whole project life was 300 pcs. Accordingly 316pcs of gabion was used to construct 948m^3 river bank protection work. In addition to that, maintenance and renovation works on gabion protection wall that has been dismantled by heavy flood during the past summer rain has been done in 2018. Thus, the 12 meter length gabion structures was maintained with 5 layers of gabion in two rows at the base (with 45 gabion wire) , 27 gabion at the back as support to the 5 layers and 19 gabion added to increase the existing wall height at the top of 19 meter length to avoid flood overtopping. On top of these, 131m^2 plastering work with cement mortar has been done to avoid river water infiltration through packed gabion structures which is the cause for back soil erosion.

Figure 18: River bank protection work with gabion boxes

5.1.5. Construction work done during extension periods

1. River training works accomplished

One of the plans the extension project of 2019 was river training works. Under this output there have been two major project activities like gabion construction and river training work by machine designed to reduce the

scouring effect of the flood risks on vulnerable river bank areas by directing it to maintain the existing river course.

2. Deflector structures construction completed

The activities that were planned for constructing this were to collect a total of 1050m^3 stone collection, transportation and packing. The deflector was constructed was for the use of protecting the structure that is exposed to flood damage. In the year a total of 197 pieces of gabion or 591m^3 of stone that is packed in the a mesh wire has been constructed in different areas that are near to the coffer dam that are exposed to flood damage.

The deflectors that were constructed in the first semester of the year were the beginning of the coffer dam at upstream side with 28m size and the second one is also implemented at the middle area of the coffer dam with 34m length where it is assumed to be highly vulnerable to river flood erosion. The deflectors that were constructed in the second semester of the year were 85 and 107 meter distance from the first and third deflectors respectively. The deviation from the planned is that the gabion price has escalated from that of the planned.

Figure 19: Gabion deflectors constructed

3. River training work by machine completed

To do the river training work, originally 240 machinery hour earth works has been planned to do the river training structure. But during this second quarter of the year the cost of gabion and machinery cost is increased while assessing at the market and shifting of machinery from excavator to dozer type to facilitate better and proper machine that required for this coffer dam work. Therefore, after discussing with the MfM the main donor the total machine hour is increased to 314hr by adding 74 machine hours. In the first semester of the year 188 machinery hours were used to execute earth work in the area where the river course tends to branch and flow out of the river course. In the second semester of the year 153 machine hours were used for pushing gravel mixed soil from the river line to level the rugged landscape and to strengthen the river embankment with mix soil.

Length of 851 m long embankment that is supported by gabion deflector has been constructed where the intended use is to avoid river flow changes and overtopping effect by the river floods, and it's giving its purpose as planned. In addition 150 m (11, 300m^3) long coffer dam which is exposed to flood damage has been constructed, retaining wall back fill with 36 m length , 6m wide and a height of 4.63m has been achieved in the last quarter of the year.

Figure 20: Retainingwall back fill, coffer dam construction and River traing work by machine

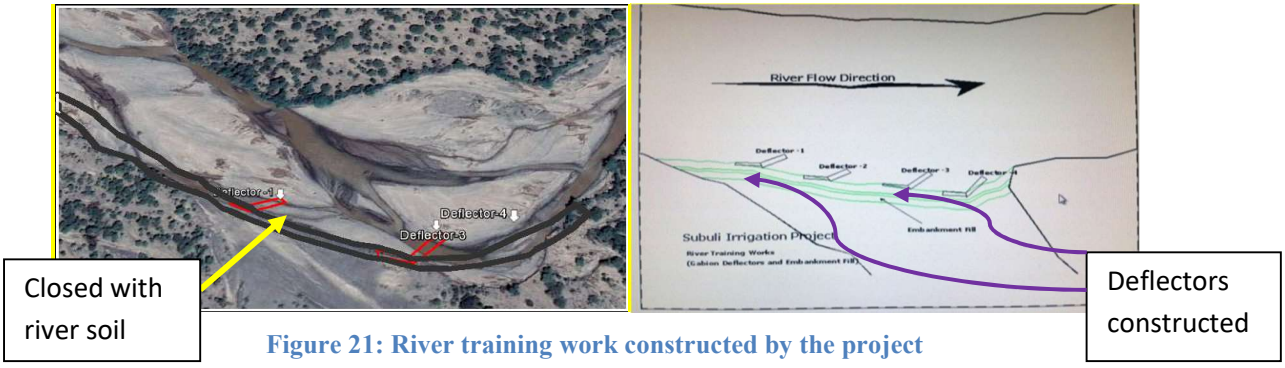

Figure 21: River training work constructed by the project

4. Gabion protection work at the canal side completed

Out of the total 50 meter embankment planed for the period about 40 meter or 60 m^3 gabion structures with 20 gabions constructed at the main canal to support the embankment, 10m length or 10m^3 gabion works with 5 gabions installed at the downstream side of the gabion retaining wall to increase the previous gabion walls. Thus a total of 50m or 241.5m^3 gabion works have been done during the project's life.

Figure 22: Canal embankment constructed

The canal embankment made on top of the masonry canal is for the purpose of raising the height of the wall to hold or stop the soil slid during dry as well as wet seasons and safe guard the canal from sedimentation with silt.

5. Disilting of main canal completed

The irrigation canal usually needs periodical clearing of silt that is coming with flood from the catchment area of the river. In the year as per the plan, about 1548 m³ silt deposition and some tree branch debris accumulated in the canal taken off to allow good flow of water in the canal to the farm areas.

Figure 23: Silt clearing from the main and secondary canal under way

5.1.6. Agricultural activities

1. Organize skill training and material transport on carpentry and masonry and other skills

In the project's life time, 15 youth selected from the community and trained on construction skills with a system of on-the-job training. They were assigned to participate in all project physical activities to easily practice and own the knowledge. Major activities they were involved on were gabion work, bar bending, cutting and tying iron bars, stone shaping, cement mixing and simple masonry works under the guidance of the project Forman and masons.

The trained youth equipped with the necessary hand tools such as hammers (masons and carpenters hammer), hand level, saws (wooden and iron saw), rope, plumb-bob and trowel. The trained Afar boys have currently covered some physical works that ought to be done by masons brought from towns. All the gabion protection wall and plastering works has been executed by these trainees. Among the on-job-trainees involved, 2 were women. The female trainees were faster in acquiring the skill than the boys and also very effective in finishing works like pointing and plastering works.

Figure 24: Hand tool provision for skilled trainees

2. Facilitate clearing and distribution of land

As the area delineated to be irrigable land is virgin land and covered by bushes and small shrubs, clearing and leveling of the land before starting any farming operations has been done by human labor. Most of these operations have been done by the community who received the land which is their responsibilities once they owned the land. SSD support the owner of the land by providing hand tools and opening water channels to the farm.

Irrigable land distribution to the community was facilitated during the implementation period of 2017 and 2018. The first year (2016) was a construction period. The total land distributed in the project period to 300 HHs or target farmers was 150ha. Out of the total irrigation beneficiaries 20 are women headed families.

Figure 25: Land clearing & preparation for planting crops

3. Facilitate primary tillage by purchasing oxen

In order to facilitate the farming activity, the project purchased 10 oxen from Shewa-robit market with the participation of the community representative as well as veterinarian from the government office. Prior to purchasing, the selected oxen were tested whether they fit for land cultivation or not. After they tested the veterinarian inspected their health condition right on the market. In addition to this, 5 local ploughs with the required accessories were also purchased. Both the oxen and local farm tools were handed over to the kebele officials and WUA executive leaders for their management and proper utilization. It is the responsibility of these leaders to fairly allocate the working oxen to the irrigation farmers on shifting bases.

Figure 196: Oxen purchased for target farmers

4. Provide seeds of different cereal and vegetable crops

During the first three years project implementation period the project had provided about 12.87quintals of different cereals and vegetable seeds to the farming community. The maize seed was obtained from Semurobi woreda agricultural office, while the vegetable seeds were purchased by the project. Besides to seeds provision, the project purchased and distributed 320 banana suckers to 68 beneficiaries and 1,300 papaya seedlings distributed to 78 project beneficiaries from the project nursery site. All who took the seedlings planted them around their farm areas.

Figure 20: Improved maize seed provision for target farmers

5. Provide agricultural extension service to communities

After completion of the irrigation scheme and water was channeled to the command area, intensive agricultural extension work was carried out in collaboration with the woreda government extension workers. With this approach, the project consulted, initiated and provided necessary inputs to community members to be engaged in farming activities on time. A total of 491 farmers were reached with agricultural extension service during the period. Due to this fact, almost all the irrigation land recipients have started crop farming and also growing different fruit and vegetable crops.

The extension service addressed not only the land recipient but also their family members who assist their fathers and mothers at the farm areas. Addressing other family members helps to transfer knowledge and develop labor sharing among the family members in the household.

Figure 21: Various agricultural practices supported with extension work

Target farmers cultivate the farm land and grow maize, onion, pepper, tomato etc. from their farm with the help of irrigation both in dry as well as wet seasons.

6. Provide hand tools to facilitate farming activities

Different types of hand tools like 83 machetes, 87 digging hoe (Zabia in local language), 89 pick axe, 113 sickles and 77 shovels have been distributed to 300 target beneficiaries. Some farmers or those who are very poor received two kinds of hand tools like sickle and machete or any other from the project. The hand tools distribution is done to people who are engaged in farming activities so as to facilitate farming and alleviate hand tools shortage and this is also done with the approval of the project committee. The hand tools provision encouraged more people to come and do land clearing, preparation and crop farming increasingly.

Figure 22: Hand tools provision to model farmers

5.1.7. Community capacity building

1. Provision of trainings on irrigation agronomy and scheme management to 100 people

Farmers were supported with theoretical and practical training of irrigation agriculture to make them successful. Accordingly, a total 196 people (44 were women) participated and get oriented about crop farming with irrigation system. The training was conducted in collaboration with woreda pastoral office. The training topics covered were basic irrigation agronomic practices required for cereal, fruit and vegetable crops and their

nutritional value and land preparation, sawing methods, frequency and time of irrigating the crops, water requirements of different crops were discussed. In addition to this, market opportunity, household food security, pest and weed management and post harvest management of crops were raised and discussed in detail.

Figure 30: Irrigation agronomy training participants

2. Organize farmers' field days at the project nursery and demonstration site

Four sessions of field day was planned for the project life and it was conducted accordingly. The field days were organized at the project nursery and demonstration site for 198 community members out whom 20 were women. Participants visited the different plots allocated to cereal, vegetable, and fruits plants as well as fodder grass and plants planted for demonstration and seed collection. Papaya seedlings and vetiver grass grown for plantation also another fields visited by the participants.

On the occasion, briefings have been given on the different cultural practices required by different crops for better yield. Some vegetable products from demonstration site cooked by local women and have been served to participants. And lesson has been given on the nutritional values of vegetables in terms of health in addition to their market value as a source of financial income. The usefulness of vegetables and fruits as a source of vitamins and minerals that prevents different diseases has been explained and they have been told to grow vegetables for their own consumption first.

Figure 31: Field day participants

5.2. Output 2- Improved livestock management practice

A. Facilitate stalking of hay by target people

Livestock feed is one of the focus areas of Subuli project as the target beneficiaries are living as pastoral life system. In the project's life time, about 168 people were involved in staking of hay using maize stalks from

their harvested crop. Even though it will not last very long (due to shortage of pasture) farmers accepted the idea and have started to store the stalks for some time rather than leaving in field for their animals. Although small in numbers there are people who started to prepare hay from grass grown from their field and feed their pregnant, new born and lactating animals.

Even though the practice of fodder collection and preserving for stress period is new for target people, they have been convinced from time to time to conserve the maize stalk instead of leaving for free grazing at the field. This is a change brought about by the project that the target farmers start to adopt or practiced which was not there before.

Figure 23: Stalking of hay

B. Fodder production and management training organized and conducted

The project facilitated a two days training session for 100 people out of which 21 were women. The training has focused on fodder conservation systems, variety of fodder plants and availability of improved animal feed that can be adopted by farmers. The problems of free grazing, infestation of new weed plants like partineum and prosopis juliflora which is competing the grazing land in the locality has been raised and discussed. The training attendants were strongly advised to campaign against these invading weeds and shrubs on time. On the practical session of the training participants went to project demonstration site and visited the different leguminous and grass varieties grown there and briefing has been given on the seed collection, method of plantation and harvesting techniques for better production.

The importance of cut and carry system against free grazing has been thoroughly discussed for continuous use of pastures fields. The infestation of new plant (partineum) has been the point of discussion during the training

and the facilitator explained there is no chemical treatment to eradicate the plant except avoiding the plant before it bear flower by cultural means or uprooting and burning in a pit.

Figure 24: Fodder training field orientation

C. Provision of improved fodder/forge seeds

In order to facilitate livestock fodder production by the target farmers with irrigation, seed provision, field planting and demonstration on its utilization have been regularly done by the project. To this end, 29 kg of fodder seeds like cincrus, panicum, and susbania susban have been distributed to 30 model or active farmers who can properly apply as per the directives given to them by the project. Some of the forage seeds were established on the nursery site for seed production; accordingly out of the 29 kg forage seed distributed 8 kg was harvested from the demonstration site.

Figure 25: Fodder seed provision to model farmers

D. Aware and educate the target people on livestock management

The project facilitated two days awareness raising program for 196 people out of which 24 were women on better way of livestock management. The training was offered during the second and third year of the project implementation period. During the training, lessons has been given on the difference of modern livestock and traditional livestock rearing systems and the advantage of keeping optimum number of productive animals. Natural pasture is depleting from time to time due to over grazing and shortage of rain in the past many years. Thus, awareness is given to the community to balance the number of their animals with the available natural pasture of the area.

Figure 26: Orientation on fodder banking and livestock feeding

Some participants have expressed the changes happened in recent times because of the project intervention and awareness given to them how to cope up shortage of pasture by producing on their farm plots and applying proper utilization of the available fodder. Improvement in the feed availability is an additional benefit of the irrigation practices towards which farmers are motivated to practice it. They said that they have started feeding their animals (lactating cows and calves) with maize stalk and green biomass plants grown around their farm through cut and carry system.

5.3. Output 3 -Community based sustainable management natural resource

A. Construction of soil bunds

Construction of soil bunds aimed to protect the irrigation canals and farm lands from run of water that could be collected from the surround fields or catchments during the rainy seasons. It retains part of the runoff and reduces its speed so that to avoid or reduce the chance of gully formation around the project area. In addition to this, it helps to reclaim the degraded lands or gullies development. Thus, the project constructed a total of 23.4 km soil bund during the four years period. The constructed soil bunds have served its purpose; as a result no significant damage happened on the canal from last rainy season.

Figure 27: Soil bund excavated

B. Constructions of stone/wooden brush check dams

Stone check dams have been constructed in the water shade area above the farm to protect the canal and an irrigation farm from damage by the rill erosion arises from the surrounding fields. In addition to stone check dams, a wooden check dams have been also constructed at where stones are not available at the vicinity or surrounding identified to construct check dams. These stone check dams in combination with bunds also helps to reduce soil erosion and recover small gullies created by the runoff. To do this 500m3 was planned and a total of 499.5 m^3 was constructed in the project periods.

Figure 28: Stone & wooden brush check dams constructed

C. Construction of cut off drains

Cut off drain is mostly constructed to drain the upland excess floods to the natural gullies and interrupt rill lines before growing into bigger gullies and also to collect many flood lines and to safely drain through the culverts to the downstream side of the canal so as to follow the natural water flow line in the farm areas too.

Accordingly, cut off drain is excavated by the project to drain excess flood water into the natural gullies without affecting the excavated canal and canal structures. Thus, in the project period a total of 2000m^3 cut off drain was planned to be constructed above the terraced catchments however, the project excavated 2425m^3 cut off drain along the main and secondary canals to collect and safely drain or direct floods from the upland areas to the natural gullies found around and towards the Arso River. This structure has prevented the canal lines and the farm areas from the risks of flood during the rainy seasons.

Figure 29: Cut off drain excavated

D. Establish and run nursery and demonstration

As the name indicates, nursery /demonstration were established for the purpose of producing multipurpose tree as well as fruit seedlings and of educating and practically demonstrating improved ways of doing agriculture. Thus project nursery management has continued throughout the three year period. To this end, growing vegetable crops like onion, cabbage, pepper and maize and mung bean among the cereal crops were grown for demonstration purposes. Different forage crops and grasses grown and seeds like 2kg sincrus and 6kg panicum fodder seeds have been harvested from the demonstration site. Seedling, and vetiver grass production and management of fruit plants were the major activities conducted in the nursery and demonstration sites.

Figure 39: Different vegetable and fruit plant grown at the demonstration site

E. Production of multipurpose tree and fruit seedlings

Besides the physical soil and water conservation practices, production of different multipurpose tree seedlings for plantation is one of the components under natural resource conservation measures. To implement biological conservation measures, the project in the period 2016-2018 raised 8000 different seedlings including tree and fruit seedlings to plant around at the project canal as well as farmers owned farms. The shade trees that have been planted by the project along the canal have been well established and grew vigorously through time and took the attention of the local people to take care of and demand to plant more by their own at their farm border.

In the year 2019, the project produced 3000 papaya, Neem, Melia and Moringa seedlings. In general a total 11, 000 different seedlingls have been produced.

Figure 30: Seedling production at the nursery site

F. Multipurpose trees planted along the canal farm lands

In the period 2016-2018, a total of 7,772 different kinds of agro-forestry seedlings were planted at 3.5km long canal areas during the three years. Out of the above mentioned 2,161 papaya, banana, mango and 350 other shade trees like moringa oleifera and Delonix regia (locally known as Dire-Dawa zaf) has been distribute to 90 target farmers and also planted along the canal and within farmer's fields. Plantation along the canal has been done by nursery workers. In the year 2019 the plan was to plant 2500 seedlings, accordingly 2500 seedlings were planted around the canal, at head work areas as well as on farm areas. Accordingly, 900 papaya seedlings were planted by 51 individuals and 700 shade tree seedlings were planted by the project along the canals and head work areas. In general 9372 tree were planted during the life time of the project.

Figure 31: Trees planted & fruit plants provided for model farmers

G. Vetiver grass plantation along the canal facilitated

Vetiver grass is a grass family which has deep root system that can hold the soil and avoid its take off by the action of the runoff floods. It is advisable to plant the grass where there is adequate water or soil moisture until it established well or sprouted the tillers. In the period 2016-2018, the project planted 7,688 vetiver slips on both sides of the main canal. As this grass has deep rooted system, it stabilizes the canal embankment by firmly embraced the soil with its roots and at the same time it avoids canal side erosion during irrigation as well as rain impacts. In the extension period 2019 about 3000 vetiver slips have been planted along 750 meter canal length. The achievement is beyond the 2500 planned in 2019 splits. Vetiver grass is used to strengthen and protect the canal side wall from side erosion as well as to retain the washed soil coming from the sloppy areas of the canal embankment.

Figure 32: Vetivar slips planted at the canal sides

H. Organize and conduct environmental conservation training

Environmental conservation training is one of the training sessions conducted during the reporting period. During the training lessons on natural resource degradation and important action to be taken to protect natural resources have been covered. Important Soil and water conservation technique like soil and stone bund, check dam and cut off drain construction including biological methods such as plantation of trees, elephant and

vetiver grasses has been given much emphasis on the session. Lecture by the facilitator and discussion on issues among the participants have been the methodologies of the training. The trainees were also taken to the field and visited the soil bund and cut off drain constructed by the project

The project organized two sessions of environmental conservation training for 100 (20 are women) community members who came from the three beneficiary kebeles (Subuli, Hengage & Dire Ella). During the session briefing has been given on the importance of environmental conservation by using physical as well as biological conservation practices.

Figure 33: Environmental training participants

The importance of soil bund and check dam construction has been explained as a means of reducing run of water that damage the pasture and agricultural fields by creating large gullies in the future unless treated on time. The effect of cutting trees for charcoal preparation and their impact on the environmental change and its contribution to desertification has been discussed and participant's awareness was enhanced.

5.4. Output 4- strengthened local government institutions, CBOs and others

A. Facilitate community meetings to establish WUA and facilitate legal registration of WUA

Meetings were arranged in two sessions during to discuss issues on legalization of the established water users association. On the session about 100 people (of which 25 women) were gathered and participated on the meeting and shared ideas and viewed their concern on what would be the responsibility and their contribution to their association. Out of these 100 people, about 91 were legitimate to WUA members and elect irrigation users cooperative chair person and all WUA executive leaders' newly elected and approved by the general assembly of the association members.

Consequently, the new committee leaders' finalized the required signatories and completed the legal registration processes that have been started in the previous year. Thus, the irrigation water users association had been registered by afar national regional state cooperatives promotion and development bureau as "Arsona Bergaitu farmers association."

Figure 34: community meeting on WUA establishment

C. Organize and train WUA executive members and others

During the reporting period the project facilitated two training sessions for WUA executive leaders, for the two women saving and credit association executive leaders and for two kebele officials. A total of 100 people participated in the session. Out of the 100 people 22 were women. During the training lessons have been given on procedures to be taken during decision making on the association financial matters, preparation of financial documents (for income receipt and expenses vouchers), and the importance of keeping decision minutes on each association expenses has been explained.

Figure 35: WUA executive committee training participants

Preparation and the contents of annual report for members of the general assemble and expected final decisions on the reports by governing body of the association that is the general meetings of members have the point of discussions. The roll of controlling committee and its responsibilities in validation of the rule and bylaw of the association during the operation of processes has been the other topics the lessons given to the members of the association.

D. Facilitate legal registration of the water association and SACS at woreda levels

After conducting repeated community meetings and discussions the legal registration process was completed. Thus at present the project completed the legal registration of irrigation water users cooperative as per the plan. In general there are three CBOs established like two women saving and credit and one irrigation water user's cooperatives.

E. KPDCs and government staffs training organized, conducted and supported in preparation, implementation and M&E of community action plan

The project organized a four days training session for community institution leaders found in the locality. 50 trainees in 2017and 40 trainees in 2018 a total of 90 peoples participated and of whom 18 were women. On the session two women saving and credit cooperatives executive leaders, one farmer's cooperative head and two kebele administrations had participated.

During the training the roll and responsibilities of leaders in the function of their organization has been discussed. And the importance of planning in the success of an organization has been explained. Community action plan preparation in terms of disaster risk reduction has been taken as an example to imply the steps in planning process.

Figure 36: Training workshop for strengthening CBOs leaders

Problem identification, selection of the best solution among possible solutions, setting implementation time table and delegating responsible personnel for the execution of the plan were the major steps explained and discussed. The meaning and importance of monitoring in relation to duties of controlling committees of the established cooperatives and evaluation of the activities accomplished has been well discussed among the participants.

Finally, brief description was given on how to plan any activity, prepare the required inputs and when to implement as per the plan has been well discussed. In general the training has created good awareness in plan preparation and evaluation in their respective organization.

F. Organize experience sharing visit for WUA, WSAC and other community members

The project organized two experience sharing field visit for 67 people (of whom 15 were women) around Shewa-robit areas for two days. Participants were selected from WUA, women SAC leaders, kebele leader's representative, project committee members and model farmers who are doing exemplary work on their farming activities.

Figure 37: Experience sharing tour participants

The tour participants visited an individual fruit farm growing mango, lemon, banana, papaya and…etc and the farm owner explained to the visiting team that his livelihood depends on the production of his farm outputs. The participants were very interested in the field visit and were asking different questions like marketing system, pest and disease control mechanism, technical support getting from the government … etc. It was a two way discussion that the visiting teams learn or grasp important ideas or inputs from farm owners at shewa-robit which can help them to adopt it on their field.

5.5. Output 5 - Improve women participation and benefit at all levels of project implementation

A. Organize one work shop on environmental health for project communities

Two workshops have been facilitated on environmental health for 100 people out of whom 27 were women. The workshop was conducted in collaboration with the kebele health extension worker who is assigned to work at Subuli and the surrounding project kebeles. During the two days training session lessons has been given on personal hygiene, water born disease, malaria prevention and control (proper use of mosquito net. On top of these the health worker has thoroughly explained problems of harmful traditional practices like women genital mutilation and problems of gender inequalities seen at household level that manifested in women and men labor distribution as a result cultural customs seen in most cultures of pastoral communities. Lesson also given on sexually transmitted diseases and the three prevention measures that is refrain from sex until marriage, the use of condom and having only one partner as a final solution.

Figure 38: Education on environmental health

B Organize and train women in saving and credit cooperative to engage in small business activities

Pastoral women are in general economically poor or every resource are managed by the male partner but all the hard work are left for them like all household chores, house construction, water and wood collection. These labor works which imposed on women in addition to cultural barriers make women economically weak and poor compared with their partners. In order to support them to generate income from different small businesses, the project facilitated three days training session for 200 women selected from two target kebeles named Subuli and Hengege. The training covered the topics like importance of saving from available income, borrowing procedures and use of credit money, types of small business fit in the local context and accounting documents in financial saving like personal saving, monthly record and ledger books management. The training session facilitated in collaboration with woreda agriculture and women affairs staffs.

Figure 49: Women saving and credit training participants

Before taking the credit money, all necessary documents like bylaws, bank books, and registration forms are prepared and completed in both target kebeles. Finally the members of the two associations drafted their annual work plan and approved by their general assembly and submitted their request for legal registration to woreda pastoralist and agriculture office. Thus, the project in collaboration with district cooperative desk office finalized saving and credit cooperatives by practically establishing and fulfilling the necessary document for legalization.

Accordingly, two Women Saving and Credit (WSAC) association each of them having 200 members was formed and formally established and registered in the name of Hara Hada and Melihina aab saving and credit

cooperatives. They opened their bank account and deposited 155995 birr (75185 and 80810 birr each respectively) at gawane commercial bank.

Table 2: Cash collected by the two associations up to December, 2018

Name of association	Cash from capital raising (Eth birr)	Registration fee(Eth birr)	Monthly saving (Eth birr)	Service charge(5 Eth birr)	Total Cash collected (Eth birr)
Hara hada cash saving & credit coop	10000	2500	54320	8365	75,185
Melihina eeb cash saving & credit coop	10000	2500	58460	9850	80,810
Total	20000	5000	112780	18215	155,995

C. Provision of seed money for SACs users

After all the legal process and certification by the regional concerned office was effected, the project had provided seed money amounting Birr 600,000.(six hundred thousand birr) to 200 women who were from Subuli and Hengage kebeles as revolving money. Each woman has got a loan of birr 3000 and started small business, like petty trade, shoats fattening and others.

Figure 39: Women saving and credit members received revolving money & repay their loans

The project staff had done a continuous follow up of the women involved in the business and also technically supported them. The two associations took the loan at different times. The first association members who took the loan a year back have started repayment of their loan as per the agreement entered.

Currently, about 73 out of 100 women repaid their loan (219,000 birr) taken from the project one year ago. The same number of women renewed their loan agreement and received 3000 birr revolved loan money each to use in the coming one year. From the total 100 women who took loan money in the first round, about 27 of them are found on the way to repay their loan to their associations in the extension period. Therefore, in the extension period, the loan which was not collected in end of 2018 will be collected by doing close Follow up

and support to the association executive leaders. However, those 100 women who lately took loan their repayment period is fall in the extension period means loan will be repaid after one full business year and hence the loan money will be collected also in this period.

Table 1: Loan disbursement and repayment

Name of association	Seed money distributed in two rounds						Loan repaid
	1st round SAC members	1st round seed money in 2016	2nd round SAC members	2nd round seed money in 2017	Total	SAC members paid their loan from the 1st round	Amount of money collected from the 1st round
Hara hada saving & credit coop	50	150,000	50	150,000	300,000	29	87,000
Melihina aeab saving & credit coop	50	150,000	50	150,000	300,000	44	132,000
Total							**219,000.00**

D. Ensure at least 30% participation of women at all levels of the project intervention and benefits

The project continued to maintain the 30 % proportion of women in the project activities and benefits. For example in 2018 out the 328 people employed by the project for labor work, 102 were women which is 31 %. The proportion of women also considered in different trainings and workshops that have been organized by the project. Accordingly, about 1,147 community members (362 were women) have been participated on capacity building trainings which women accounts 31.6% of this sessions. In general, the average of women participation for the three years in different activities shown under in the table is 26.23%

No	Description of Activity	Participants			Women share in %
		Male	Female	Total	
1	CFW on labor works	908	387	1295	30%
2	Extension service	412	79	491	16%
3	Hand tools provision	280	20	300	7%
4	Agronomy training	152	44	196	22%
5	Field days	178	20	198	10%
6	Livestock management & fodder banking	172	24	196	12%
7	Fodder training	79	21	100	21%
8	Environmental resource training	80	20	100	20%
9	KPDC training	72	18	90	20%
10	Experience sharing tour	52	15	67	22.4%

11	Saving & credit training	-	200	200	100%
	Total	2,385	848	3,233	Avg 26.23%

5.6. Output- 6 Community capacity building

A. Irrigation & water management training

In the year 2019, the project organized and conducted a 3 days training session on irrigation techniques and water management systems for 50 project beneficiaries (10 of them women) nominated from new kebele farmers. The training supported with theoretical and practical session to equip them well how to use the diverted water and land management properly and effectively. The practical session is given at the farmers as well as at model farmer's field.

Figure 40: Farmers training on irrigation & water management

Explanation on the cultural agronomic practices of most common crops of the area such as maize, onion, tomato, pepper and mung bean has been done for the participants. Demonstration on identification of matured banana suckers, how to take off the sucker from the mother plant and plant it at the farm plot. In addition to this, soil mix preparation and filling of the plastic pots to produce seedlings has also been given and briefed to the training participants during practical field exercise.

Figure 41: practical demonstration for training participants

B. Refreshment training for irrigation users cooperative and block leaders conducted

The training of this refreshment focused on issues like equal distribution of irrigation water to beneficiaries, implementation of bylaws to the trespassers, market study and development for crop and fruits sales, advantages of WUA membership, and cash saving for maintaining structures. On all of these thorough discussion has been made and consensus reached on to work towards what been raised during discussions.

Figure 42: Irrigation refreshment training participants

Finally, advice has been given to the participants to maintain good relationship among users and give immediate solution if water use conflict happened and to increase WUA members and savings per harvesting seasons.

C. Refreshment training for woman saving and credit members on new business ideas

In the last semester of the year 2019, the project facilitated one training session for 50 women credit and saving beneficiaries. On the two days training session's participants have discussed about their business activities and share their experiences to one another. They also raised the fate of their association after the project phases out and the project described what earlier preparation has been done on the part of the project concerning compilation of their financial documents comprising the amount of money each members saved, contributed and borrowed from their respective cooperatives and its submission to the concerned government offices at woreda and regional level. Discussions also held on what is expected from the executive leaders of the cooperatives to handle the monthly saving and contribution money collection and depositing to bank accounts by their own while the project is still there. Thus the session concluded on consent that from now on the leaders who have no literate member to find a person or even a student in their village that can read and right and can help them register their monthly savings on their saving books and ledger book.

6. Community participation work

In the period 2016-2018, the local community and the district government have been participated and contributed labor and material support for the project. As a result, about 379 community members (252 male and 120 women) has contributed free labor service to eradicate prosopis juliflora plant (Woyane zaf) around the grazing and farm areas, fence the project staff camp and loading of construction materials on the truck and conversely the district pastoralist office offered a dewatering pump for one full month to dewater and facilitate the construction of cut off wall structure.

Figure 43: Community participation on project activities

When these contributions of free labor and pump support changed in terms of money it is calculated as 12,635 birr from labor and 3,000 birr from water pump. In general in the project's life time, a total of 15,635 birr amount of work is covered by the contribution of community and government.

7. Challenges and lessons learned

7.1. Challenges

The project faced different challenges that threaten the agricultural practices and SSD staff. The challenges are:

- Money devaluation creates material cost inflation which impacts on project cost to over spend.
- Unexpected flood dismantle some gabions structures.
- Outbreak of American armyworm became a treat for the maize growers.
- Shortage of gabion box at the market to early complete the gabion works contributed for the delay of gabion work as per the plan.
- Delay of renting dozer machine instead of excavator once and mobilizing it to the site with low bed truck consumed more time.
- Lack of spare parts at the nearby areas to do maintenance service for the machine prolongs the river training works. The project site is 84km farm from Shewa-robit and 304km from Addis Ababa where spare parts assumed to purchase for the machine.

7.2. Lessons learned

Even if the community have short of skill and knowledge about farming, it is possible to bring changes by doing close follow up and provision of backup with different capacity building strategies.

- Living and working within the project area right in the villages of the pastoralist communities is an effective approach for successful project implementation.
- Integrating crop production with livestock production including fodder development increases overall success of a food security project in pastoral areas.

- Balanced investment and attention to the software and hardware components of the project is vital for the success of a project
- Demonstration and Experience sharing visits to other successful projects is vital to win the commitment and determination of pastoralists

8. ANNEX-1: Activities accomplished

	Description	UNIT	Project plan 2016-2018	Project Plan of 2019	Project plan 2016-2019	Project life accomplishment (2016-2019)	Percentage (%)	Remark
	Planning and coordination							
	Camp establishment	No	1		1	1	100%	
	Vehicle procurement	No	1		1	1	100%	
OUT PUT 1	**Improved Agricultural practice**							
1.1	Organize project inception workshop	No of workshop	1		1	1	100%	
1.2	Conduct Baseline & EIA	No of document	2		2	2	100%	
1.3	Access road clearing	km	10		10	10.9	100%	
1.4	**Diversion headwork and infrastructure constructed**							
1.4.1	Concrete cut off wall	m	80		80	80	100%	
1.4.2	Retaining wall construction	m	60		60	67	112%	To protect the river embankment at the d/s, 7m is added to the plan.
1.4.3	Gabion cut off wall /down stream of the concrete cut of wall	M3	480		480	515	107%	
1.4.4	Main out let gate work	no	1		1	1	100%	
1.4.5	River abutment around the retaining wall protection works with gabion (deflectors)	pcs	72		72	116	161%	The project uses 44 gabions from other source in addition to the planned quantity.
1.4.6	Main canal construction	km	5		5	6.67	133%	New canal is excavated to address new farm areas
1.4.7	Main canal lining	m	50		50	115	230%	Due to the fragile nature of the soil at a deeper canal areas more lining work is done
1.4.8	Drop structure construction on main canal	no	15		15	22	147%	More drops added on the new canal excavated
1.4.9	Road & Drainage culverts	no	6		6	7	117%	More culverts added on the new canal excavated for animal pass by.
1.4.10	Division boxes	no	20		20	23	115%	More division boxes were constructed to address the new farm areas.
1.4.11	Gate purchase & installation	no	36		36	36	100%	
1.4.12	Secondary canal construction (SC)	km	8		8	9.67	121%	More secondary canal is excavated to around the new farm areas
1.4.13	Gabion river bank protection	pcs	300		300	316	105%	

1.5	Organize skill training and material support on carpentry, masonry and other skill	No of people	15		15	15	100%	
1.6	Facilitate clearing and distribution of land	hectare	150		150	150	100%	50ha has been added to the original plan 100ha to address 300 households or target farmers
1.7	Facilitate primary village by purchasing oxen	No of oxen	12		12	10	83%	The budget for oxen purchase is only buy 10 oxen as the cost per oxen increased from the plan
1.8	Provide seeds of different cereals and vegetable crops	qtls	10		10	12.9	129%	
1.9	Provide agricultural extension service with woreda agricultural office	No of HHs	300		300	491	164%	Some household members from the family have got technical support on the farm activities.
1.1	Provide hand tools to facilitate farming activities	No of farmers	300		300	300	100%	
1.11	Provision of training on irrigation agronomy	No of people	200		200	196	98%	
1.12	Organize farmers field day at the project demonstration site	No	4		4	4	100%	
1.13	River training works							
1.13.1	Deflector structures construction	m^3		591	591	591	56%	Price variation of gabion from that of the planned.
1.13.1	River training work by machine	hrs		314	314	314	100%	
1.16	Canal embankment strengthening and maintainance							
1.16.1	Gabion protection work at the canal side	m		50	50	50	100%	
1.16.2	Disilting of main canal	m^3		1548	1548	1548	100%	
2.1	Facilitate stocking of hay by target people	people	150		150	168	112%	Seeing the benefit of the fodder banking, more farmers have been motivated and start hay stalking practice
2.2	Organize training on fodder production & management	people	100		100	100	100%	
2.3	Provide improved fodder /forage seeds	kg	20		20	29	145%	

2.4	Aware and educate the target people on live stock management & fodder production	People	100		100	196	196%	
3.1	Construction of soil & stone bunds	km	15	6	21	23.40	111%	To protect the new extended farm areas from flood risks more bunds constructed
3.2	Construction of stone check dams	M3	500		500	500	100%	
3.3	Construction of cut off drains	M3	1500	500	2000	2425	121%	To protect the new extended farm areas from flood risks more cut off drain constructed
3.4	Establish & run nursery & demonstration site	no	1		1	1	100%	
3.5	Production of multipurpose tree seedlings	no	8000	3000	11000	11000	100%	
3.6	Plantation of multipurpose tree seedlings along the canal & farm areas	no	7400	2500	9900	10272	104%	
3.7	Facilitate plantation of vetiver grass along the canal	slips	6000	3000	8500	10688	125.7%	More vetiver grass is planted along the main as well as secondary canals for the purpose of canal protection
3.8	Organize & conduct environmental conservation training for 100 people	No people	100		100	100	100%	
4.1	Facilitate community meetings to establish water users association (WUA)	No of association	2		2	2	100%	
4.2	Organize and train WUA executive committee members and others	No people	100		100	100	100%	
4.3	Facilitate legal registration of the water users associations and	No of meetings	2		2	2	100%	
4.4	Organize & train and support KPDCs and government staffs in preparation, implementation and monitoring and evaluation	People	100		100	90	90%	
4.5	Organize experience sharing visit for WUA,SAC & other community members	people	80		80	67	84%	
5.1	Organize one workshop on environmental health and gender for communities	people	100		100	100	100%	

5.2	Organize and train women in saving and credit cooperative to engage in small business activities	No of women	200		200	200	100%	
5.3	Provision of seed money for SACs users	people	200		200	200	100%	
5.4	Ensure 30% participation of women at all levels of the project intervention and benefits	%	30		30	26.2	87%	
6.1	Irrigation and water managemnt training	people		50	50	50	100%	
6.2	Refreshemnt training for irrigation users cooperative and block leaders conducted	people		50	50	50	100%	
6.3	Refreshment training for WSAC members on new business ideas	people		50	50	50	100%	

9. Annex 2: Subuli project Terminal Financial Report (2016 to 2019)

S.N	Activities	Project budget (2016-2019) (1)	Project budget for 2019 (2)	Total budget (23016-2019) (1+2)	Actual expenditure (2016-2019)	Variance	Variance %
1	**Planning and Coordination**						
	Camp Establishment	250,000.00		250,000.00	253,891.00	(3,891)	102%
	Vehicle Procurement	700,000.00		700,000.00	812,000.00	(112,000)	116%
	Total Planning and Coordination	**950,000**	**-**	**950,000**	**1,065,891**	**(115,891)**	**112%**
Output 1	**Improved agricultural practices**			-			
1.1	Organize project inception workshop	40,000		40,000.00	38,250.00	1,750	96%
1.2	Conduct Baseline and EIA	80,000		80,000.00	56,411.00	23,589	71%
1.3	Access road clearing	100,000		100,000.00	107,202.50	(7,203)	107%
1.4	**Diversion Head work and infrastructure**	-		-	-	-	
1.4.1	Concrete Cutoff wall	1,480,000		1,480,000.00	1,563,270.25	(83,270)	106%
1.4.2	Retaining wall Construction	840,000		840,000.00	895,936.10	(55,936)	107%
1.4.3	gabion cutwall d/s of concrete cutwall	1,440,000		1,440,000.00	1,546,560.06	(106,560)	107%
1.4.4	Main outlet Gate work	50,000		50,000.00	22,141.96	27,858	44%
1.4.5	River abutment around the retaining wall protection works with gabion (deflectors)	432,000		432,000.00	447,305.00	(15,305)	104%
1.4.6	Main canal Construction	1,210,000		1,210,000.00	1,458,466.08	(248,466)	121%
1.4.7	Main canal lining	255,000		255,000.00	171,833.22	83,167	67%
1.4.9	Drop structures construction on main & S.canal	655,000		655,000.00	648,601.22	6,399	99%
1.4.10	road and Drainage culverts	200,000		200,000.00	227,612.33	(27,612)	114%
1.4.12	Division boxes	575,000		575,000.00	589,118.53	(14,119)	102%
1.4.13	Gate purchase and installation	24,800		24,800.00	24,323.84	476	98%
1.4.14	Secondary canals Construction (SC)	200,000		200,000.00	200,392.00	(392)	100%
1.4.15	gabion river bank protection	580,000	954,150	1,534,150.00	1,497,102.44	37,048	98%
1.4.16	River training work by machine		1,070,072	1,070,072.00	1,074,889.22	(4,817)	100%
1.4.17	Canal embankment protection		330,000	330,000.00	329,749.50	250.50	100%
1.5	Organize skill trainings and material support on carpentry, masonry and other skills	45,000		45,000.00	18,968.00	26,032	42%

1.6	Facilitate clearing and distribution of land	100,000		100,000.00	53,675.43	46,325	54%
1.7	Facilitate primary tillage by purchasing oxen	270,000		270,000.00	159,000.00	111,000	59%
1.8	Provide seeds of different cereal and vegetable crops	15,000		15,000.00	14,460.00	540	96%
1.9	Provide agricultural extension service in collaboration with PRADO officials	60,000		60,000.00	29,000.00	31,000	48%
1.1	Provide hand tools to facilitate farming activities	45,000		45,000.00	43,834.02	1,166	97%
1.11	Provision of trainings on irrigation agronomy and scheme managment	100,000		100,000.00	96,760.00	3,240	97%
1.12	Organize farmers field days at the project demonstration site	25,000		25,000.00	19,995.00	5,005	80%
	Total Improved Agricultural Practices	**8,821,800**	**2,354,222**	**11,176,022**	**11,334,858**	**(158,836)**	**128%**
Output 2	**Improved Livestock Management Practices**			-			
2.1	Facilitate stalking of hay by target people	22,500.00		22,500.00	22,757.23	(257.23)	101%
2.2	Organize training on fodder production & management	50,000.00		50,000.00	47,995.00	2,005.00	96%
2.3	Provision of improved fodder/forage seed	16,000.00		16,000.00	8,450.00	7,550.00	53%
2.4	Enclose and rehabilitate rangeland for better pasture and browse regeneration	87,000.00		87,000.00	-	87,000.00	0%
2.5	Aware and educate the target people on livestock management & fodder banking system	36,000.00		36,000.00	47,410.00	(11,410.00)	132%
	Total Improved Livestock Management Practices	**211,500.00**	**-**	**211,500.00**	**126,612.23**	**84,887.77**	**60%**
Output 3	**Community based sustainable management of natural resources**			-			
3.1	Construction of soil and stone bunds	180,000	60,000	240,000.00	238,930.00	1,070.00	100%
3.2	Construction of stone check dams	250,000		250,000.00	225,890.75	24,109.25	90%
3.3	Construction of cut off drains	120,000	40,000	160,000.00	159,300.00	700.00	100%
3.4	Establish and run nursery & demonstration site	360,000		360,000.00	360,936.74	(936.74)	100%
3.5	Production of multipurpose tree seedlings	120,000	93,900	213,900.00	213,480.00	420.00	100%
3.6	Plantation of multipurpose tree seedlings along the canal and farm areas	51,800	89,750	141,550.00	115,382.00	26,168.00	82%
3.7	Facilitate the plantation of vetiver grass along the canal	72,000	12,500	84,500.00	60,200.00	24,300.00	71%

3.8	Organize & conduct environmental conservation training for 100 people	50,000		50,000.00	44,580.00	5,420.00	89%
	Total Community based sustainable management of natural resources	**1,203,800.00**	**296,150.00**	**1,499,950.00**	**1,418,699.49**	**81,250.51**	**95%**
Output 4	**Strengthened local government institutions, CBOs and partners**			-			
4.1	Facilitate community meeting to establish water users association (WUA)	210,000.00		210,000.00	138,900.00	71,100.00	66%
4.2	Organize and train WUA excutive committee members and others	75,000.00	25,000.00	100,000.00	70,260.00	29,740.00	70%
4.3	Facilitate legal registration of the water users association and WSACS at woreda level	150,000.00		150,000.00	99,980.00	50,020.00	67%
4.4	Organize, train and support KPDCs and government staff in preparation, implementation and monitoring and evaluation of community action plan (CAP)	80,000.00		80,000.00	59,200.00	20,800.00	74%
4.5	Organize experience sharing visit for WUA, SAC & other community members	160,000.00		160,000.00	156,292.16	3,707.84	98%
4.6	Irrigation & Water management training for new kebele farmers		25,000.00	25,000.00	22,684.45	2,315.55	91%
	Total Strengthened local government institutions, CBOs and partners	**675,000.00**	**50,000.00**	**725,000.00**	**524,632.16**	**177,683.39**	**78%**
Output 5	**Improve women participation and benefit at all levels of project implementation**			-			
5.1	Organize one workshop on HTP, HIV/AIDs and gender for communities	75,000.00		75,000.00	50,444.00	24,556.00	67%
5.2	Organize and train women in saving and credit cooperative to engage in small business activities	100,000.00		100,000.00	101,200.00	(1,200.00)	101%
5.3	Provision of seed money for SACS users	600,000.00		600,000.00	600,000.00	-	100%
5.4	Ensure 30% participation of women at all levels of the project inteervention and benefits	-		-	-	-	
	Refreshment training for WSAC members on new business ideas		25,000.00	25,000.00	23,760.00	1,240.00	95%
	Total Improve women participation and benefit at all levels of project implementation	**775,000.00**	**25,000.00**	**800,000.00**	**751,644.00**	**24,596.00**	**97%**
6	**Project staff salary**						
6.1	Head Office Salary		243,103.00	243,103.00	290,536.14	(47,433.14)	120%
6.2	Project Coordinator	399,650.00	174,298.00	573,948.00	547,615.67	26,332.33	95%

6.3	Admin and Finance	166,030.00	78,408.00	244,438.00	230,768.51	13,669.49	94%
6.4	Agronomist	183,506.00	67,431.00	250,937.00	239,687.94	11,249.06	96%
6.5	Construction Supervisor	214,091.00	75,899.00	289,990.00	276,843.21	13,146.79	95%
6.6	Construction Foreman	135,445.00		135,445.00	135,740.44	(295.44)	100%
6.7	Surveyor	290,771.00		290,771.00	290,715.75	55.25	100%
6.8	Store Keeper	109,230.00		109,230.00	108,035.50	1,194.50	99%
6.9	Driver	131,076.00	52,320.00	183,396.00	173,864.80	(42,788.80)	133%
	Total Project staff salary	**1,629,799.00**	**691,459.00**	**2,321,258.00**	**2,293,807.96**	**-24,869.96**	**99%**
7	**Staff benefits**			-			
7.1	Provident Fund	244,470.00	67,253.00	311,723.00	298,805.22	12,917.78	96%
7.2	Termination Benefit	244,470.00	67,253.00	311,723.00	315,664.50	(3,941.50)	101%
7.3	Location Allowance	651,920.00	179,342.00	831,262.00	805,665.37	25,596.63	97%
7.4	Life and Medical Insurance	162,980.00	44,836.00	207,816.00	189,677.66	18,138.34	91%
	Total Staff benefits	**1,303,840.00**	**358,684.00**	**1,662,524.00**	**1,609,812.75**	**52,711.25**	**97%**
	Total Direct program cost	**15,570,739.00**	**3,775,515.00**	**19,346,254.00**	**19,125,957.29**	**121,532.26**	**99%**
8	**Monitoring**			-			
8.1	Regular monitoring visits	480,000.00	30,000.00	510,000.00	508,866.97	-1,133.03	100%
8.2	Conduct annual surveys and prepare annual reports	120,000.00		120,000.00	117,946.26	2,053.74	98%
8.3	Final Evaluation	60,000.00	32,500.00	92,500.00	-	92,500.00	0%
	Total Monitoring	**660,000.00**	**62,500.00**	**722,500.00**	**626,813.23**	**33,186.77**	**95%**
9	**Administration**			-			
9.1	Utilities and Stationary	220,000	55,896	275,896.00	250,205.62	25,690.38	91%
9.2	Camp running costs	292,000	60,000	352,000.00	370,328.38	(18,328.38)	105%
9.3	Vehicle Maintenance	275,000	48,000	323,000.00	321,248.72	1,751.28	99%
9.4	Vehicle insurance	75,000	25,000	100,000.00	96,239.93	3,760.07	96%

9.5	Office rent	265,000		265,000.00	270,000.00	(5,000.00)	102%
9.6	Travel Expenses	325,000	21,600	346,600.00	362,262.30	(15,662.30)	105%
9.7	Vehicle Running Costs	360,000	12,000	372,000.00	422,007.44	(50,007.44)	113%
9.8	Audit fee		10,000	10,000.00		10,000.00	0%
	Total Administration	**1,812,000.00**	**232,496.00**	**2,044,496.00**	**2,092,292.39**	**-47,796.39**	**102%**
10	**Head Office Costs SSD**			-			
	Head Office Cost SSD (15% 0f total program cost)	2,590,761.00		2,590,761.00	2,970,344.79	(379,583.79)	115%
	Total Head Office Costs SSD	**2,590,761.00**	**-**	**2,590,761.00**	**2,970,344.79**	**-379,583.79**	**115%**
	Total Monitoring + Admin and Head Office	**5,062,761.00**	**294,996.00**	**5,357,757.00**	**5,689,450.41**	**-331,693.41**	**106%**
	Grand total	**20,633,500.00**	**4,070,511.00**	**24,704,011.00**	**24,815,407.70**	**-111,396.70**	**100%**