ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF) FOR THE MULTI-SECTORAL APPROACH FOR STUNTING REDUCTION PROJECT (MASReP)

FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA AND AFRICAN DEVELOPMENT BANK (AfDB)

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CHAPTER I: INTRODUCTION

Overview of the Seqota Declaration

Seqota Declaration (SD) is a higher-level commitment unveiled by the Ethiopian government in July 2015 to end stunting in children under two years by 2030. The SD builds on and supports the implementation of National Nutrition Program (NNP) II and it’s implemented by seven NNP implementing sectors. Informed by a conceptual framework built around three pathways of change, the 15 years Seqota Declaration Implementation Plan focuses on delivering high impact nutrition specific, nutrition sensitive and infrastructure interventions across multiple sectors including health, agriculture and natural resources, animal and fishery, water, irrigation and electricity, education, social protection and women and children affairs. The Implementation Plan will be executed in three phases over a 15-year period in which the first five years innovation phase (2016 – 2020) focuses on prioritized innovative and proven high impact interventions that will be tested and evidence generated for the expansion phase (2021 -2025) to more stunting prevalence Woredas with in the regions and scale up (2026-2030) phase throughout the country. The innovation phase will be implemented in selected high stunting prevalent Woredas in Amhara national regional state (26 Woredas) and Tigray regional states (6 Woredas) along the Tekeze River Basin. Seqota Declaration innovative phase is divided into two. The first part is preparatory period (2016 – 2017) and the second part is implementation period (2017-2020) where this comprehensive multi-sectoral costed nutrition sensitive, nutrition specific and infrastructure interventions will be implemented.

Implementation of the SD is in line with the government of Ethiopia developmental policy, the second growth and transformation plan (GTP-II). The GTP II subsection 6.2 states that the government of Ethiopia is determined to build a nutritionally secure country. Nutrition security is expected to be attained through multi-sectoral and stakeholder efforts made in areas of food security, maternal and childcare and access to health services and healthy environment creation and addressing the root causes of under-nutrition. That is why the government of Ethiopia has made commitment to make investment to end stunting focusing on poverty reduction sectors.

Taking severity of stunting with the required investment to curb it, it is almost unthinkable to full implement by the government of Ethiopia. Therefore, the contribution of all developmental
partners such as the African Development Bank who have long been engaged in similar areas had paramount effect to reduce stunting.

**Rational of the Environmental and Social Management Framework (ESMF)**

As per the available information, physical construction of a number of structures such as small and micro dams, water supply structures such as reservoirs, bore holes etc, schools, health institutions are some components of the implementation of the Multi-Sectoral Approach for Stunting Reduction Project (MASReP) - Seqota Declaration. It’s obvious that implementation of these infrastructures will bring about adverse social and environmental impacts. These impacts can be occurred during pre-construction, construction and operation phases and their impact can be categorized from different perspectives: beneficial (positive) or adverse (negative), direct or indirect, long-term or short-term, and extensive or local in effect. Generally, it can be said that positive and adverse environmental and social impacts could arise due to implementation of any proposed developmental projects/programs or plans including the implementation of the Multi-Sectoral Approach for Stunting Reduction Project. The difference on the impact depends on the nature and scale of the proposed project or program.

The government of Ethiopia as well as most of international developmental partners has specific policies on Environment and Social Impacts associated with implementation of any projects/programs. Logically, Environmental impact assessment is a reactive tool to address the environmental and social impacts associated with projects/program and is prepared prior to start of physical activities. In here, the specific site and detail activities should be known. However, if the specific site and detailed activities are not known, a generalized Environmental and Social Management Framework (ESMF) is prepared. Therefore, its recommended that ESMF should be prepared for the SD and it should be noted that it will pass through the available ESIA processes (Screening, Scoping, ESIA (Partial, Full)) including the preparation of Resettlement Action Plan (RAP) or Abbreviated Resettlement Action Plan (ARAP) once full information on each and every components and specific sites are known.

The most important adverse environmental and social impacts associated with the implementation of the SD are: Permanent and temporary land acquisitions including limited access to resources, Forest clearance, pollutions such as air (wind and vehicle emissions), noise
etc, reduction in water access for dawn stream populations and land and resource destruction in case of dam failure, social and health impacts associated with the application of different chemicals, occupational and safety hazardous etc. The detailed Environmental and social impacts of the SD will be addressed in the ESIA report which will be prepared by a certified independent consulting firm.

This ESMF is therefore, prepared to give generalized information on the mechanisms to address potential environmental and social impacts, mitigation measures including compensation payments, ways of public consultation, grievance redress mechanisms, and most importantly the institutional framework (set up) for the implementation of the social and environmental components of the SD.

Multi-Sectoral Approach for Stunting Reduction Project (MASReP) Components

The overall goal of Multi-Sectoral Approach for Stunting Reduction Project is to end stunting by the year 2030. To achieve the goal the government has put in-place twelve strategic objectives. These are:

1. Improve the health and nutritional status of women, children under two and adolescent girls

2. Ensure 100% access to adequate food all year round

3. Transform smallholder productivity and income

4. Ensure zero post-harvest food loss

5. Enhance innovation around promotion of sustainable food systems (climate-smart agriculture)

6. Ensure universal access to water supply, sanitation and adoption of good hygiene practices

7. Improve health and nutritional status of school children

8. Improve nutritional status of pregnant and lactating women and children
9. Improve gender equity, women empowerment and child protection

10. Increase financial allocation from domestic and external resources

11. Improved road infrastructure to create access to market and services

12. Improved multi-sectoral coordination and capacity

To achieve the goal and strategic objectives the Africa Development Bank funded Accelerated Stunted Reduction Project. The project has four components.

**Component: 1 – Climate smart Infrastructure development for effective service delivery:**

- Community based water supply infrastructure.
- Community Irrigation Infrastructures construction for production and productivity of nutrient dense foods (plant and animal origin)
- Institutional infrastructure support:
  - Nutrition Corners at Farmers Training Centers
  - Construct/rehabilitate structures in schools,
  - Small scale feed and food processing Centers
  - Health post construction with solar system and water supply
  - Poultry multiplication center
- Implement ESMF and ARS activities

**Component 2: - Promotion of consumption of nutritious foods**

- Establishment of sustainable community seed and seedling multiplication centers and value chain
- Implement approaches for improved nutrient dense food production: agricultural
inputs/supplies and livestock (chickens, goats, sheep, cows for schools), nutrient dense and bio-fortified seeds/crops) to households and schools, introduce/implement livestock fodder and feed production approaches)

Nutrition based livelihood support for pregnant and lactating women and youth

SBCC interventions on key behavioral determinants for demand creation – including, cooking demonstrations, engagement of key community opinion leaders, model care groups and first 1000+ SBCC and public campaign,

Support the scale up piloted business model for homegrown school meal initiative

School health and nutrition initiatives (including establishment of school clubs, schools gardening and school based nutrient dense foods production to sustain school feeding)

Component 3: - Strengthening Institutional Systems and Capacity Building

Establishment of community labs

Training and supplies for water users

Support UNISE implementation

Training of health and agriculture extension workers on nutrition assessment, counselling and support (NACS)

Support government to strengthen and sustain multi-sectoral coordination

Strengthen PDUs capacity to support project implementing woredas

Component 4: - Coordination and Project Management

Strengthening PDUs capacity to manage MASReP project: staffing and office equipment

Strengthen government systems to sustain multi-sectoral coordination

Project implementation and coordination

Project Monitoring & Evaluation (including Baseline and Impact Evaluation)

Analytical studies

Financial and procurement audit
Objectives and Principles of the ESMF

The overall purpose of the ESMF is to ensure that all environmental and social issues are addressed during planning, construction (implementation) and operation of components of the SD.

The specific objectives of the ESMF are to:

- Define the procedures and processes of the national and international ESIA and RAP processes so that SD investments and define the roles and responsibilities of all institutions in executing the ESMF (including ESIA and RAP)
- avoid, minimize or mitigate any adverse environmental and social impacts of components of the SD;
- enhance the positive outcomes of the SD components by applying enhancing mechanisms
- customize a set of internationally recognized standards and frameworks (Such as the AfDB) in environmental and social safeguards of the SD

Scope of the ESMF

The ESMF will give clear information on how to address adverse environmental and social impacts of components of the SD and will be applied in projects (programs) of the SD. Therefore, the ESMF will be applied in the defined components and also in the selected SD Woredas. Therefore, the clients (the coordinating governmental organization) should ensure that the SD implementation should subject to ESIA/RAP processes and implement it according the measures indicated in these reports. It should also be noted that ESIA and RAP reports should be prepared prior to the commencement of any work.
CHAPTER 2: METHODOLOGY FOR THE PREPARATION OF THE ESMF

The following methods were used to prepare the ESMF.

Collection of secondary data sources (Available Information) (including Literature review)
In here, available national and international policies, laws, proclamations, strategies, guidelines/manuals etc including international conventions and protocols ratified by the Federal Democratic Republic of Ethiopia (FDRE) are reviewed. The reviewed laws and policies are on Environmental and Social issues, land acquisition and compensation, biodiversity conservation, water resource management, occupational health and safety issues etc which have a direct and indirect relevance to the implementation of the SD.

Field Visits
It is indicated in the SD that the SD will be implemented in selected Woredas in Amhara and Tigray National Regional States. A team of experts from the AfDB, the Ministry of Health and representatives of the two regions have visited the site in Gazgibla, Seqota Town, Seqota Zuria, Naeder Adet and Tanqua Abergele. Moreover, meetings was held with regional sector heads, vice bureau heads, sector technical experts and regional program delivery units team in Mekele and Bahir Dar.

During the visit, relevant informations that are used to prepare the ESMF were collected. Some of them are: physical physiography and topography of the woredas, land use, status of forest and other biodiversity, socio-economic status of the communities etc.

In addition, a team of social and environmental safeguard experts in Amhara and Tigray region conducted a field in sites were infrastructure activities (especially water supply and irrigation construction will be conducted by the project) to conduct a screening, categorization of the impact and develop mitigation strategies.

World Bank’s Environmental and social screening form (ESS) or checklist was employed to conduct the screening report. The form is designed to incorporate basic information in the hands of implementers and reviewers to consider major impacts and their mitigation measures for the project, if any, can be identified and/or that requirements for further environmental analysis be determined. Discussion with the woreda authorities, kebele administrations, and community and project beneficiaries were conducted. In addition, on site transecting walk data recording/counting/measuring, review of draft design report. Moreover, to locate the locations
GPS and Arc GIS 10.5 were employed. The environmental and social impact assessments of the projects are available separately. However, in this document the summary findings of the projects are presented.

**Consultation with key stakeholders**

Implementation of the SD will demand the involvement of many stakeholders from the government (Federal, Region and Woreda level) and other non-governmental organizations. Consultation was made with Federal Program Delivery Unit, SD implementing sector ministries technical heads, H.E State Ministers and Ministers (State Minister of Health, Minister for Agriculture, Minister for Water, Irrigation and Energy, Minister for Women, Children and Youth), SD implementing development partners, donors (USAID, EU, GIZ), H.E Tigray Regional President and the cabinet (composed of implementing regional bureaus), Amhara Regional Cabinet (composed of implementing sector), the zonal and woreda sector offices and the community including women, irrigation user farmers and extension workers.

Above all conversations have been made with the user communities with regard to environmental protection and social safeguard issues during the different field missions conducted by federal line ministries and respective regional bureaus. The 4 billion plantations of the seedlings in Ethiopia back in July 2019, which was the world’s record is also a show case of how the government is committed to restore the ecological and nature balance, which will contribute to the wellbeing of human beings in the living planet.
CHAPTER III: DESCRIPTION OF THE MULTI-SECTORAL APPROACH FOR STUNTING REDUCTION PROJECT AND SUB PROJECTS

The Seqota Declaration

The Seqota Declaration (SD) is a high-level commitment of the Government of Ethiopia to end stunting in children under two years by 2030. It was launched during the International Conference on Financing for Development held in Addis Ababa in July 2015. SD builds on and supports implementation of the National Nutrition Program (NNP) II and is informed by a conceptual framework built around three pathways of change designed to deliver high impact nutrition specific, nutrition smart and infrastructure interventions.

The SD roadmap will be implemented in three phases over a 15-year period. This involves an innovation phase (2016-2020) which focuses on the implementation of prioritized, proven high impact interventions and innovative solutions that will be tested and evidence generated for the expansion phase (2021-2025) which will reach more vulnerable and high stunting prevalence woredas before a national scale-up phase (2026-2030) involving full-blown implementation of evidence-based multi-sectoral interventions throughout the country. The innovation phase is currently being implemented in 33 selected high stunting prevalence woredas comprising 27 woredas and 6 woredas in Amhara and Tigray national regional states around the Tekeze River Basin, an area characterized by erratic and low level of rainfall, severe land degradation, low soil fertility and deforestation. The over 4 million inhabitants are predominantly smallholder farmers, who are entirely dependent on rain-fed agriculture and animal husbandry.

The Government of Ethiopia recognizes that investing in nutrition is critical for attaining its vision of becoming a lower middle-income country by 2025. The Cost of Hunger in Africa (COHA) study conducted in Ethiopia revealed that factors associated with undernutrition contributed to total losses estimated at 55.5 billion Ethiopian birr or USD $4.7 billion for the year 2009, which was equivalent to 16.5% of GDP of that year. The COHA model estimated that a reduction in the prevalence of child undernutrition to half of the current level by the year 2025 can generate annual average savings of ETB 4.4 billion (USD $376 million). An additional scenario shows that a reduction to 10% stunting and 5% underweight for that same period could yield annual average savings of ETB 9.2 billion (US$784 million). This economic benefit that
would result from a decrease in morbidities, lower repetition rates and an increase in manual and non-manual productivity, presents an important economic argument for the incremental investments in child nutrition. This has informed the Government of Ethiopia’s commitment to pro-poor and service-focused spending to end stunting by making nutrition smart investments.

This concept note represents a three-year program to be implemented in the **33 Seqota Declaration** innovative phase woredas. The concept note has been developed based on the agreement reached between H.E. Deputy Prime Minister of Ethiopia, Ato Demeke Mekonnen and H.E President Akinwumi Adesina on February 11, 2019 to work on a joint project focused on Seqota Declaration that will enable Ethiopia develop its ‘grey matter infrastructure’ through multi-sector investments in nutrition to end stunting. The concept note has incorporated the priority interventions identified following the inter-ministerial learning journey conducted to five Seqota Declaration woredas from March 11-14, 2019.

The baseline survey conducted in 2018 by Ethiopian Public Health Institute (EPHI) with technical support from Johns Hopkins University revealed that 41% of children aged 6-23 months are stunted. Various factors contribute to the high stunting prevalence in the SD woredas. These include high level of food insecurity (69%), low production and consumption of diversified food as evidenced by low dietary diversity in pregnant and lactating women (9.8%) and children under two (<1%) especially during fasting periods, low use of agricultural technologies, high post-harvest losses, and low level of contact with agricultural extension workers.

In SD woredas, only 38% of the households have access to clean drinking water. Household sanitation and waste management is very poor as 58% of households still commonly practice open defecation and only 40% reported practicing hand washing with soap after toilet use, thus increasing the risks of transmitting infections to other household members. Related to institutional WASH, the school drinking water and hand washing facility coverage is 15% and 10% respectively, and only 12% of the schools have gender segregated improved latrines. There is very low contact with health extension workers who are intended to deliver WASH-focused social behavior change communication messages.

The study also revealed low coverage of maternal and child health services in the SD woredas.
Only 46% of currently pregnant women and mothers of children under 2 had contact with health extension workers in the preceding three months. 69% of children were fully immunized and only 17% of children age 0-59 months had their growth assessed in the preceding 30 days.

Hence, this project is designed with alignment with the Bank’s current Country Strategy Paper, (CSP, 2015/16-2019/20), approved by the Bank’s Board in April 2016, focuses on: (i) infrastructure development and (ii) facilitating effective and efficient delivery of basic services at local level and business enabling environment for private sector development. The proposed MASReP Project aligns very well with the CSP in terms of the infrastructure development, effective delivery of basic services at local level and investment priorities in the GTP II.

The project is aligned with the Bank’s High-5s, particularly with ‘Feed Africa’ and ‘improve the quality of life of the people of Africa’. This project is also strongly aligned with the African Leaders for Nutrition (ALN) Initiative, the platform designed for harnessing high-level political engagement to advance nutrition in Africa. Alongside the African Union Commission and global partners, the African Development Bank recently launched a Continental Nutrition Accountability Scorecard to support greater advocacy and accountability for nutrition investments in Africa with stunting reduction identified as a marker of tracking Africa’s development. The Seqota Declaration goal of ending stunting aligns well with the ALN initiative as well as President Adesina’s grey matter infrastructure agenda.
Description of Sub-projects

Arbit Water Supply Project

Arbit Water Supply Project is located in Diba/Awusgi rural kebele in Wag Himra zone of Amhara regional state, northern part of Dehana wereda, north-west directions about 94 km from Seqota town. The kebeles are situated in average altitude of 2097m above mean sea level. It is situated in Woyinadega climatic zone in the road from Seqota to Diba/Awusgi/ rural town. The site is located along the 94 km all-weather road. The kebele has no infrastructure of electric power system connected to national grid system.

The source of water for this project is spring. The safe yield is 1.6l/s which are located at about GPS location 461119.498E, 1376278.661N & Elevation 2097.752m. The maximum day demand of the kebeles at the end of the 15-year design period, 2035, is estimated to be 1.43 l/s. This means, the source satisfies the community water supply demand fully throughout the design period. In addition to the communities, 2 schools and one FTC will be benefited from this project. About 3089 beneficiaries will benefit from the project at the end of the design period.

Bursa Water Supply Project

Bursa rural town is one of the rural kebeles & town found in East Belesa woreda, in North Gondar Zone, Amhara regional state and it is located 172 km far from Bahir Dar, the region capital of Amhara National Regional state, 7 km on gravel road from Guhala town towards the East. The source of water for this project is a borehole having yield of 13l/s. The total number of population served from this project is 4137. Besides the communities, one school and one health post will benefit from this project.

Damot Water Supply Project

The project is named after Damot rural kebele which is located in Lay Gayint woreda of south Gondar Administration zone in Amhara regional state. Geographically it is located 419746 East,
1298749 north and elevation 3429m above sea level nearby to Guna. The source of the water supply system will be two springs that are located in Guna Mountain having discharge of 1.5 l/sec and 0.51 l/sec. The total safe yield of the two springs was reported to be about 2.1 l/sec. The number of beneficiaries’ population that will be benefited from this project is 3697.

**Dilyibza Water Supply Project**

The project area (Dil Yibza town) is capital town of the woreda, located in Beyeda woreda, North Gondar zone of Amhara National Regional State. The source of water supply system is a spring, commonly called ‘Chelema Wonz’. It is located at the bottom of escarpment of Ras Dashen Mountain. The project will benefit 16271 people, two schools, one health center, one health post and one FTC.

**Lalikaw Water Supply Project**

Lalekiwe rural kebels is located in Wag Himra zone in the South of Gazegibela woreda; in the north directions about 79 km from Seqota town. The kebeles are situated in average altitude of 2033.53m above mean sea level. It is situated in kola (Tropical) climatic zone. The rural kebele is found in the road from Seqota to Lalibela main road. The site is 79km some part are Gravel road and others are Asphalt road. It have gate infrastructure of electric power system connected to national grid system. The sources for this project are two springs. The total safe yield is 1.8l/s which are located at about GPS location for spring one (1) 503402.635E, 1355404.304N & Elevation 1962.281m and for spring two (2) are 503391.902E;1355355.213N & 1956.744m Elevation. The project will benefit 3790 people, two schools and one health centers.

**Adiarkay Water Supply Project**

Adi arkay town is a capital city of Adi arkay woreda in North Gondar zone of Amhara National regional state. It is located southeast direction of Bahir dar city at a distance of about 368.5 Km
from Bahir Dar and at 95.4 Km from Debark via Lima limo road. Municipality currently administers it, which is accountable to Adi Arkay Woreda Council. The current population of Adiarkay town, including Teta kebele, is recorded to be 20,003 as the information obtained from Adi Arkay Woreda administration. However, population in CSA 2007 of Amhara region shows that 12,371. It is projected to be 25264 in 2039. It is sited on an undulated landscape at geographical coordinates of 1486841.21m N and 397946.3m E. The average elevation of the town is 1567m.a.s.l and the surrounding areas of the Town are mountainous. The proposed water source for Adi Arkay town is the existing surface water where the intake is from Ensia River.

**Jandab Water Supply Project**

The project area, Jandab Rural Piped System, is located in the northern part of West Belesa Woreda in Central Gondar zone of Amhara National regional state. It is situated at 16 km from West Belesa Woreda center. West Belesa woreda is situated at 40km branched from Maksegnit to Gondar main asphalt road. The west Belesa woreda capital is Arbaya town. The source of water supply system is a borehole drilled by Amhara Water Well Drilling Enterprise in 2011 E.C. It is located in Ser Kasena Kebele of Kasena Got close to ‘Derek wonz’ River with UTM location of N-1,384,822.796, E-377,018.467 and Elevation of 1743.908 m above mean sea level. The project will benefit 5151 people, two schools, one health center, one health post and one FTC.

**Tsirel-tsemera water supply project:**

The project area is located in Sekota woreda, Waghemra zone of Amhara National Regional State. Sekota Woreda is found at 613 km from the region Center [Bahir Dar Town] and 48 km from the zone center [ Sekota Town]. The total area of the woreda is 137,183.6 hectare. The project will benefit 2419 rural communities who had been suffering for a shortage of safe and adequate water supply.
Hamusit town water supply projects
The town Sekota is the centre of Wag Himra Zone located 720km far away from Addis Ababa and 438km from Bahr Dar. Hamusit town is one of the towns in Sekota wereda. It is found at a distance of 35km from Sekota town along Korem to Abiy Adi newly under construction project with asphalt. Therefore, the water supply project proposed is an expansion work for the Hamusit town existing water supply. The project will benefit 7300 people at the end of the design period.

Nefasmewcha town water supply projects
Nefasmewcha town is the main part of the town is located on the hill plateau surrounded by deep gorges. The geographical location of the town is at 11°51′00″ latitude and 37°55′ 00″ longitudes. It is the capital of Lay gaiynt Woreda in Amhara Region located at a road distance of 178 km from the regional capital Bahir Dar City, 739 km from Addis Ababa, national capital. The town is accessible via Woreda town with a distance of 117km asphalt road.

Chelli Water Supply Project
The project area is located in the South-eastern part of Tigray regional state, in Samre Seharti Woreda. The geographic coordinates of the area is 512528.1m longitudes and 1473367.0 m latitude. The site is accessible through Mekellto Dengolat 25 km Asphalt road which is on upgrading and turning left Dongolat – Gijet through all-weather gravel road to reach the project area (Cheli). The source of water for the project is a borehole with a capacity of 7.0l/s. The number of beneficiaries benefited from this project is 1890. Besides health post, health centers, schools and FTC will benefit from this project.

Finarawa Water Supply Project
Finarwa Town is found in Tigray Region State which is in Woreda Sahrti Samre. The Town is located about 82km from Mekelle Town, which is accessed through asphalt road that links Mekelle to Samre. Finarwa is one of the aged towns and currently administered with Samre Wereda found adjacent to Sekota border. The center of the town is located at about 1448303.75 North, 502967.401 East and 1492.156 elevation. The elevation of the area ranges from 1457 to
1595 meters above sea level. The source of water for this project is a borehole. The number of people that will be benefited from this project is 5704. Besides this livestocks, health posts, health center and FTC will be benefited from the project.

**Maymuq Irrigation Project**

May Muq Irrigation project area is found in Tigray Regional State in Enda Mekoni wereda at tabia Mekan. Geographically the proposed area is located in the coordinate of 0553412E latitude and 1409557 N longitudes. The total command area to be irrigated by this project is 75 ha and the estimated number of beneficiaries will be 150 households.

**Desea irrigation projects:**
The pump irrigation project is located in the central Zone of Tigray Regional State, Tankua-Abergele Woreda, TabiaAgbe, Kushet Seyemty-Ruba, particularly at Desa in Gereb-Gba River. The geographical locations of the sump area is; X = 507631.214, Y = 1489317.115, Z=1374.876. The project is accessible with some maintenance of the seasonal road.

**Adiarkay Woreda Irrigation Projects**

**Fidka Irrigation Project**

Fidkai irrigation project is found in Amhara Regional State, North Gondar Zone, Adi-ArkayWoreda, fidka Kebele. The site is placed some 40km far from South–West of Adi- Arkay town. And geographically it is located at 376835N and 1477475E and has an elevation of 1171m a.s.l. at main canal inlet point. The total command area to be irrigated by this project is 10 ha and the estimated number of beneficiaries will be 900 households.

**Meka Adikora Small Scale Irrigation Project**

Adikora irrigation project is found in Amhara Regional State, North Gondar Zone, Adi-
Arkay Woreda, meka Kebele. The site is placed some 40km far from South – West of Adi- Arkay town. And geographically it is located at 381742N and 1473661E and has an elevation of 1262m a.s.l. at main canal inlet point. The total command area to be irrigated by this project is 13 ha and the estimated number of beneficiaries will be 65 households.

**Zemra Amstya Small Scale Irrigation Project**

Amistya irrigation project is found in Amhara Regional State, North Gondar Zone, Adi- Arkay Woreda, Zarima Kebele. The site is placed some 40km far from South – West of Adi- Arkay town. And geographically it is located at 381826N and 1473928E and has an elevation of 1261m a.s.l. at main canal inlet point. The project area has road accessibility; some 40km is very comfortable and safe asphalt road starting from Adi- Arkay town towards Zarima town and about 2km towards the project site. The total command area to be irrigated by this project is 15 ha and the estimated number of beneficiaries will be 300 households.

**Beyeda Woreda Irrigation Projects**

**Segore Small Scale Irrigation Project**

Segore small scale irrigation project is found in Amhara region in North Gondar Zone, Beyeda woreda, which is at about 20km from Dil-yebza capital city of Beyeda woreda and 6km from the town. The project located at a Geographical coordinate of Latitude; 1444668m and Longitude 042763m and elevation of 3059m. Total irrigated command area of the system is 11ha that will benefit 30 households.

**Mesheha Small Scale Irrigation Project**

Mesheha small scale irrigation project is found in Amhara region in North Gondar zone, Beyeda woreda, which is at about 29km from Dil-yebza capital city of Beyeda woreda and 218km from zonal. Mesheha River is a river in North Ethiopia. It is a tributary of the Tekeza River. Geographical coordinate system of the site is: latitude N 1450895 m, longitude E 0422332m and altitude range elevation 211-2098m. The total command area to be irrigated by this project is 46
ha and the estimated number of beneficiaries will be 932 households.

**West Belesa Shala Small Scale Irrigation Projects**

This irrigation project is located mainly at SHURA Kebele, West Belesa Woreda of Central Gondar Zone in the Amhara Region. The proposed irrigation project is to be undertaken on SHALA River and the headwork structures are specifically located at an altitude of about 1627masl and geographical coordinates of 1377803N and 0382810E. The total command area to be irrigated by this project is 33 ha and the estimated number of beneficiaries will be 660 households.

**Gurmbaba 2 small scale irrigation scheme**

This is one of the irrigation development project in North Gonder Zone, West Belesa Woreda, specifically in Koza Kebele. The command area is located about 20 km from the Arbaya capital of West Belesa Woreda. The Project Command Area (PCA) is also located about 20km far, to the North-Western direction, from West Belesa Woreda capital Town (Arbaya). The project site lie at geographical coordinate of and 1382053.03 to 1399589.57 meters north and 342771.57 to 371800.65 meters East in UTM; and the elevation ranges from 1978 upto 2886 meters with mean of 2462 meters above sea level. The total command area of the project irrigated by the river is about 137 hectare that benefits 125 households.

**Dehana Woreda Small Scale Irrigation Projects**

**Amela 22 (Debito) Small Scale Irrigation**

The project area is located inchila Kebele in specific location called Dabito. It can be accessed by 26 km from Amdeworkall weather road. The proposed irrigation project is to be undertaken on Ambow River and the headwork structures are specifically located at an altitude of about 1982masl and geographical coordinates of 1373028 N(UTM) and 484054 E(UTM). The total command area to be irrigated by this project is 14.5 ha and the estimated number of beneficiaries will be 290 households.
Muzu Small Scale Irrigation

Waghemra zone is one of the most vulnerable zones in Amhara region. The woreda, Dehana is found 638km far from Bahir Dar in the North-East of the region. Dehana woreda is one of the seven woredas in Waghemra zone. The Dam site is found at Arbit (04) kebele of the woreda. It is 57km far with all weathered road from Amdework to the North west direction. The dam site is geographically located at 460143 E and 1379956N with an elevation of 1837m a.s.l. The total command area to be irrigated by this project is 19.5 ha and the estimated number of beneficiaries will be 390 households.

Gazgibla Woreda small scale irrigation projects

Deberweyla (Babu) Small Scale Irrigation

Babu diversion small scale irrigation project is located in Wag Himra zone, Gazgibla Woreda, Deberwoyla kebele. The Geographic co-ordinate (UTM) of the diversion head work area are about (37P0500083, 130775) and elevation 2246 at bench mark 1. The farmer has been tried to extending irrigation water to developing the adjacent farmer land using the main canal. However, due to head problem and gully the farmer cannot irrigate the command area. Hence, the project is Planned to solve the farmer’s problem. The total command area to be irrigated by this project is 36.8 ha and the estimated number of beneficiaries will be 634 households.

Tiruwenz small scale irrigation project

This project is located in Waghmra zone of Amhara region in Gazgibla woreda at kebele 03. Tiruwenz river having a river base flow of 32.16 Lit/sec and Canal length 2000m have a Command area of 25 ha and have beneficiaries of 20HH.

Zarota small scale irrigation project

The project is located in Waghmra zone of Amhara region in Gazgibla woreda at kebele 18. Tiruwenz river having a river base flow of 43 Lit/sec and Canal length 2000m have a Command area of 25 ha and have beneficiaries of 12 HH.
Gazo Woreda Small Scale Irrigation Projects

Gazo woreda is found in Amhara region, north wolo zone 290 km far from Bahir Dar. The woreda has a suitable agro climatic condition for living of bio diversity in which 65% from the total area is hilly train while the remaining is plain train. The woreda is found from 1500-3300m above mean sea level. It has 23% kola, 57% wiena dega, & 20% dega agro climatic zone. The mean annual rain fall ranges from 950 mm/year to 1050 mm/year & its mean annual temperature ranges from – oc to - °c. 70% of the people has mixed forming system, 20% animal production, 2.5% trading & the remaining 4.5% live on daily labor. Main crops grown in the area are maize, sorghum, teff, barley, wheat etc.

Adisege Small Scale Irrigation Project

This small masonry water harvesting structure e-dam is administratively located at in Amhara region Gazo woreda 01 kebele at the site called Adisge. The geographic location is latitude: 130756111N (From GPS), longitude: 515776E (From GPS) and altitude 3208 m.a.sl. (from GPS). Access road is available to the project area. But, around 0.5 km access road worked by AWWC starting from Esetayshe town to the project area Adisge. The scheme is situated around South east of Esetayshe town. The total command area to be irrigated by this project is 37 ha and the estimated number of beneficiaries will be 148 households.

Baregoye Small Scale Irrigation Project

This small masonry water harvesting structure e-dam is administratively located in Amhara region, Gazo woreda Esetayshe 01 kebele in Baregoye site. The geographic location is latitude: 13075611N (From GPS), longitude: 515776E (From GPS) and altitude: 3208 m.a.sl. (From GPS). Access road is available to the project area. Around 2 km access road worked by AWWC starting from Esetayshe town to the project area BAREGOYE. The scheme is situated around South east of Esetayshe town. The total
command area to be irrigated by this project is 33 ha and the estimated number of beneficiaries will be 660 households.

**Darewoez Small Scale Irrigation Project**

This small masonry water harvesting structure dam is administratively located in Amhara regional state, Gazo woreda 016 Kebele in a place called Dere wonez. The location is found at latitude: 1306599N (From GPS), longitude: 508289E (From GPS) and altitude 3208 m.a.sl. (From GPS). Access road is available to the project area. But, around 0.5 km access road worked by AWWC starting from Esetayshe town to the project area Dere woney. The scheme is situated around South east of Esetayshe town. The total command area to be irrigated by this project is 8 ha and the estimated number of beneficiaries will be 160 households.

**Ketema Wonz**

The night storage is administratively located in Amhara regional state Gazo woreda Buya 013 kebele in the site called Ketema wonze. The geographic location is at an latitude of 1300664 N (From GPS), longitude: 515534E (From GPS) and an altitude 3162m.a.sl. (From GPS). Access road is available to the project area. The site is located in the asphalt road of woledia to bahirdar to the right side of the road. It is far from 10 km capital town of Gazo woreda Esteyashe. The scheme is situated around west of Esetayshe town. The total command area to be irrigated by this project is 5 ha and the estimated number of beneficiaries will be 148 households.

**Washa Mechallee.**

This small masonry water harvesting structure dam is administratively located in Amhara region, Gazo woreda 06 kebele at Washa mikael location. The geographic location is latitude: 130756111N (From GPS), longitude: 515776E (From GPS) and altitude: 3208 m.a.sl. (From GPS). Access road is available to the project area. But, around 0.5 km access road worked by AWWC starting from Esetayshe town to the project area washa mikael. The scheme is situated around South east of Esetayshe town. The
total command area to be irrigated by this project is 18 ha and the estimated number of beneficiaries will be 148 households.

Seqota Zuria woreda

Andnet Small scale earthen irrigation dam
is one of the irrigation development projects in Amhara National Regional State, Waghmra Zone, Sekota Woreda, specifically the irrigation headwork will be situated at Lamua kebele, lamua Gote. The headwork structures /dam axis will be located in between the geographic UTM 504283.333 E and1399737.186 N in the right and left abutment respectively at an altitude of 1943m. This project area is designed to irrigate about 147ha of irrigable land and 2940 households.

Yemunu canal extension project
The project is found at M/sillasie (018) kebele of the woreda. It is 15km far with all weathered road from Sekota to Mekelle in the north direction. The site is geographically located at 0500589E and 1409810 N with an elevation of 1803m a.s.l. This project area is designed to irrigate about 7.5ha of irrigable land and 76 households.

Shimartiku new canal
This construction site is found at sayda (08) kebele of Seqota zuriya woreda. It is 30km far with all weathered road from Sekota in the west direction. The site is geographically located at 0493613E and 1386039N with an elevation of 2069m a.s.l. This project area is designed to irrigate about 8ha of irrigable land and 89 households.

Laygayint Woreda Small Scale Irrigation Projects

Kebele 28 Konkonie Small Scale Irrigation

Konkoni diversion irrigation project is located in Amahara Region South gondar nefas mewwecha woreda, and Kebele28. The site of the project area is located in accessible 13km from capital of woreda. The project area can be located at 436738” East longitude and latitude “1304202” North and elevation varies from 2563 m.a.s.l. The total command area to be irrigated
by this project is 31 ha and the estimated number of beneficiaries will be 520 households.

**Ehele Bete Small Scale Irrigation Project**

Ehele bete diversion irrigation project is located in Amahara Region South Gondar nefas - mewecha woreda, and Kebele22. The site of the project area is accessible 60km from woreda capital. The project area located at 0433691East longitude and latitude 1310233North and elevation varies from 2213 m.a.s.l. The total command area to be irrigated by this project is 39 ha and the estimated number of beneficiaries will be 560 households.

**Rehabilitation & maintenance of existing non-functional irrigation schemes**

A set of small-scale Irrigation projects in the 9 MASReP focus woredas which are either totally or partially damaged are categorized under rehabilitation & maintenance of existing non-functional irrigation schemes. The damage are either on the head work, mostly on diversion weirs or on retaining walls and canal infrastructure. The planned maintenance and rehabilitation works will enable the project to reach more beneficiaries with relatively less cost. In addition to maintaining the irrigation infrastructure, construction of soil and water conservation structures like, cut-off drains, soil bunds, check dams, trenches etc. is planned to ensure the longevity of the schemes.

**Expansion of existing irrigation schemes**

A set of existing small-scale irrigation schemes which are part of the irrigation systems already covered in the project in the 9 MASReP focus woredas are planned under expansion of existing irrigation schemes. There are two ways to expand the irrigation schemes. The first one is simply to extend the main canal and construct additional secondary and field canals so that more new areas will be part of the scheme. The second way for irrigation schemes expansion is to raise the weir height. By doing so it will be possible to increase the potential head of the weir and command more irrigation areas. In such cases the main canal and construct secondary and field canals are extended for the expansion areas. In close co-ordination with the watershed development activities bring undertaken in the woredas by the government, construction of soil and water conservation structures like, cut-off drains, soil bunds, check dams, trenches etc. will be undertaken synchronized with the implementation and operationalization phase of the schemes.
CHAPTER IV: POLICIES AND LEGAL FRAMEWORKS RELEVANT TO THE ESMF

The available national and international policy and legal frameworks on Social and Environment, as well as cross cutting issues are discussed below and all of the stakeholders who have a stake in the implementation of the SD need to comply with the laws and policies.

Legal Frameworks


The Federal Democratic Republic of Ethiopia constitution which was issued in 1995 has several provisions to avoid, mitigate or compensate the adverse effects of development actions. The most important articles are:

Article 40: The Right to Property

Some of the provisions are

- Every Ethiopian citizen has the right to the ownership of private property. Unless prescribed otherwise by law on account of public interest, this right shall include the right to acquire, to use and, in a manner compatible with the rights of other citizens, to dispose of such property by sale or bequest or to transfer it otherwise.

- The right to ownership of rural and urban land, as well as of all natural resources, is exclusively vested in the State and in the peoples of Ethiopia. Land is a common property of the Nations, Nationalities and Peoples of Ethiopia and shall not be subject to sale or to other means of exchange.

- Without prejudice to the right of Ethiopian Nations, Nationalities, and Peoples to the ownership of land, government shall ensure the right of private investors to the use of land on the basis of payment arrangements established by law. Particulars shall be determined by law.

- Every Ethiopian shall have the full right to the immovable property he builds and to the permanent improvements he brings about on the land by his labor or capital. This right shall include the right to alienate, to bequeath, and, where the right of use expires, to remove his
property, transfer his title, or claim compensation for it. Particulars shall be determined by law.

- Without prejudice to the right to private property, the government may expropriate private property for public purposes subject to payment in advance of compensation commensurate to the value of the property.

**Article 43: The Right to Development**

Some of the provisions are

- The Peoples of Ethiopia as a whole, and each Nation, Nationality and People in Ethiopia in particular have the right to improved living standards and to sustainable development.
- Nationals have the right to participate in national development and, in particular, to be consulted with respect to policies and projects affecting their community.
- All international agreements and relations concluded, established or conducted by the State shall protect and ensure Ethiopia’s right to sustainable development.
- The basic aim of development activities shall be to enhance the capacity of citizens for development and to meet their basic needs.

**Article 44: Environment Rights**

- All persons have the right to live in a clean and healthy environment.
- All persons who have been displaced or whose livelihoods have been adversely affected as a result of State programs have the right to commensurate monetary or alternative means of compensation, including relocation with adequate State assistance.

**Article 92: Environmental Objectives**

Some of the provisions are

- Government shall Endeavour to ensure that all Ethiopians live in a clean and healthy
• The design and implementation of programs and projects of development shall not damage or destroy the environment. People have the right to full consultation and to the Expression of views-in the planning and implementation of environmental policies and projects that affect them directly.
• Government and citizens shall have the duty to protect the environment.

Some of the articles in the constitution attributing to the subsequent laws on social development are:

**Article 14: Rights to life, the Security of Person and Liberty**

Every person has the inviolable and inalienable right to life the security of person and liberty.

**Article 15: Right to life**

Every person has the right to life. No person may be deprived of his life except as a punishment for a serious criminal offence determined by law.

**Article 35 Rights of Women**

1. Women shall, in the enjoyment of rights and protections provided for by this Constitution, have equal right with men.

2. Women have equal rights with men in marriage as prescribed by this Constitution.

3. The historical legacy of inequality and discrimination suffered by women in Ethiopia taken into account, women, in order to remedy this legacy, are entitled to affirmative measures. The purpose of such measures shall be to provide special attention to women so as to enable them to compete and participate on the basis of equality with men in political, social and economic life as well as in public and private institutions.

4. The State shall enforce the right of women to eliminate the influences of harmful customs. Laws, customs and practices that oppress or cause bodily or mental harm to women are prohibited.
5. (a) Women have the right to maternity leave with full pay. The duration of maternity leave shall be determined by law taking into account the nature of the work, the health of the mother and the well-being of the child and family.

(b) Maternity leave may, in accordance with the provisions of law, include prenatal leave with full pay.

6. Women have the right to full consultation in the formulation of national development policies, the designing and execution of projects, and particularly in the case of projects affecting the interests of women.

7. Women have the right to acquire, administer, control, use and transfer property. In particular, they have equal rights with men with respect to use, transfer, administration and control of land. They shall also enjoy equal treatment in the inheritance of property.

8. Women shall have a right to equality in employment, promotion, pay, and the transfer of pension entitlements.

9. To prevent harm arising from pregnancy and childbirth and in order to safeguard their health, women have the right of access to family planning education, information and capacity.

**Environmental policy of Ethiopia (1997)**

The environmental policy of Ethiopia was issued in 1997 and its overall policy goal is to improve and enhance the health and quality of life of all Ethiopians and to promote sustainable social and economic development through the sound management and use of natural, human-made and cultural resources and the environment as a whole so as to meet the needs of the present generation without compromising the ability of future generations to meet their own needs.

The policy documents emphasizes that environmental and social costs (or benefits foregone or lost) that may result through damage to resources or the environment as a result of degradation or pollution shall be incorporated into development programs and projects, and decisions shall be based on minimizing and covering these costs. The policies further revealed that all conservation, development and management project are to be subject to the environment impact assessment process. The policy had 10 sectoral and 10 cross sectoral policies.
These are:

- Soil Husbandry and Sustainable Agriculture
- Forest, Woodland and Tree Resources
- Genetic, Species and Ecosystem Biodiversity
- Water Resources
- Energy Resource
- Mineral Resources
- Human Settlement, Urban Environment and Environmental Health
- Control of Hazardous Materials and Pollution From Industrial Waste
- Atmospheric Pollution and Climate Change
- Cultural and Natural Heritage

**Ethiopia water Resource management Policy**

The policy is formulated and intended to promote integrated (appropriate) water resources management and optimal utilization of available water resources for sustainable socio-economic development.

As per the policy document, the lack of a comprehensive water resources management policy in Ethiopia have so far caused undesirable impacts like inefficient utilization of water resources and un sustainable water resources management strategy.

Hence, the basic objectives of this policy are:-
• Development of the water resources of the country for economic and social benefits of the people, on equitable and sustainable basis.
• Allocation and apportionment of water based on comprehensive and integrated plans and optimum allocation principles that incorporate efficiency of use, equity of access, and sustainability of the resource.
• Managing and combating drought as well as other associated slow on-set disasters through, interalia, efficient allocation, redistribution, transfer, storage and efficient use of water resources.
• Combating and regulating floods through sustainable mitigation, prevention, rehabilitation and other practical measures.
• Conserving, protecting and enhancing water resources and the overall aquatic environment on sustainable basis.

The country’s water resource management policy also highlights the following fundamental principles:

a. Water is a natural endowment commonly owned by all the peoples of Ethiopia.

b. As far as conditions permit, every Ethiopian shall have access to sufficient water of acceptable quality, to satisfy basic human needs.

c. In order to significantly contribute to development, water shall be recognized both as an economic and a social good.

d. Integrated framework of water resources development as a rural-centered, decentralized management and the participatory approach shall underpin.

e. Management of water resources shall ensure social equity, economic efficiency, system reliability and sustainability norms.

f. Promotion of the participation of all stakeholders, particularly women and user communities in the relevant aspects of water resources management.

Ethiopia Health Policy

The country has experienced severe manmade and natural calamities which have caused untold suffering to its peoples. Hence, in order to tackle the health related problems of the people the
government of Ethiopia formulated a health policy in 1993.

Among the priorities of health concern, the policy has given emphasis to:-

- The control of communicable diseases, epidemics and diseases related to malnutrition and poor living conditions,
- The promotion of occupational health and safety,
- The development of environmental health,
- The rehabilitation of the health infrastructure and
- The development of an appropriate health service management system.

Among the inter sectoral collaboration, the policy also has given attention particularly in developing safe disposal of human, household, agricultural and industrial wastes, encouragement of recycling and developing facilities for workers’ health and safety in production sectors.

**Cross-Sectorial Environmental Policies**

Population and the Environment

Community Participation and the Environment: This is directly related to the regular annual intervention of catchment development and protection of the environment contributing to the water recharging capacity, decrease soil erosion and increase soil fertility.

Tenure and Access Rights to Land and Natural Resources

Land Use Plan

Social and Gender Issues

Environmental Economics

Environmental Information System

Environmental Research

Environmental Impact Assessment (EIA)

Environmental Education and Awareness

This environmental Policy of Ethiopia has been revised on 2016 to adequately include the Ethiopia’s Climate Resilient Green Economy Strategy (CRGE).
Environmental Impact Assessment proclamation (proc. No 299/2002)

As per the Ethiopian Environmental Impact Assessment Proclamation, environmental impact assessment is conducted to predict and manage the environmental effects which a proposed development activity as a result of its design sitting, construction, operation, or an ongoing one as a result of its modification or termination, entails and thus helps to bring about intended development. Assessment of possible impacts on the environment prior to the approval of a public instrument provides an effective means of harmonizing and integrating environmental, economic, cultural and social considerations into a decision-making process in a manner that promotes sustainable development. Furthermore, the proclamation explained that implementation of the environmental rights and objectives enshrined in the Constitution would be fostered by the prediction and management of likely adverse environmental impacts, and the maximization of their socioeconomic benefits and EIA also serves to bring about administrative transparency and accountability, as well as to involve the public and, in particular, communities in the planning of and decision taking on developments which may affect them and its environment.

The Environmental Impact Assessment Proclamation has the following important provisions:

- Without authorization from the Authority or from the relevant regional environmental agency, no person shall commence implementation of any project that requires environmental impact assessment as determined in a directive issued pursuant to Article 5 of the Proclamation.
- Without prejudice to Sub Article (1) of this Article, when the Authority or the relevant regional environmental agency believes that the possible impacts of the project are insignificant, it may decide not to require the concerned proponent to conduct an environmental impact assessment.
- Any licensing agency shall, prior to issuing an investment permit or a trade or an operating license for any project, ensure that the Authority or the relevant regional environmental agency has authorized its implementation.
- Approval of an environmental impact study report or the granting of authorization by the authority or the relevant regional environmental agency does not exonerate the proponent from liability for damage.
• The impact of a project shall be assessed on the basis of the size, location, nature, cumulative effect with other concurrent impacts or phenomena, transregional effect, duration, reversibility or irreversibility or other related effects of the project.

• The Authority or the relevant regional environmental agency shall err on the side of caution while determining the negative impact of a project having both beneficial and detrimental effects, but which, on balance, is only slightly or arguably beneficial and thus determine that it is likely to entail a negative significant impact.

Furthermore, the proclamation has a provision on Projects Requiring Environmental Impact Assessment and it is indicated that a directive that will determine categories of projects will be issued. Accordingly, the then Federal Environmental Protection Authority (FEPA) has issued draft EIA directive which lists 22 projects that should be subjected to EIA.

Environmental pollution control proclamation (proc. No 300/2002)

This proclamation was issued because some social and economic development endeavors may inflict environmental harm that could make the endeavors counter-productive and also the protection of the environment, in general, and the safeguarding of human health and wellbeing, as well as the maintaining of the biota and the aesthetic value of nature, in particular, are the duty and responsibility of all. The proclamation is aimed at eliminating or, when not possible, to mitigate pollution as an undesirable consequence or social and economic development activities.

The proclamation has important provisions on control of pollution, management of municipal and hazardous waste, chemical and radioactive substances, the importance and need to respect environmental standards and punitive and incentive measures etc.

Provisional Standards for Industrial Pollution Control in Ethiopia

The provisional standards for industrial pollution control prevent which is prepared by previously named Environmental Protection Authority (EPA) in collaboration with United Nations Industrial Development Organization (UNIDO) and issued in August 2003, Addis Ababa. It provides standard for emissions to air, water and soil from different sources.
Solid waste management Proclamation (Proc No. 513/ 2007)

This proclamation was issued to ensure community participation to prevent the adverse effects and to enhance the benefits resulting from solid waste and also solid waste management plans designed and implemented at the lowest administrative units of urban administrations can ensure community participation. The proclamation has a number of provisions on the obligation of urban administrations, solid waste management planning, inter-regional movement of solid wastes and also a provision on specific solid wastes such as glass containers, tin cans, plastic bag, used tyre, food related solid wastes, management of households solid wastes, construction debris and demolition wastes. Other important provisions available in the solid waste management proclamation are; transportation of solid wastes, construction of solid waste disposal sites and auditing of existing solid waste disposal sites.

Besides, there are a number of guidelines, regulation and strategies on solid and liquid waste management.

Climate Resilient Green Economy Strategy (2011)

Ethiopia has designed its Climate Resilient Green Economy (CRGE) strategy on 2011. The strategy’s vision is to become Middle Income Country in Climate Resilient Green Economy Approach and has triple objective: Economic Development, Reduction of greenhouse gases and resilience building. Ethiopia was the first African country to develop green economy strategy and it was officially launched during the 17th session of Conference of Parties to the UNFCCC (CoP 17) which was held in Durban, South Africa. Any development activities in Ethiopia should align to the strategy and should enhance the economic growth and resiliency and reduced emission of greenhouse gases. Climate Resilient Strategies for different sectors such as Agriculture and Forestry, Water and Energy, Health etc are also prepared.

Rural Development Policy And Strategies (2001)

Agriculture Development led Industrialization’s core principle is that increased agricultural productivity is the engine for both agricultural and industrial growth. That is, through the use of
Green Revolution technologies the low productivity of traditional Ethiopian farming systems would be substantially improved. The Strategy is made up of eight building blocks; namely: Technology generation and dissemination; Food security, including resettlement and water harvesting; Agricultural extension and vocational training; Agricultural marketing (of inputs and outputs); Rural finance; Development of cooperatives; Rural transport; and Rural land administration and management.

**Ethiopian Water Resources Management Policy (1999)**

The overall goal of the policy is to enhance and promote all national efforts towards the efficient, equitable and optimum utilization of the available water resources on sustainable basis. The policy aims to ensure access to water for everyone fairly and in a sustainable manner, protect water resources and sources, and promote cooperation for the management of river basins.

**Article 2.2 POLICY ON CROSS-CUTTING ISSUES**

- Recognize that the basic minimum requirement, as tl reserve (basic human and livestock needs, as well environment reserve) has the highest priority in any wat allocation plan.

**Environment, Watershed Management, Water Resource Protection and Conservation**

- Ensure that water allocation gives highest priority to wat supply and sanitation while apportioning the rest for and users that result in highest socioeconomic benefits.

- Enhance and encourage water allocation that is based efficient use of water resources that harmonizes great economic and social benefits.

**A. Environment:** Encourage that Environment Impact Assessment and protection requirements serve as part of the major criteria in all water resources projects.

**Conservation Strategy of Ethiopia**

Countrywide study of the existing natural resource base and environmental conservation and
protection strategies have been conducted in the early 1990's and conservation strategy of Ethiopia (CSE) has been approved. The CSE emphasizes the importance of incorporating environmental issues in to development activities right at the initial stage of development.

**Biodiversity Policy**

The biodiversity policy, which was approved in 1998, provides guidance towards the effective conservation, rational development and sustainable utilization of the country’s biodiversity. In general, the policy consists of comprehensive policy provisions on the conservation and sustainable utilization of biodiversity.

**Expropriation of Land Holdings for Public Purposes and payment of Compensation and Resettlement (Proclamation No. 1161/2019)**

There have been continuous complaints for compensations effected based on previous proclamation (Proc No. 455/1997 and 2005). This is mainly because of the continuous increase in the value of land, continuous inflations, and living standard. Therefore, the government was forced to revise the proclamation in compensation and comes up with relatively good articles (provisions) that favor PAPs. This proclamation has more or less good provisions on the valuation of land and assets and others. Any compensation and resettlement related issues for the SD will be effected based on this proclamation.

**FDRE Council of Ministers Regulation (regulation 135/2007)**

The regulation is on the payment of compensation for property situated on land holdings expropriated for public purposes and to assist the affected persons to restore their livelihood. The regulation sets the methods for the assessment of compensation, provision of land for land replacement and payment for the different types of assets.

**International and Multilateral Environment, Social and Climate change Agreements**

Since the Stockholm convention (1972), the international community has put maximum effort on the conservation of natural resources as well as reducing the occurrence and impacts of climate change. To this end, a number of conventions, agreements, protocols have so far been issued and
Ethiopia has showed its commitment by ratifying these agreements. The most important international agreements and ratified by the country include: the United Nations Convention on Biological Diversity (CBD), the United Nations Convention to Combat Desertification (CCD), the Vienna Convention for the Protection of the Ozone Layer, Framework Convention on Climate Change (FCCC), the Basel Convention, the Stockholm Convention, the Rotterdam Convention. Besides, Ethiopia has ratified the United Nations Convention on the Elimination of Discrimination against Women (CEDAW) and United Nations Convention on the Rights of the Child (UNCRC):

**African Development Bank’s Integrated Safeguards System Policy Statement and Operational Safeguards (2012)**

The environmental and social safeguards of the African Development Bank (AfDB, or the Bank) are a cornerstone of the Bank’s support for inclusive economic growth and environmental sustainability in Africa. As the Bank adapts to emerging environmental and social development challenges, safeguards can quickly become out of date, thus require periodic updating.

While improving clarity, coherence and consistency, the Bank has developed an Integrated Safeguards System (ISS). The ISS builds on the two previous safeguard policies—Involuntary Resettlement (2003) and Environment (2004) and on three cross-cutting policies and strategies: Gender (2001), the Climate Risk Management and Adaptation Strategy (2009) and the Civil Society Engagement Framework (2012). It also builds on the Bank’s sectoral policies, including Integrated Water Resources Management (2000); Health (1996); Agriculture and Rural Development (2000, 2010); and Poverty Reduction (2004). It brings these policies and strategies into a consolidated framework that enhances effectiveness and relevance. In doing so, the Integrated Safeguard System seeks to:

- Better align safeguards with the Bank’s new policies and strategies, including the Bank’s new Long-Term Strategy (2013-2022);
- Adopt best international practice, including on climate change;
- Adapt policies to an evolving range of lending products and innovative financing modalities;
- Work toward greater harmonization of safeguard practices across multilateral finance institutions;
- Tailor safeguard approaches to different clients with varying capacities; and
- Improve internal processes and resource allocation.

The Integrated Safeguard System consists of four interrelated components:

1. The Integrated Safeguard Policy Statement, which describes common objectives of the Bank’s safeguards, lays out policy principles, and outlines the delivery process for the safeguard policy. It is designed to be applied to current and future lending modalities and caters to the various capacities and needs of regional member countries in both the public and private sectors.

2. Operational Safeguards, which is a set of five safeguard requirements that Bank clients are expected to meet when addressing social and environmental impacts and risks. Through their due diligence, review and supervision, Bank staff will ensure that clients comply with these requirements during project preparation and implementation. Over time the Bank may adopt additional safeguard requirements or update existing requirements to enhance effectiveness, respond to changing needs, and reflect evolving best practices.

3. Environmental and Social Assessment Procedures (ESAP), which provide guidance on the specific procedures that the Bank and its borrowers or clients should follow to ensure that Bank operations meet the requirements of the OSs at each stage of the Bank’s project cycle.

4. Integrated Environmental and Social Impact Assessment (IESIA), which provides technical guidance to the Bank’s borrowers or clients on standards on sectoral issues, such as Roads and Railways, Hydropower or Fisheries, or on methodological approaches clients or borrowers are expected to adopt in order to meet operational safeguards standards.

**The Integrated Safeguards System of the African Development Bank**

Environmental and social sustainability is a key to economic growth and poverty reduction in Africa. The Bank’s Strategy for 2013-2022 emphasizes the need to assist regional member countries in their efforts to achieve inclusive growth and transition to green growth. In addition, the Bank is committed to ensure the social and environmental sustainability of the projects. The ISS is designed to promote the sustainability of project outcomes by protecting the environment and people from potentially adverse impacts of projects.
The safeguards aim to:

- Avoid adverse impacts of projects on the environment and affected people, while maximizing potential development benefits to the extent possible;
- Minimize, mitigate, and/or compensate for adverse impacts on the environment and affected people when avoidance is not possible; and
- Help borrowers/clients to strengthen their safeguard systems and develop the capacity to manage, environmental and social risks, requires that borrowers/clients comply with these safeguards requirements during project preparation and implementation. To this end, the Bank has adopted five Operational Safeguards (OS), guided by the need to limit their number to just what is required to achieve the goals and optimal functioning of the ISS:

  ▪ Operational Safeguard 1: Environmental and social assessment. This overarching safeguard governs the process of determining a project’s environmental and social category and the resulting Environmental and Social Assessment requirements.
  ▪ Operational Safeguard 2: Involuntary resettlement: land acquisition, population displacement and compensation. This safeguard consolidates the policy commitments and requirements set out in the Bank’s policy on involuntary resettlement, and incorporates a number of refinements designed to improve their operational effectiveness.
  ▪ Operational Safeguard 3: Biodiversity and ecosystem services. This safeguard aims to preserve biological diversity and promote the sustainable use of natural resources. It also translates the policy commitments in the Bank’s policy on integrated water resources management into operational requirements.
  ▪ Operational Safeguard 4: Pollution prevention and control, greenhouse gases, hazardous materials and resource efficiency. This safeguard covers the range of key impacts of pollution, waste, and hazardous materials for which there are agreed international conventions, as well as comprehensive industry-specific and regional standards that are followed by other multilateral development banks, including greenhouse gas accounting.
  ▪ Operational Safeguard 5: Labour conditions, health and safety. This safeguard establishes the Bank’s requirements for its borrowers or clients concerning workers’ conditions,
rights and protection from abuse or exploitation. It also ensures greater harmonization with most other multilateral development banks.

Generally, the available policies and laws on Environment, Social development and cross cutting issues have been dully reviewed. Therefore, the planning, implementation (operation) and Monitoring and Evaluation of components of the SD should abide these policies and laws and the responsible competency agencies (Federal to Woreda) should ensure its compliance.

CHAPTER V: ENVIRONMENTAL AND SOCIAL IMPACT BASELINE CONDITIONS

Tekeze River Basin Physical Environment

The Tekeze River commences from the highlands in the south and drains central, southern and a large portion of the western Tigray westward to the Nile. The length of the Tekeze River from its source down to the Sudanese border is more than 600 km. The basin has an average elevation of 1,850 meters above sea level and a catchment area of about 68,000 square kilometers. About 70 percent of the basin lies in the highlands at an altitude of over 1,500 meters above sea level. The upper reaches of the Tekeze are surrounded by mountain ranges, the elevation of which is over 2,000 meters above sea level, attaining a maximum altitude (4,620 meters above sea level) at the mountain of Ancua, part of the Ras Dashan system. The area of land above 2,000 meters elevation covers almost 40 percent of the total basin area.

The lowlands are found in a strip of land of about 150 kilometers long and 30 to 100 kilometers wide along the Sudanese border where the elevation varies between 500 and 1,000 meters above sea level. In the western section, the topography is almost flat or slightly undulating, becoming more and more undulating to the east. The lowland region of the river basin includes about 5,000 square kilometres of almost flatlands, of which 3,500 square kilometers to the north of the Tekeze River forms the wide plain from Guluj to Omhager, which is located in Eritrea. The remaining 1,500 square kilometers is located to the south of the river in Ethiopia. The Tekeze River Basin has 3 micro-dams with a total catchment of approximately 15 square kilometers and a command area of approximately 1 square kilometer.
The topography of the area is not uniform and consists of mountains, highlands and often rugged terrains. The highlands are extended down from the bottom of the mountains to the valley where they are terminated as lowlands having gentle slopes. The Tekeze River Basin is highly affected by severe land degradation, deforestation and low soil fertility due to erosion.

The inhabitants of the Tekeze River Basin are entirely dependent on rain-fed agriculture although animal husbandry also plays a major role. The main agricultural crops are cereals (barley, wheat, teff, sorghum, maize and finger millet), legumes (beans, peas and chickpeas), oil seeds (sesame and sunflower) and very limited vegetables (cabbage and lettuce) and fruits (papaya, avocado and banana) grown in some irrigable land. Crop productivity and production is low due to the low and intermittent rainfall. Irrigation practice is very limited due to scarcity of water and the limited capacity to lift water from deep and gorgy streams and rivers. Terracing is common to control run-off and erosion.

There are an estimated 3.7 million grazing and browsing animals comprising cattle, goats (Abergellie species), sheep and poultry. The food sources obtained from the livestock are milk and milk products from cattle and goat, meat and eggs. However, the livestock products are mostly supplied to the market rather than for consumption. The major challenges faced in the agriculture sector are lack of rainfall and drought, land degradation, soil infertility, pest infestation on crops, poor crop yield, lack of market access for livestock production and community displacement in some kebeles.

**Integrated Watershed Management in Tigray and Amhara Regional States**

Agriculture is the main sector of the Ethiopian economy and contributes approximately 42% to the gross domestic product (GDP) and employs over 80% of the population (MoFED 2010; ATA 2013). Despite its role, agricultural production is constrained by high climate variability where rainfall distribution is extremely uneven both spatially and temporally, and this has negative implications for the livelihoods of people. Drought frequently results in crop failure, while high rainfall intensities result in low infiltration and high runoff causing enhanced soil erosion and land degradation. Land degradation in the form of soil erosion and declining land fertility is a serious challenge to agricultural productivity and economic growth. Ethiopian Highlands including the Tekeze River Basin have experienced high rates of soil erosion and deforestation,
resulting in sediment accumulation in downstream reservoirs and rivers. High population and livestock density, along with rugged topography and erratic rainfall, exacerbate land degradation. In general, watershed degradation resulted in long-term reduction in the quantity and quality of water and land resources, which negatively impact on the livelihoods of the rural poor who rely on these resources for their subsistence and livelihoods.

Integrated Watershed Management (IWM) is an approach that uses collective action by a group of people reliant on a watershed area to proactively manage the resources and natural community assets within the area. This includes actions to carefully manage the surface water (rivers, streams, lakes and ponds) and groundwater (shallow and deep wells) within the watershed, as well as mutual agreements on resource use, including the use of surrounding land for agriculture and livestock grazing. IWM aims to ensure provision of goods and services from a watershed in ways that contribute to the conservation of soil, water and other natural resources. The approach combines long-term natural resource conservation initiatives and short-term livelihood activities to help communities meet their needs. The key to successful IWM interventions is community members feel ownership over the process and responsibility to abide to the agreements. Technical expertise on how to practically manage the watershed responsibly is also vital.

In Ethiopia, watershed management programs started in the 1970s and from that time up to the late 1990s, implementation was typically a government-led, top-down, incentive based (food-for-work) approach that prioritized engineering measures. During this phase, the programs focused primarily on reducing soil erosion. In the early 2000s, community-based integrated watershed development was introduced to promote watershed management as a means to achieve broader integrated natural resource management and livelihood improvement objectives within prevailing agro-ecological and socioeconomic environments. During this period the basic approach has shifted from top-down infrastructure solutions to community-based approaches. There is now a supportive policy and legal framework in the form of policies that facilitate decentralized and participatory development, institutional arrangements that allow and encourage public agencies at all levels to work together, and an approach to natural resources that reflects local legislation and tenure practices.

Integrated watershed management started in Tigray and Amhara regions including the Tekeze River Basin where the Seqota Declaration woredas are located in the same period. Review of the water shade programs to understand the extent to which the interventions have supported the community and environment showed an improved productivity, and environmental and
Smallholder livelihood outcomes. Watershed management work in these areas had a positive impact on natural resource conservation, crop-livestock production and productivity, socioeconomic conditions and livelihoods. Study reports indicated that watershed management has improved farm incomes and food security by an average of 50% and 56%, respectively. Also, in some watersheds, the risk of crop failure due to moisture stress and climate shocks has reduced by up to 30%. However, the nature and scale of the impact varies significantly across the various woredas in Tekeze River Basin where the Seqota Declaration woreda are located. Vegetation restoration and land cover has improved by an average of 40% in the three poorly performing (less successful) watersheds, and by about 85% in the three other well-performing (successful) watersheds.

Factors that contribute to the success of watershed management are multidimensional, including biophysical, institutional and socioeconomic elements, and watersheds with permeable lithology (e.g., sandstone or alluvial deposits) and a concave shape show good upstream-downstream hydrological linkages, while the opposite is true in areas dominated by limestone lithology. Other factors that were found to significantly influence the ‘success’ of watershed management include the presence of supporting institutional structures and the extent of community participation.

The participatory, integrated watershed management approach emphasizes improving the productivity of water and land resources in an ecologically and institutionally sustainable way. Hence, watershed management has become a central point of the rural development and poverty alleviation agenda.

According to the participatory watershed management guidelines, the objective of watershed management is to improve the livelihoods of rural communities and households through (i) SWC for productive uses; (ii) rainwater harvesting for improved groundwater recharge; (iii) promoting sustainable farming systems and agricultural productivity adopting suitable soil, water, nutrient and crop management practices; (iv) rehabilitating and reclaiming marginal lands through appropriate conservation measures, such as planting of trees, shrubs and grasses depending on existing potential; and (v) enhancing the income of smallholders by diversifying agricultural practices and income-generating activities (IGAs). In general, watershed management creates opportunities for reclaiming degraded land, improving soil fertility, water resources development, increasing agricultural production, off-farm activities, diversifying income sources
and providing access to markets, where the benefits are realized at household and community level.

**Regional Experiences in Watershed Management**

Watershed management has evolved from the incentive-based, FFW program in the 1970s to an integrated watershed management approach creating multidimensional opportunities. Benefits are realized at household and community level, but they are likely to differ across watersheds because outcomes usually depend on specific biophysical, institutional and socioeconomic factors... Comparing the two watersheds (successful and less successful) in each region, improvement in on- and off-site benefits is higher in Abraha-Atsbaha, and Goho-Cheri watersheds in Tigray and Amhara regions, respectively. Hence, improvement in off-site benefits, including increased water availability, reduced downstream flooding and siltation, reduced water pollution and increased irrigation, is more visible in the relatively successful watersheds. Socioeconomic benefits, such as diversified income sources, increased recreational opportunities, strengthening of community institutions, better conflict mitigation capacity and improved food security status, emerge due to the successful watershed management interventions.

In Tigray such as Abraha-Atsbaha watershed, SWC activities on upland slopes had a very rapid (less than 3 years) and positive effect on groundwater recharge. Such positive and rapid response is probably a key factor in spurring the community and its leadership to undertake further measures. Institutional Linkages Hydrological relationships across a watershed can influence a large number of stakeholders due to the use and management of resources. Moreover, hydrological relationships within a watershed often go beyond administration boundaries, and ownership rights with limited regulation and institutions governing the rights and duties of different stakeholders. The linkages are weakened, especially when the downstream impacts are outside the target watershed. In the case of Amhara region such as Goho-Cheri watershed, for example, members of the community have concerns that their investments in watershed management in the upstream area have resulted in the formation of swampy areas and perennial rivers in the valley bottom of the adjacent Afar region, while the downstream community has not contributed to the upstream watershed management efforts. This shows that managing watershed
externalities within and outside the watershed requires cooperation among various stakeholders. It also requires the establishment of institutions and bylaws that can address the benefit and cost sharing systems. Soil Erosion Control, and On- and Off-site Impacts As a result of SWC, gully reclamation, area enclosures and reforestation activities undertaken through the watershed management program, an improvement in soil depth has been observed in most of the sample watersheds. The most common land management technologies that have been practiced in the watersheds include soil and stone bunds, hillside terraces, deep trenches, check dams, diversion ditches and sediment storage dams. On the hillside landscapes, there were efforts to stabilize the conservation structures through tree planting, which also resulted in economic and ecological benefits.

On cultivated areas, on the other hand, grasses and legume plants are widely used to stabilize and reinforce SWC structures. Soil fertility improvement measures, such as the use of compost and nutrient-fixing plants, are mostly used on cultivated lands. Key community informants from Goho-Cheri, Abraha-Atsbaha and Gerebshelela perceived that watershed management in their communities has contributed to a reduction in soil erosion by 60%, 75%, 90%, 35%, respectively. Impact on Vegetation and Biodiversity Prior to the implementation of watershed management, vegetation cover was in an extremely poor condition due to the combined effects of population and livestock pressure which led to land degradation. Population increases led to increasing land fragmentation through small landholdings, which forced farmers to cultivate on steep slopes. As a result, land degradation and soil erosion were aggravated. Following the practice of watershed management, however, improved vegetation cover was noted in all sample watersheds (Figure 3). The number of vegetation species in each watershed varies between three and five. Based on the responses from the key informants, for example, change in the area with vegetation cover varies between 40% and 85%, with the highest change in the Abraha-Atsbaha watershed. In addition to vegetation cover and environmental rehabilitation, watersheds contribute to providing improved access to firewood and biomass. Improved fodder production is one of the main benefits obtained from watershed management, even in the less successful watersheds.
From the past so many years experiences in Water Shed Management in Amhara and Tigray including the Tekeze River Basin the following impacts has been demonstrated through the joint effort between the community, government and development partners.

**Impact of Watershed Management**

**Gully Rehabilitation and Land Productivity**

Gully formation and expansion is one of the major problems in degraded watersheds that reduce the cultivable area and grazing lands. On the other hand, gullies facilitate surface runoff from upstream degraded landscapes carrying a large amount of sediment and posing a problem of siltation in downstream dams, rivers and cultivated or grazing lands. For example, prior to watershed management being practiced in Abraha-Atsbaha, sand sediment from surrounding degraded hillsides was normally deposited on downstream grazing lands and croplands, and was a source of pollution leading to poor soil fertility. Results from this field study showed that, due to watershed management activities, previously degraded areas and gullies have been rehabilitated and reclaimed, allowing farmers to grow fruits, forages, trees and vegetables. Since gullies are usually associated with excess runoff and loss of vegetative cover, gully rehabilitation typically consists of slope stabilization, improvement of gulley catchments to reduce and regulate runoff rates (peak flows), diversion of surface water above the gully area, and stabilization of gullies by structural measures and accompanying revegetation. In particular, at Goho-Cheri watershed, expansion of the cultivated area and the development of springs have resulted from the wide implementation of gully rehabilitation measures.

**Surface and Subsurface Water Availability**

Anecdotal and photographic evidence suggests that watershed development activities generate significant outcomes in surface and subsurface water resources. The reemergence of dried springs and increasing river flows during dry periods are some of the observed impacts. Gully rehabilitation measures at Goho-Cheri watershed. Impacts Degraded land area transformed into
productive cultivable land Cultivation of fruits, forages, trees and vegetables Improved access to food Enhanced spring and groundwater recharge

In the well-managed and successful watersheds, such as Abraha-Atsbaha, Goho- there has been an increase in groundwater recharge and a significant decrease in surface runoff. The rise in the groundwater table is relatively high in Abraha-Atsbaha watersheds, probably attributed to their geology, texture and landscape characteristics. For example, in Abraha-Atsbaha watershed, groundwater can be found at depths of less than 5 m, as compared to depths of more than 50 m prior to watershed management interventions. The impact is more visible on groundwater recharge than surface runoff.

**Crop and Livestock Production and Productivity**

Watershed management activities are supplemented with water harvesting technologies and the construction of shallow wells for agricultural production. Over time, the increased availability of water for supplementary or full-scale irrigation, coupled with improved agronomic practices, has resulted in increased land and crop productivity. Since the implementation of watershed management, a 200-300% increase in crop productivity has been observed in Abraha-Atsbaha, watershed. Since the introduction of watershed management, however, crop diversification has taken place both on irrigated and rainfed farms, because farmers have started to produce high-value irrigated crops and fruits for the market.

**Improving income and asset creation**

In Abraha-Atsbaha, the youth and landless community members were grouped together to use the community watershed for apiculture farming. Increased demand for labor, as a result of increased irrigation and cropping intensity, created employment opportunities. Due to improved income, a considerable change was observed in the livelihoods and asset ownership of farm households. Moreover, successful watershed management triggered farm household investment and technology adoption. Evidence from Abraha-Atsbaha showed that over 600 households have invested in shallow or hand-dug wells, where 340 and 500 households have adopted motorized
and treadle pumps, respectively. Similarly, rainwater harvesting technologies, such as geomembranes used for the lining of ponds and water storage systems, have been widely adopted by smallholder farmers in Goho-Cheri watershed.

Project Alternatives

During Environmental Impact Assessment, it is crucial that assessing feasible alternatives for the project so as to bring sustainable development in the area. Therefore, prior to deciding the proposed sub-projects design and implementation of the project in general, a number of project options were examined to select the feasible alternatives considering biophysical, social, economical and technical factors. The alternatives considered were:

a. **No project alternative:** This is the “No action or do nothing option” which hinders the implementation of the irrigation sub-projects in the area using Andnet River. This option limits or excludes the benefits of the local community that will be gained from modern irrigation system. If the irrigation project cannot be implemented, the main benefits like increasing agricultural products and income of the people from the project will be lost. Besides it contradicts with the interest of the people towards the project as well as socio-economic development need in general using the available water resources. Depending on the existing unreliable rainfall can’t fasten the agricultural mode of production. As a result, this option was not found to be feasible.

b. **Project site and design structure alternative:** A number of alternative designs and layouts have been considered in the design process. The project site alternatives and structural designs along the course of Andnet River were analyzed based on topography, hydrology, and geology situation, biological and socioeconomic parameters. Recognizing these parameters, the better achievement of the irrigation scheme can be limited by the selection of appropriate head work site. Hence, the proposed irrigation scheme site was selected at easting 504283.333 and Northing 1399737.186 UTM at an altitude of 1943m above sea level. This site was preferred due to its cost effectiveness (low construction cost), geological stability (having substratum foundation), ideal to irrigate large command area that can benefit most of the people and low adverse impacts on bio-physical and socioeconomic environments. Similarly, the proposed irrigation canal routes, and structural designs were
selected based on their low adverse environmental effects, wider socio-economic benefits and suitable topography to allow the irrigable water easily as required.

c. **Construct a dam:** This is the proposed project, which is the construction of an earth fill dam across Andnet River at a specific location of Lamua Gote. This option was considered the best option because it shall guarantee sustainable water supply to the proposed large command area that would benefit the communities, and provide other opportunities like increase in fisheries resources development, provision of recreational site, and potential for improvement of biodiversity conservation.

d.c. **Time schedule alternative:** The time table for the construction of irrigation infrastructures should be set and arranged during dry seasons and agricultural off seasons. This respectively helps for avoiding the risk/damage of construction works because of heavy rain (flooding), and to participate (getting) the local community easily as possible in the construction activities of the project.

ed. **Resource alternative:** Most of the essential raw materials required for the construction of irrigation structures can be obtained from the project surrounding areas. These raw materials include fine and course aggregates, cement, water and selective materials. Here, extreme usage of construction materials from a single source should be avoided so as to minimize or avoid the incidence of impacts on the existing environment.

Generally, all the above mentioned alternatives were analyzed based on technical feasibility, economic viability and environmental acceptability. Then, the “No Action” alternative has not been accepted while the project implementation option is selected because of the numerous project advantages of the sub-projects to the local community and the low negative impacts of the project on the social and biophysical environment.

**Religious /Cultural Properties**

According to site investigations there are no historical and cultural properties (heritage sites) around or in the project command area. Hence, the project implementation does not subject to impacts or risks on cultural assets and generally there has no any adverse effect (either direct or indirect impact) anticipated on such social issues regarding the implementation of the proposed project in the area.
Anticipated impacts and mitigation measures

Potential Positive Environmental Impacts of the Project

The water supply and irrigation projects have the following positive impacts on the beneficiaries and surrounding communities:

- **Increase agricultural production and productivity.** encourages agro-industry sectoral development, increase livelihood access, improve nutritional status of pregnant and lactating women, children < 5 and school girls, productivity of people will increase due to creation of healthy work force, customer satisfaction increased/continuity, quality, quantity

- **Improve access to infrastructure:** health and educational institutions will improve their quality of service delivery systems and reduce student’s absentee and girls dropouts, with water borne and water related diseases./maintain the quality of water, access, quantity and affordability, school enrollment of females and children enhanced due to the provision of water supply to schools and absence of long distance travel to fetch water and to water livestock.

- **Production and income for poverty reduction,** creation of a market for construction materials, employment opportunity both during construction and operation phases, capacity building and training in the town, and resulting enhancement of organizational, financial and technical capacities of town, the project will create temporary job opportunities for both skilled and unskilled workers of the local community.

- **Gender equality:** gain of time, especially for women and girls, that may be used for other, productive activities, and resulting gains in overall economic productivity, women’s work burden will be reduced as water will be provided to the local people and long distance travel for water collection will be avoided. In addition, abuse of women (rape) will also be reduced, waiting line for water collection shortened and time elapsed to fetch water reduced. it avoids long distance travel to fetch water so that the time can be used for other economic activities, water supply stimulates the development of other infrastructures/it has multiplier effect/.

- **Ground water recharge and access to water:** better comfort, better lifestyle and domestic hygiene, reduction in water-borne diseases such as dysentery, cholera and others, coverage of pure quality water increases in the project area, the burden on the health institutions will be
reduced greatly due to the reduction of patients.

- Developing climate resilient local economy:

  Potential Negative Impacts

Though the planned irrigation scheme has various benefits and very crucial for the transformation of socioeconomic, it will have potentially some adverse effects on biophysical and socio economic environment if not properly managed. The different impacts are likely to arise at different times during the project’s activity phases particularly during construction and operation phases. These potential negative impacts of the project are highlighted as follows:

The water supply projects would have the following adverse impacts during construction and operation phases:

- **Impact on water quantity**: Impact on water quality from human and animal wastes, agrochemicals, solid wastes, High way runoff, River water intrusion. Open defecation and livestock free grazing are common in the project area. Open disposal of solid wastes and discharge of liquid wastes is also common within the town.

- **Conflicts**: social conflict between the source (At the borehole site) Potential impact on physical cultural resources

- **Health impacts and accidents**: malaria infestation in the local area if there is formation of pond around the bore holes and reservoir, noise, Dust and vibration (during construction phase), solid wastes generation, occupational health and safety for workers and communities, local air pollution due to emission of exhausts from machinery and vehicles and drowning of children and/or animals if trenches are excavated in the rainy season

- **Impact on crops**: because excavation of trenches may interfere with cropping practices if carried out before crop harvesting.

- **Impact on soil**: soil erosion if trenches are excavated in the rainy season, soil contamination from fuel, lubricants and oil spills, soil layer disturbance and compaction due to the entrance of heavy machinery and trucks, disturbance to topsoil created by earthmoving works and heavy vehicle traffic at construction phase, limited loss of flora and fauna;
Impact on Power Supply: high power demand for pumping water.

Economic impact: community is going to be charged for water, loss of crops, fruit trees and Household Infrastructures, block of access and routes or disrupt normal operations in the general area, land requirement for the new reservoir, Booster station, generator and guard houses.

Mitigation Measures for the negative impacts of the water supply projects

Measures for water resources

- Ground water abstraction should not violate the natural rate of recharge; Abstraction of maximum amount of water equal to the sustainable yield (Water Utility Office, Woreda Office of Water, Mines and Energy).
- Water quality check-up before use and periodic water quality monitoring will be mandatory (TWRB, Water Utility Office and Woreda Office of Water, Mines and Energy)
- Fencing of the water sources and the reservoir to avoid entrance of children and animals (Water Utility Office and Woreda Office of Water, Mines and Energy).
- Fence and delineate the water sources and the reservoir. (Water Utility Office)
- Proper drainage around the bore holes and reservoir (Water Utility Office)
- Immediate maintenance of the water supply system if problems arise like cracks (Water Utility Office and Woreda Office of Water, Mines and Energy).

Measures on waste disposal:

- Selection of disposal site and incorporate vacuum track for sustainable waste disposal; Increasing public awareness about waste management should be done; Assigned qualified environmental health workers to enforce the sanitation regulations and strengthen urban health extension program for successful implementation of health extension packages
• Awareness creation on proper disposal of solid and liquid wastes and on the problems of open defecation (Woreda Health and Education sectors).
• Solid and liquid waste dumps near the sources and reservoir are not recommended as they are sources of pollution (Community, Municipality and Health Sector).

➢ Measures to protect or preserve trees

• Limit the number of trees felled because of the project to the minimum possible and replanting after pipe lying to compensate for the vegetation cleared and to make the project environmentally sound. In addition, they should be compensated if they are privately owned (Contractor, Water Utility Office, Municipality and Woreda Administration).
• as much as possible try to install/construct where trees are not found; otherwise apply minimum tree cutting and/or immediately replanting or have a plan to plant trees to substitute trees that were cut

➢ Measures to protect people health

• Distribution of bed nets, health education and proper medication of patients.
• Making the people and cattle around the borehole beneficiaries of the new project
• Immediate pipe lying after excavation and completion of pipe lying on time to reduce some temporary impacts like noise, dust, visual impacts, accidents of falling and drowning (Contractor).
• Safety equipment like helmets, safety shoes, hand gloves, ear protection, eye goggles and apron should be used during excavation and pipe lying activities to come up with some accidents. Fire extinguishers and first aid kits should also be in place Construction (Contractor).
• Excavation and pipe lying should be scheduled for dry seasons to avoid pond formation and run off so that drowning of children and animals and soil erosion by runoff as well as malaria infestation can be reduced (TWRB and Contractor)
• Limit working hours to the day time in order to reduce noise impacts. Because, people are more sensitive to noise in the night times (Contractor).
• Spraying water to reduce dust during construction (Contractor).
• Put appropriate signs of the excavated trenches to avoid accidents of falling.

• All workers to use appropriate PPE and be trained at project induction and fulfill Safety kits and emergency facilities in case of any accidents and also Good construction site "housekeeping" and management procedures (including site access Risk assessments and emergency response planning to consider impacts on local communities. Employment practices and working conditions should conform to the regional and national labor regulations. Rest and recreational facilities and time should be provided, and rules on alcohol and drugs defined and clearly communicated to workers. Clear and comprehensive health and safety reporting and grievance procedure system should be established, and be freely available to all of the workforce.

➢ Measures to protect food production and income

• Excavation and pipe lying should be carried out after crop harvesting not to interfere with cropping practices (Contractor).

• Water tariffs should be adjusted in a way that does not discourage water use and encourage over use or wastage/not too high and not too low/ (Water Utility Office).

• During construction, passage ways/ cross structures/ should be built free movement at appropriate locations. Timely refilling should be carried out soon after putting the pipes in the ground.

➢ Measures to improve energy use

• Efficient use of energy sources, renewable energy sources (TWRB and Water Utility Office or Woreda Office of Water, Mines and Energy).

➢ Measures to protect soil:

• Cut, store and restore topsoil and then Backfill; Keep topsoil surface soil (20cm) and reserved for reclaiming farm and grazing lands; Carry out the construction works in the dry season; Refill the excavated soil soon ;Make landscape/level all spoil disposal sites

• Rehabilitate the site up on departure (Contractor)
➢ **Measures to avoid conflict**

- Identify the appropriate amount of farmland in advance and provide a substitution land and/or compensation for the affected individual farmers before the commencement of any component of the project. If possible try to avoid in selecting farm lands to be the site of reservoirs; otherwise minimize the site for reservoirs based on the frequently applied standards i.e. may be $15m \times 200m = 300m^2$. Contractors should arrange with the farmers whose lands are intercepted by transmission line with regard to land occupancy for excavation work ahead of construction and allow farmers adequate time to harvest their crops before construction begins. i.e. scheduling construction soon after harvesting;

- ensure implementation of the other measures mentioned above to protect human health, economy and production.
### Sub-projects, Project Activities, Potential Impacts and Its Significance

#### Table 1 Construction Phase Impacts screening checklist

<table>
<thead>
<tr>
<th>No</th>
<th>Sub-projects</th>
<th>Sub-project activities</th>
<th>Potential Impacts</th>
<th>Significance*</th>
</tr>
</thead>
</table>
|    | Sirel-tsemera water supply projects | • Disturbance of a small amount of agricultural land and vegetations during laying of pipelines.  
• expansion of malaria COVID exposure of the drilling crew during operation  
• potential exposure to Communicable diseases including COVID-19  
• Improper disposal of construction wastes that could reduce the aesthetics of the area and may cause pollution. | • Awareness creation for water users regarding the prevention of Mosquito breeding  
• Avoid stagnation of the water in the water system, regular cleaning of drainage systems  
• Promote utilizing of mosquito net in the project area  
• proper planning of the construction activities such as making the construction work to begin in non-farming and non-harvesting season  
• Ensure STD/HIV/AIDS/ awareness and prevention program into training program for all construction workers and project beneficiaries.  
• promoting safe sex awareness and protection | ✓ |
for construction and in-flow workforces;
- promote STD/HIV/AIDS awareness and prevention system to local communities.
- Promote and create awareness on COVID-19 prevention for the labourers and ensure all protective measures such as keeping distance, wearing masks and having sanitizer are in place.
- ensure the site is restored to its former state

<table>
<thead>
<tr>
<th></th>
<th>Project Description</th>
<th>Environmental Impacts</th>
<th>Resolved</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Adiarkay water supply projects</td>
<td>Construction of site facilities or camps, pipes, reservoirs, water point, generator houses, temporary road/access Construction</td>
<td>Loss of trees; Block of access and routes or disrupt normal operations; Occupational Health and safety Risks.</td>
</tr>
<tr>
<td>3</td>
<td>Jandab water supply projects</td>
<td>Construction of site facilities or camps, pipes, reservoirs, water point, generator houses, temporary road/access Construction</td>
<td>Temporary or permanent loss of crops and fruit trees Poor construction arrangement practices that lead to adverse effects in safety, human health and wellbeing; Solid or Liquid Wastes generation; Occupational Health and safety Risks</td>
</tr>
<tr>
<td></td>
<td>Lalikw water supply projects</td>
<td>Construction of site facilities or camps, Collection chamber, service reservoir, water point, pipe installation and ditch excavation, tree and vegetation clearance</td>
<td>During the excavation of the pressure line and transportation material to site, it may be occurred dust on site of the project; Solid and liquid wastes; Safety and Occupational health problems</td>
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<td>5</td>
<td>Arbit water supply projects</td>
<td>Construction of site facilities or camps, Collection chamber, service reservoir, water point, pipe installation and ditch excavation, tree and vegetation clearance</td>
<td>During the excavation of the pressure line and transportation material to site, it may be occurred dust on site of the project; Safety and Occupational health problems; wastes</td>
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<td>6</td>
<td>Bursa water supply projects</td>
<td>Construction of site facilities or camps, Collection chamber, service reservoir, water point, pipe installation and ditch excavation, tree and vegetation</td>
<td>During the excavation of the pressure line and transportation material to site, it may be occurred dust on site of the project; Safety and Occupational health problems; Solid and liquid wastes</td>
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<tr>
<td>#</td>
<td>Project Name</td>
<td>Activities</td>
<td>Safety and Environmental Considerations</td>
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<td>7</td>
<td>Damot water supply projects</td>
<td>Construction of site facilities or camps, Collection chamber, service reservoir, water point, pipe installation and ditch excavation, tree and vegetation clearance</td>
<td>Block of access and routes or disrupt normal operations; Occupational Health and safety Risks; Excreta contamination; Solid Wastes generation</td>
</tr>
</tbody>
</table>
| 8 | Hamusit water supply projects | • Spoil and construction wastes  
• Occupational Health and safety Risks  
• Water user Conflicts  
• Block of access and routes or disrupt normal operations in the general area  
• Contamination and pollution Hazards  
• Acquisition of land (public or private, | • Cut, store and restore topsoil and then Backfill  
• Safety kits and emergency facilities in case of any accidents  
• All workers to use appropriate PPE and be trained at project induction.  
• Construct public fountains for the periphery liver communities  
• Timely backfill and labeling excavated  
• Apply fair water supply shifting program (if shortage)  
• 1st give for vulnerable groups that can’t afford to pay |
<p>| 9 | <strong>Nefasmewicha town water supply system</strong> | <strong>temporarily or permanently</strong> | <strong>area</strong> |
|   | • Permanent/temporarily loss of land | • Make structure to protect run off from town to well |
|   | • Solid and liquid waste generation | • Site selection for liquid waste disposal/treatment |
|   | • Occupational | • Facilitate the vacuum track supply chain from big cities trend |
|   | • Health and safety Risks | • Done compensation in cash or land for land replacement |
|   | • Block of access and routes or disrupt normal operations in the general area |   |
|   | • Run off, Contamination and pollution Hazards to Well | • Adequate land substitution or compensation as per latest compensation directives of Ethiopia |
|   |   | • Implement the Construction during dry season |
|   |   | • Cut, store and restore topsoil and then Backfill |
|   |   | • fulfill Safety kits and emergency facilities in case of any accidents |
|   |   | • All workers to use appropriate PPE and be trained at project induction as per Ethiopian labor proclamation No 337/2007 |</p>
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<tr>
<td>10</td>
<td>Fenerawa water supply projects</td>
<td>Construction of site facilities or camps, Collection chamber, service reservoir, water point, pipe installation and ditch excavation, tree and vegetation clearance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Noise, dust and vibration; Soil layer disturbance and compaction due to the entrance of heavy machinery and trucks; Soil erosion if trenches are excavated in the rainy season.; Some trees may also be cut during excavation of trenches for pipe laying.</td>
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<tr>
<td>11</td>
<td>Chelli water supply projects</td>
<td>Construction of site facilities or camps, Collection chamber, service reservoir, water point, pipe installation and ditch excavation, tree and vegetation clearance</td>
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<tr>
<td></td>
<td></td>
<td>Dust and noise pollution in construction Works; Waste disposal &amp; management generated from camp Sites; barrier/obstruction effects of new constructed canals; temporary loss of land in quarry areas due to poor mining of construction materials</td>
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</table>
| 12 | Diesa irrigation project | • Climate risks impacts  
• Communicable Disease Impacts  
• Land acquisition  
• Droughts impacts  
• Water shortage impacts  
• Agrochemicals use impacts  
• Wind erosion impacts  
• Water quality deterioration  
• Minimizing flow water  
• Conflicts on resource use  
• Inefficient irrigation water use impacts  
• Impacts of crop pests | • Ensure climate data reliability and linkages between regional climate changes and its impacts at local level,  
• Identify specific risks to the water resources sector that need be addressed and included in the project management  
• Improvements in water allocation aiming at sharing existing resources among users and uses in a way that is equitable and ensures maximum benefit for human, livestock including the environment;  
• Water augmentation or extension seeking to increase available supply of fresh water through active recharge or protection water recharge areas;  
• Water storage to sustain agricultural and other socio-economic activities even during dry seasons;  
• Planning early warning systems, disaster response procedures and alerting communities at risk, and |
• Proliferation of new plant species

• Implementation of disaster response technology to ensure that expected exposed communities, understand and follow evacuation or other procedures in the event of a natural disaster

• re-site and/or reroute water distribution pipelines, main pipe to water treatment plant, to storage tanks and any water supply components of the project; and/or

• compensate based on existing rules and regulations for affected parties, if any, if there is no option

• Ensure STD/HIV/AIDS awareness and prevention program into training program for all construction workers and project beneficiaries.

• promoting safe sex awareness and protection for construction and in-flow workforces;

• promote STD/HIV/AIDS awareness and prevention system to local communities; and
• strictly follow the agronomist’s agrochemical use recommendation which shall be based on the project command area soil fertility status,
• implement appropriate agrochemicals application methods as per agronomist recommendations either top, side dressing, basal dressing, etc
• minimize water use and apply only enough to meet crop-water demands through regular soil moisture monitoring,
• optimize agrochemicals utilization based on irrigation command area soil fertility,
• use appropriate dose and selective type of agrochemicals
• Use recommended agrochemicals such as pesticides, fungicides and herbicides based on recommended crops variety.
• apply non-chemical prevention methods such as field sanitation, crop rotation, insect free variety, disease free variety, proper crop and water management systems.
• Maintain Economic Sustainability of the
Water Users Association (WUA) through allocation of an equal optimized irrigated land and formation of group fund and saving bank account of the users (WUA) so that they can utilize whenever their exists canal damage and other tools maintenance.

- Maintain *Technical Sustainability* of the Water Users Association (WUA) through training so as to promote their irrigation performances, reduce water seepage and others which ensure improves irrigation efficiency.
- ensure irrigation land legal based distribution.

<p>| 13 | Maymuq irrigation projects | Soil excavation and disposal, canal construction, stone crashing | Access Disruption ;Health and safety, risk to construction workers and local communities; Health treat; dust aesthetic value; health impact | √ |
| 14 | Gazgibla woreda small | Quarry excavation, soil excavation and disposal, | Soil and tree loss due to quarry site excavation; The farmers farmland will be occupied by the | √ |</p>
<table>
<thead>
<tr>
<th>Scale irrigation projects</th>
<th>Construction of facilities and the scheme structures</th>
<th>Vulnerability to water logging (poor drainage; wastage and damage of facilities; dust due to soil excavation and disposal; Damage on workers and communities during construction)</th>
</tr>
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<tbody>
<tr>
<td>15 Adiarkay woreda small scale irrigation projects</td>
<td>Quarry excavation, soil excavation and disposal, construction of facilities and the scheme structures</td>
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</tr>
<tr>
<td>16 Beyeda woreda small scale irrigation projects</td>
<td>Quarry excavation, soil excavation and disposal, construction of facilities and the scheme structures</td>
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<tr>
<td>17 West Belesa woreda small scale irrigation projects</td>
<td>Quarry excavation, soil excavation and disposal, construction of facilities and the scheme structures</td>
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</tr>
<tr>
<td>18 Dehana woreda small scale irrigation projects</td>
<td>Quarry excavation, soil excavation and disposal, construction of facilities and the scheme structures</td>
<td>√</td>
</tr>
</tbody>
</table>
|   | Gazo woreda small scale irrigation projects | Quarry excavation, soil excavation and disposal, construction of facilities and the scheme structures | • Due to the location of the irrigation project, the project may create a conducive environment for malaria reproduction;  
• During project construction a limited area of land along the main canal & the weir site can be affected on which the system lay out. |
|---|---|---|---|
|   | Seqota zuria woreda small scale irrigation projects | • Provisional loss of land due to land required for camp sites  
• Waste generated from the camp site.  
• Unsafe access routes and traffic hazards.  
• Impact on the existing eucalyptus trees  
• Temporary loss of land due to poor mining operation;  
• Health & safety hazards of operation and borrow | • Use less productive land for camp site  
• During site selection, consult local inhabitants and needs consensus  
• Remove all temporary facilities and restore land to original condition or better  
• Basic site facilities like latrines, waste collection bins should be available earlier  
• Try to consider and use more the existing road accesses (when possible)  
• Maximize use of future permanent roads for site access.  
• Avoid making site accesses through sensitive areas (eg. Forest areas)  
• Restore all temporary access routes to previous |
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<tr>
<th>Pits</th>
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<tr>
<td>- Unwise disposal of excess materials can affect usable lands</td>
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<tr>
<td>- Improper disposal of solid and liquid wastes</td>
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<tr>
<td>- Dust nuisance or hazard</td>
</tr>
<tr>
<td>- Barrier effects of new constructed canals</td>
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<tr>
<td>- Transmission of STDs: HIV/AIDS &amp; others</td>
</tr>
<tr>
<td>- Injuries due to lack of personal protective clothes</td>
</tr>
<tr>
<td>- Disturbance of wildlife</td>
</tr>
<tr>
<td>- Inefficient water use</td>
</tr>
<tr>
<td>- Decline in soil fertility</td>
</tr>
<tr>
<td>- Impact of vertisols on Structures</td>
</tr>
<tr>
<td>- Pollution of water sources due to agrochemicals</td>
</tr>
<tr>
<td>- Crop pests and diseases</td>
</tr>
</tbody>
</table>

- Compensation for their commercial trees/perennial trees is required for the affected people because of the project.
- Compensation is required, it should be land of equal status or it may be paid in monetary basis.
- Take the advantage of the re-using excavated materials, for site restoration and for others similar purposes.
- Cut and fill slopes shall be shaped & trimmed to approximate the natural condition.
- Plant grasses preferably elephant grass and trees so as to stabilize the soil in Erosion affected sites (Borrow pits).
- To use the mining sites, Prior approval shall be given from the environmental regulator and obtain construction inputs from certified suppliers.
- Provide protective/ safety clothes (Masks, eye
infestation
- Improper use of pesticides
- Prevalent of Malaria case
- Scarcity of water due to inefficient water use, during dry season which can lead Conflicts between users
- Ineffective operation of WUAs and poor Irrigation Scheme Management will reduce project benefits

- Goggles, field shoes) to lessen health and safety hazards of construction workers
- Re-use of excavated materials for site restoration and for others similar purposes
- Dispose of spoil only at designated sites
- Conducting waste separation for effective management and act according to their nature.
- Conducting waste separation for effective management and act according to their nature.
- Solid waste from packaging materials can be minimized packaging bags instead of burning or land filling
- Safely disposed non recyclable waste in garbage containers and at designated site
- Give training for all Construction staffs about waste management
- Undertaking Vehicle maintenance on designated site(>20m from rivers, streams, lakes or wetlands)
- Reduction of traffic volume and speed on unpaved roads and enforce maximum vehicle speeds (at or
below 10mph or 4.5 m/s within working area at all times

- Watering accesses haul roads and exposed surfaces (particularly in the vicinity of inhabitants).
- Construct road crossing structures over the main canal
- Basic health education for the employs & community concerning STDs and AIDS.
- Make available free Access condoms
- Provision of personal protective/ safety cloths for the construction workers
- Train all construction workers in safe use of tools and equipments
- Awareness creation concerning wildlife protection
  - Try to avoid or minimize movements and noise in wild life habitats (specifically, forests sites)
- Awareness creation concerning wildlife protection
- Under take timely maintenance & repair system
<table>
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<tr>
<th></th>
<th>Laygayint woreda small scale irrigation projects.</th>
<th>Vulnerability to water logging (poor drainage; wastage and damage of facilities; dust due to soil excavation and disposal; Damage on workers and communities during construction</th>
<th>The system should be designed well equipped with drainage facilities so that no water lodging formation in the farm and canal structures. • Conservation practices should be developed such as growing grass strips, check-dam, and earth barriers.</th>
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<tbody>
<tr>
<td>21</td>
<td><strong>components (canals, weir)</strong></td>
<td><strong>Establish buffer zones between command area and river</strong></td>
<td><strong>Apply Integrated pest management</strong></td>
</tr>
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<td></td>
<td><strong>Encourage environmentally friendly systems like IPM, manual weeding than herbicides</strong></td>
<td><strong>Awareness creation for irrigation users regarding the prevention of Mosquito breeding</strong></td>
<td><strong>Develop an integrated water resources management (IWRM) plan</strong></td>
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<td><strong>Establish an effective scheme operating organization (Encourage leaders and members involvement in system planning and management)</strong></td>
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Construction Phase Impacts

During construction phase of the project main activities such as vegetation clearing, excavation, land levelling, transportation of construction materials (sand, stones, shell and core materials), and construction of irrigation dam structures, access roads and camping sites will be done. At these times the following potential adverse impacts will generally happen:

- Removal of top soil and landscape alteration
- Land requirement for construction purpose
- Loss of commercial/perennial trees
- Impact on Air Quality due to dust emission
- Impact on flora environment
- Nuisance Noise,
- Work place accidents
- Creating barriers for movement and the details are listed in tabular form and described below:

Impact of site facilities/ camp construction in the area

In order to undertake construction activities of the irrigation scheme at the nearby, the construction contractor will need to set up site facilities or camps for workers accommodation, offices, stores and parking in the project area. It is estimated that significant amount of area of land will be needed temporarily for such purposes. This will create land resource use competition or conflict among inhabitants. On the other hand, if proper waste management facilities lack in the camping site, the waste generated from employed construction staff members will pollute the surrounding environment.

Mitigation Measures:

- The contractor’s camp should be allocated preferably on communal land and less
productive areas as much as possible. During site selection, it is also necessary that advising local users and reaching consensus to establish smooth relation.

- Basic site facilities especially latrines should be available earlier to avoid defecating in the open area sand to keep the cleanliness of camping compound and its surroundings.

**Air pollution**

Air pollution usually associated with construction phases where the level of dust particles emissions from vehicles movement, during loading and quarrying could be substantial. Due to existence of settlements around the command area where construction works are carried out there could be air pollution through dust emission from excavation works. The construction activity of the project is more likely/ will be carried out in the dry season, and it can be expected that these will lead for dust emission to the local surrounding environment.

**Mitigation Measures:**

- The first preferred solution is to try to prevent dust creation at source:

- Control of fugitive emissions from haul roads using watering (water the access roads or works daily), improve road surfaces and

- Reduction of traffic volume and speed (particularly in the vicinity of inhabitants). Enforce maximum vehicle speeds (at or below 10mph or 4.5 m/s within the working areas).

- Control the particulate emissions during loading operations using water trucks equipped with hoses or portable watering systems to wet down the piles prior to loading.

**Impact of Access/road Construction**

During the construction process, road accessibility or temporary access will be required to the camping and quarry sites. At this time there will be crossing cultivated lands which will result soil compaction and vegetation clearing.
Mitigation Measures

- Try to consider and use more the existing road accesses when possible or maximize use of future permanent roads for site access.
- The selected road access should be considering less socially and environmentally sensitive areas (minimizing tree cutting).
- After use, all temporary access routes on cultivated land should be restored to their previous condition or better by removing of all non-soil materials, deep ripping to relive compaction, replacing the top soil if it is removed.
- Local inhabitants should be informed about construction traffic hazards.

Impact of mining Construction Materials:

One of the impacts that will be arising as a result of the activities of the proposed water and irrigation projects are their impacts while mining construction materials (like gravel, stones and sand shell and core material,) of the scheme. These materials will be obtained from the local quarry sites and/or river bottoms. The process of obtaining (excavation) those construction inputs may result in removal of excess soil and creation of deeper borrow pits as well as vegetation clearing. Its consequence has safety and health hazards. The sand mining from river beds will also alter the natural drainage line or waterway. Hence, these demands responsive personnel and careful selection of the site so as to reduce impacts on ecologically sensitive sites.

Mitigation Measures

- The contractor shall protect all areas susceptible to erosion (in the mining site) and shall take measures to the activities that aggravate erosion.
- Cut and fill slopes shall be shaped and trimmed to approximate the natural condition and contours as closely as possible. Levels incongruous to the surrounding landscape shall be reshaped. Or
- Cloth all borrow pits and quarries to minimize health and safety hazards
- Prior approval shall be given to use mining sites from the woreda or regional environmental regulator and shall designate Development Permit Areas for Quarry sites
or mining areas.

- Take the advantage of the re-using excavated materials in the works, for site restoration and for others similar purposes.
- In order to minimize the effect of flood and erosion the surface rainwater has to be diverted through appropriate ditches or channels from the quarry. It is recommended that the waterway has to be constructed and lined where erosion pressure is severe.
- At the end of construction phase, plant grasses preferably elephant grass and trees so as to stabilize the soil in Erosion affected sites of the project (Borrow pits.)

**Impact of surplus construction materials disposal:**

To construct the water, irrigation scheme or dam body it will be required that clearing the site and excavating activities. Improper or unwise disposal of excess construction inputs (soil, sand, stones etc) will adversely affect the available productive land in the project areas through creating sedimentation load, drainage problems and occupy usable lands or other potential land uses.

**Mitigation Measures**

- Maximize the re-use of all excavated materials in the works like re-use of the excess or unsuitable stones for construction as a sub-base for access roads, gully treatment (check dam construction), etc.
- Dispose of surplus materials (‘’spoil’’) only at designated sites approved by the responsible local authority and only by approved methods, if agriculture, the methods must consider topsoil conservation and quality, if infrastructural the method must consider long term soil stability against shrinking and swelling; in all cases steps must be taken to prevent erosion and maintain the stability of the material after placement.

**Waste Management and pollution:**

Different types of solid and liquid wastes will emanate during construction period and that will pollute the surrounding environment if not well managed. The solid wastes may commonly arise from excess soil and rock materials, wrapping plastics, wood, metallic substances, cardboard,
and kitchen wastes. The liquid waste basically includes used oil and grease of vehicles and concrete washings.

**a) Mitigation measures for solid waste**

- Primarily identify all waste streams and conducting waste separation for effective management and act according to their nature.
- Implement the waste management hierarchy principle with a special emphasis of waste reduction, reuse, and recycle.
- For example; Solid waste from surplus or unsuitable stones for construction can be reused as a sub-base for access roads, for gully treatment (check dam construction), etc.
- Similarly the soil spoil should be reused as land restoration purpose. Dumping of excavated soil for weir construction; reshaping of canal embankment, and depositing of excavated soil 30-40 cm far from the main canal with well compacting the soil to protect sedimentation of canals.
- Give training for all the staff members concerning waste and proper waste management

**b) Mitigation measures for liquid waste**

- Vehicle maintenance should be only undertaken on designated site. Used oil and grease shall be collected appropriately, stored in barrels and it will be sold to buyers.
- Control the spread of liquid waste in the area, collect and cleanup residues(material washing wastes)
- Give training for all the staff members concerning waste and proper waste management

**Dust Nuisance and Hazard:**

The water and irrigation scheme construction activities will generate considerable dust that will affect the nearby inhabitants. The main potential sources of dust will be excavation works, vehicles travelling on unpaved roads and blowing from dump truck loads. The dust generated may be significant since the construction works most likely be done during dry season. Besides, in the vicinity of the construction site, there is a health center and primary school and hence patients who will come to the health center and students in the school will be more vulnerable to
Mitigation options:

- The first more preferred solution is to try to prevent dust creation at source. Where practicable, earth stripping should not be carried out in periods of dry and windy weather unless suitable mitigation measures are implemented.

- The emissions from hauling operations depend on the condition of the road surface, the volume and speed of vehicular traffic. Hence, the treatment methods applied to control fugitive emissions from haul roads include watering (in the occurrence of dust nuisance; water the access roads or works), improve road surfaces and reduction of traffic volume and speed (particularly in the vicinity of inhabitants). Enforce maximum vehicle speeds (at or below 10mph or 4.5 m/s within the working areas at all times).

- Control the particulate emissions from the loading operations by using water trucks equipped with hoses or portable watering systems to wet down the piles prior to loading.

Work-related Hazards

The project will employ and participate a number of workers in the irrigation infrastructures construction. During construction works there would be accidents and injuries to workers which arise from working equipment, materials and absence of basic safety measures and lack of personal protective equipment. Besides, several workers will be subject to in a confined working environment; if the local workers do not have full understanding about HIV/AIDS, they will potentially exposed to high rates of HIV transmission and for others STDs.

Mitigation Measures:

- During construction, employees will be equipped with important equipment like;
  - Protective uniform clothes, shoes
  - Dust Masks
  - Helmets and
• Eye goggles with a dark shade so as to protect the workers from the bright sun shine

• In addition, those protective cloths should be suitable or comfortable for the workers which consider the existing climate, personal preferences, ease of use and achieving the intended objective.

➢ The project workers should be regularly trained on the use of the equipment as well as on the safety measures and procedures so as to limit the risk of accidents due to the ignorance in the equipment use as well as the importance of the safety procedures.

➢ Provide basic training on preventing sexually transmitted diseases (HIV/AIDS) and condoms should also be accessible in the working site.

Impact on Terrestrial and Aquatic Environment

The project activities such as, excavation pipeline or construction of canals, Dam wall and spillway construction access roads and mining of construction materials will have their own impact on the natural terrestrial environment. Though, the project river has not much development of aquatic ecology or fishery resources, there are Eucalyptus trees and shrubs particularly near to the proposed dam site and hence there will be loss of some trees due to the reservoir area.

Mitigation Measures:

In order to reduce the damages on flora and keep the greenness of the environment, the following measures are suggested:

• Limit clearing and soil disturbance in the sites in such a way that the available trees shall be maintained. Or

• Minimize the area of ground clearance i.e. land clearing for scheme (head work, canals) construction should be restricted to what is absolutely necessary for the irrigation infrastructures.

• Compensation for the existing trees.

Disruption of Access
The proposed water and irrigation projects may have several sites for excavation, channels (canals), field ditches and drains. These planned infrastructures of the scheme will be constructed through crossing the existing gravel road and have a barrier to walking during construction phase. The main canal further crosses foot paths. As a result, the newly constructed canals or channels may interrupt the previous access paths used by the local inhabitants. Similarly, if livestock bridges are not available, they may damage the channels due to their movement across the channels.

**Mitigation Measures:**

- Construct **road crossing structures** over the main canal, at appropriate sites that considers previous roads and foot paths to sustain existing social movement patterns and allow the movement of livestock. The road crossing structures shall be rectangular reinforced concrete slab. The slab is reinforced with 12mm @150mm/c which is the same as the respective canal bed width, its width and thickness is 3m and 15mm respectively.
- Construct temporary alternate access routes for easy movement of the people and animals.

**Temporary loss of land and commercial/perennial trees**

Though the implementation of the water and irrigation project has numerous benefits for most of the local communities, the construction of the reservoirs, dam will occupy some productive land and commercial trees would be losses because of the excavation, reservoirs or dam area (reservoir area). Land inundates by the reservoir completely cultivated land, and covered by commercial trees/perennial tree such as, mango, orange, banana, papaya coffee and it is individual owned and supports a number of household members. Therefore, the impact is high, long term, site specific and its significant.

**Major steps of Environmental and Social Impact Assessment**

Once the design (plan of activities) are drafted (finalized) the client should contact the
Environment, Forest and Climate Change Commission or its dawn structure at the region level and the generic environmental and social impact considerations (steps) are:

**Screening**

Screening is the process by which a decision is taken on whether or not an environmental and social impact assessment (ESIA) and Resettlement (Abbreviated) Action Plan (A)RAP are required for a proposed project. Screening of projects for their potential impacts is usually made based on project location, type, potential impacts, scale etc and screening outcome leads to project categorization, category I, II or III. Different institutions have different categorization (such as Category I, II, III and IV as for African Development Bank and the World Bank), Schedule I, II and III for the Ethiopian government and Category A, B1, B2 and C for the National One Wash program. Despite the difference in the categorization, the basic screening process and method of impact identification and thus the categorization of the projects remains the same for all institutions.

Generally, projects that is screened to have significant adverse environmental and social impacts are considered as Category I or A, and those will have minor or manageable impacts are Category III or C and the in between are category II or B.

Screening checklist is required to guide the screening process of projects and different institutions have their own specific screening checklist, the basic idea/contents being the same. Simplified screening checklist is annexed.

**Scoping**

Scoping is an early stage in the process and is designed to ensure that the environmental studies provide all the relevant information on:

- The impacts of the project, in particular focusing on the most important impacts;
- The alternatives to the project;
- Any other matters to be included.

The findings of scoping define the “scope” of the environmental information to be submitted to the competent authority and the terms of reference for the environmental studies to be undertaken to compile that information.
Impact Analysis

This is a step where the most important impacts are identified and analyzed. These includes: type (biophysical, social, health and economic), nature of impact (direct, indirect, cumulative etc), magnitude or severity (high, moderate, and low), extent of the impacts (local, regional, trans-boundary, global), timing (immediate, long term), duration (temporary, permanent) etc. The impact analysis can be made using a checklist, matrices or using professional judgments.

Impact Mitigation

This is a step where mitigation measures for major impacts are forwarded to

- Avoid, minimize or remedy adverse impacts
- Ensure that residual impacts are within acceptable levels
- Enhance environmental and social benefits

Environmental and Social Study Report (including Resettlement Action Plan)

A comprehensive report of the environmental and social study should include the following major issues:

Environmental and Social Impact Assessment

- A description of the project;
- An outline of the main alternatives studied by the developer, and an indication of the main reasons for this choice,
- A description of the aspects of the environment likely to be significantly affected by the proposed project;
- A description of the likely significant environmental effects of the proposed project;
- Measures to prevent, reduce and possibly offset adverse environmental effects;
- A non-technical summary;
• An indication of any difficulties (technical deficiencies or lack of know-how) encountered while compiling the required information.

**Resettlement Action Plan (RAP) or Abbreviated Resettlement Action Plan (ARAP)**

Depending on the number of project affected persons (PAPs) the competent agency can decide on the preparation of ARAP and RAP. Generally, ARAP is recommended if the numbers of PAPs are less than 200 and RAP for more than 200. The RAP (ARAP) report should include:

- Principles and objectives for resettlement under the project;
- Legal frameworks;
- Estimated population displacement and categories of affected people;
- Eligibility criteria for various categories of affected people;
- Methods of valuing affected assets;
- Organization, procedures and responsibilities;
- Methods for consultation with, and participation of, affected people;
- Schedule for implementing resettlement provisions ;
- Grievance redress mechanisms;
- Budget and funding arrangements;
- Supervision and monitoring arrangements

**Reviewing**

The purpose of the review process is to establish if the information in an ESIA and RAP (ARAP) report is sufficient for decision-making. The Key objectives are to:

- Review the quality of the reports
- Take account of public comment
- Determine if the information is sufficient
- Identify any deficiencies to be corrected
During the reviewing processes, the following aspects should be considered:

- compliance with terms of reference
- Information is correct and technically sound
- Account taken of public comments
- Complete and satisfactory statement of key findings
- Information is clear and understandable
- Information is sufficient for decision-making

The financer and other relevant stakeholders can review of the reports adequately consider their policy of social and environmental impacts and incorporated any missing information. However, reviewing and decision making is exclusively the mandate of the competent governmental agencies.

**Decision Making**

This is a process where decision is made based on the information available in the ESIA and RAP (ARAP) reports. In Ethiopia, Decision making is made by the competent agency. At the national level, the responsibility was given to the Environment, Forest and Climate Change Commission (EFCCC), the then Federal Environmental Protection Authority. EFCCC has delegate federal level sector ministries to conduct the ESIA processes and the compliance monitoring. At region level, bureau of environment are responsible. Based on the result of the impact study report review and the analysis of stakeholders’ interests, the concerned competent authority will decide whether to accept the ESIA report as it stands, reject the report or request that the document should be amended. The competent authority will typically impose conditions if the project is approved, such as establishment of environmental unit (or expert), implementation of the environmental management plan, periodic submission of report on the environmental and social performance of the project.

**Monitoring and Reporting**
Monitoring can literally be defined as “observe and check the progress or quality of (something) over a period of time; keep under systematic review” and “reporting is communicating the result of the monitoring through written or other forms”. Therefore, Monitoring and reporting project implementation status is vital for the successful implementation of the project. As far as environmental and social safeguards are concerned, the monitoring will be related to compliance monitoring against the legal frameworks and mitigation measures set forth in the Environmental and Social Management Plan (ESMP) of the proposed project and evidences of compensations. Monitoring reports will be officially submitted to the respected competent agencies (bureaus of Environment).

Auditing and Reporting

The last stage of an ESIA is to carry out an Environmental Audit sometime after completion of the project. The audit should include an analysis of the technical, procedural and decision-making aspects of the ESIA. Technical aspects include: the adequacy of the baseline studies, the accuracy of predictions and the suitability of mitigation measures. Procedural aspects include: the efficiency of the procedure, the fairness of the public involvement measures and the degree of coordination of roles and responsibilities. The audit will determine whether recommendations and requirements made by the earlier ESIA steps were incorporated successfully into project implementation. Lessons learnt and formally described in an audit can greatly assist in future ESIAs and build up the expertise and efficiency of concerned institutions.
CHAPTER VI: INSTITUTIONAL ARRANGEMENTS

Institutional arrangement describes the role and responsibilities of organizations that have a stake in the implementation of the ESMF. In Ethiopia, regions are autonomous and have the right to issue region specific laws and regulation which is more stringent that the federal one. As far as the SD is concerned, both Amhara and Tigray regions have bureaus of environment responsible to execute ESIA reports. However, projects which are simultaneously implemented in more than one regional boundary or which have impacts of trans regional nature are managed by federal level authorities (sector ministries). The Multi-Sectoral Approach for Stunting Reduction Project has components such as Water, Construction, Agriculture, Health etc and therefore the whole processes implementation should be led by the Environment, Forest and Climate Change Commission (EFCCC) through engaging the aforementioned stakeholders at different levels.

Project Implementation Unit

The project implementation unit for the SD is hosted in the Ministry of Health. The PIU should have safeguard specialist who will be responsible to:

- Screening and categorization of the project in collaboration with other relevant bureaus at the region (Woreda) level
- Preparation of Terms of References (ToR) for the recruitment of an independent consulting firm to prepare the ESIA and RAP (ARAP) reports
- Monitoring the preparation of the reports as per the ToR
- Supervision against the Environmental and Social management Plan and also implementation of the RAP/ARAP
- Ensure compensation are effected as per the newly issued proclamation
- Capacity building (deliver training) to the executing agencies at the region/Woreda level
- Periodic reporting to the financiers
- The PIU management will ensure allocation of adequate budget for the environmental and social activities execution
Environment, Forest and Climate Change Commission (EFCCC)

The SD implementation has various components such as water, health, education, agriculture etc and are executed in Amhara and Tigray National Regional States. If the environmental and social issues of the project are given to regional bureaus of environment it would be duplication of the same processes and activities and there will not be consistency in the process. Therefore, EFCCC will be mandated for the execution of social and environmental issues: to review screening report, decide categorization of the project, review of the ESIA and RAP/ARAP reports and approval of the reports and conduct compliance monitoring against the ESMP. EFCCC can delegate the bureaus of environment of the two regions to supervise implementation of the ESMP.

Federal Sector Ministries

The implementation of SD demands involvement of federal level ministries such as the Ministry of Water, Irrigation and Energy, Ministry of Agriculture, Ministry of Health, Ministry of Education, Ministry of Women, Child and Youth etc. Therefore, all of these stakeholders should oversee the overall implementation of the ESIA and RAP/ARAP. Furthermore, they should ensure that adequate resource (Finance, Manpower etc) are allocated.

Regions Bureaus

The regional and Woreda level of bureau will have a cascaded mandate of the federal one and should follow the implementation of the ESIA/ESMP and RAP/ARAP. Being in close proximity with the project and responsible for effecting compensation, the region/Woreda level bureaus have huge mandate to avoiding possible delay.

African Development Bank, Ethiopia Country Office
The AfDB is availing most of the finance required for implementation of the SD. The safeguard wing of the AfDB is also responsible to ensure that the AfDB policies on Environment and Society are adequately addressed in the project implementation. Therefore, AfDB will be responsible to:

- Ensure the project passes through the national and international ESIA/ RAP/ARAP processes
- Compliance monitoring against the banks policies on safeguard
- Capacity building for the implementing and executing agencies
- Ensure that adequate resource (Finance, Manpower etc) are allocated
- Ensure compensation are effected as per the newly issued proclamation

**Capacity Development**

Capacity building is always part of any project implementation. Therefore, AfDB and the PIU have to provide continuous capacity development programs in order to ensure successful implementation of the project and sustainability of the outcome of the project. As far as environmental and social issues are concerned, the most important thematic area for capacity buildings are appraisal of the project, environmental and social screening including climate change screening, environmental and social management plan, Social Sustainability, RAP preparation, compliance monitoring and evaluation etc. To this effect, need assessment should be conducted to identify the thematic areas for capacity building to that training will be given as a quick fix.
CHAPTER VII: PUBLIC PARTICIPATION AND CONSULTATION PLAN

For the successful identification and assessment of project specific environmental and social impacts, implementation and monitoring of the respective mitigation or enhancement measures and a continuous consultative process is required. The Ethiopian Constitution (article 43 and 92) clearly indicated the need of public consultation prior to startup of any project. Public consultation is also one important part of any Environmental and social impact assessment processes. Therefore, implementation of the activities, as part of the SD, has to be subjected to public consultation. The consultation should be with different stakeholders and particularly with project affected persons (PAP). The outcomes of the consultation should also be part of the planning and implementation of the project.

The Multi-Sectoral Approach for Stunting Reduction Project implementing sector bureau and offices at regional or woredas has the responsibility to engage stakeholders effectively in achieving the programs objectives for the benefit of all. Through consultations, the implementing bureaus and offices will create a bridge of communication between the public and the Government, which will improve the efficiency and transparency for the execution of the project. The following sections describe the public consultation plan, the principles, structure and public disclosure.

Public Consultation Plan

Objectives of the Consultation Plan

This plan provides a framework for achieving effective stakeholder involvement and promoting greater awareness and understanding of issues so that the project is carried out effectively within budget and on-time to the satisfaction of all concerned parties. The objectives of the public consultations are to provide the project implementing sector bureaus and offices with:

- Status of implementation of the identified measures;

- A sense of the concerns, priorities and aspirations of the community and implementing
parties as they implement the measures;

- Information to shape the programs of the project as it progresses;

- Whenever possible, to recommend and implement specific recommendations and proposals; and,

- Provide the participating regional and woreda level stakeholders including project site community members and kebele administration with a forum to interact constructively and make progress towards solutions and actions; and feedback from implementing sectors on information received and steps to follow.

It is also a plan within Multi-Sectoral Approach for Stunting Reduction Project implementation, to improve consultation for the most vulnerable groups and their communities so that they could benefit even more from the projects activities. More effective use can be made of pregnant and lactating women, women’s groups, youth groups and community conversations targeting women, traditional leaders, and other vulnerable groups. Involving these groups, with meaningful representation and participation in public forums will be endorsed as part of projects implementation.

Generally, public and stakeholders’ consultation anticipates attaining the following:

- Develop and maintain avenues of communication between the program and stakeholders to ensure that their views and concerns are incorporated into program design and implementation with the objectives of reducing or offsetting negative impacts and enhancing benefits from the program;

- Inform and discuss about the nature and scale of adverse impacts and to identify and priorities of the remedial measures for the impacts in a more transparent and direct manner;

- Include the attitudes of the community and officials who will be affected by the program so that their views and proposals are mainstreamed to formulate mitigation and benefit enhancement measures;
• Create a sense of the concerns, priorities and aspirations of the stakeholders and implementing parties as they implement the proposed measures and actions;

• Increase public awareness and understanding of the program, and ensure its acceptance; and

• Inform relevant authorities of the impacts, solicit their views on the program and discuss their share of the responsibility for the smooth functioning of the overall projects activities.

**Principles of Consultation Plan**

In order to ensure effective implementation of this plan, the project implementing sector bureaus and offices shall be committed to the following principles:

• promoting openness and communication;

• Ensuring effective stakeholder involvement;

• Evaluating the effectiveness of the engagement plan in accordance with the expected outcomes.

Thus, the beneficiaries are given:

• Clear information on the purpose and objectives of the meeting;

• Opportunity to express individual views without interruption;

• Opportunity to build on views expressed and, whenever possible, to discuss and reach conclusions, consensus or recommendations; and,

• Opportunity to engage in open-ended discussion (generally at the conclusion of the
meeting).

**Structure of the Consultations**

Consultation meetings will generally take two approaches: (i) individual interviews involving addressing checklists, (ii) one-to-one and/or focus group meeting. The consultations will be structured along the following lines:

- Advance notification;
- Introduction and information;
- Early break-up into work groups or roundtables;
- Opportunity for each participant to make a presentation; and,
- A closing session to allow open discussion between participants and project implementing sector bureau and offices.

**Public Disclosure**

**Introduction**

The AfDB OS 2 requires the ESMF to be disclosed in country as a separate and stand-alone document. The ESMF is required to be approved and disclosed prior to appraisal according to AfDB ISS. The disclosure should be both in Government of Ethiopia where it can be accessed by the public, including affected groups and NGOs, and at the AfDB website.

The project implementing sector bureaus and offices will make copies of the ESMF available in selected public places (possibly at relevant government offices) for information and comments. The projects will be announced through different forms of media. The announcement will include a brief description of the Multi-Sectoral Approach for Stunting Reduction Project, references to where and when the ESMF can be viewed, duration of the display period, and contact information for comments.
For meaningful consultations between the project implementing sector bureaus and offices and possible project affected groups, beneficiaries and local NGOs on the proposed project, the project implementing sector bureaus and offices shall provide a relevant material in a timely manner prior to consultation and in a form and language that are understandable and accessible to the groups being consulted.

To meet the consultation and disclosure requirements of the AfDB, the Government of Ethiopia will issue a disclosure letter to inform the AfDB of:

1) The Government’s approval of the ESMF;

2) The actual disclosure of these documents to all relevant stakeholders and potentially affected persons in Ethiopia, and

3) The Government’s authorization to the AfDB to disclose these documents in its website.

The steps towards disclosure of the safeguard documents have to be completed prior to appraisal of the Project as required by the AfDB’s Disclosure Policy.

**Public Disclosure Plan**

Following the public consultation, all comments and briefs will be analyzed by project implementing sector bureaus and offices at regional and woreda level, which shall prepare a report for relevant organization including environmental agencies and the AfDB. The report will be published and made available to the concerned community groups and to interested bodies upon request.

For project such as the proposed the Multi-Sectoral Approach for Stunting Reduction Project (MASReP), the AfDB policy and procedures require that an ESMF be prepared and publicly disclosed prior to project appraisal. This allows the public and other stakeholders to comment on the possible environmental and social impacts of the project, and the appraisal team to strengthen
the frameworks as necessary, particularly measures and plans to prevent or mitigate any adverse environmental and social impacts.

In line with this, the ESMF will be available at the relevant institutions at all levels and be publicly disclosed both in country and at the AfDB website. The project implementing sectors will make copies of the ESMF available in selected public places in English and working language of the country in compliance with the AfDB Disclosure Policy. It is proposed that the locations of copies are announced through public relation sections of relevant sector line Ministries, radio announcement in addition to press releases, as applicable.

A variety of methods of communication could be used to reach the majority of stakeholders. The project should select those that are most appropriate and have a clear rationale for their choices. The plan should include a statement welcoming comments on the proposed engagement plan and suggestions for improvement. For remote stakeholders, it may be necessary to provide for an additional newspaper outlet or separate meeting, or additional documents that should be placed in the public domain. The public domain includes:

- Newspapers, posters, radio, television;
- Information centers and exhibitions or other visual displays;
- Brochures, leaflets, posters, nontechnical summary documents and reports;
- Official correspondence, meetings;
- Website, social media.

The strategy should include means to consult with project-affected stakeholders if there are significant changes to the project resulting in additional risks and impacts. Any ESMPs and other safeguards instruments that will be prepared for sub projects will also needed to be disclosed to the public, as applicable. Copies of the ESMPs and other instruments should be made available to communities and interested parties in accessible locations through local government authorities, (e.g. kebele administration, woreda offices and regional bureaus). Copies of the ESMPs should also be provided to the implementing agencies and submitted to the AfDB. This
will ensure record keeping of all activities implemented under the ESMF and ensure that third party audits, if required, have adequate information when undertaking annual environmental and social audits.

Projects with potential for significant adverse impacts require public consultation on the design of mitigation measures and provide for public participation in environmental monitoring. It is fundamental for the success of the irrigation scheme that should be held from early planning of the project up to its implementation, monitoring and evaluation. Hence, consultation was conducted with woreda officials and local people in the project area.

Public Consultation meeting was undertaken in the project kebeles as part of the project design. During the consultation attitude of the community was assessed during public consultation. It was very helpful to obtain basic information on socio-economic, socio-cultural and biophysical impacts of the project, and the associated measures to be taken. The discussion was participatory in which the participants have expressed their views, concerns and suggestions without any reservation on the proposed irrigation project. The main areas of discussion were including the following points:

(i) Attitude of the community towards the upcoming project;

(ii) Responsibilities of the local community;

(iii) Dedication of the beneficiaries to form irrigation water user’s association;

(iv) Opinion of the community to produce market oriented crops;

(v) Contribution & participation of the community on the project;

(vi) Views and fears of the community on the project;

During the discussion held with the communities, the participants were reflect their fear, views & suggestions and forwarded some questions on the issues as follows.
• They mentioned that they are willing to participate, contribute labor in the project activities and provision of construction materials during construction period.
• They reflect their willingness to cultivate market oriented crops and to establish water users’ associations and to set by-laws that govern the members.
• The community believes that the projects will increase their agricultural yield by cultivating twice a year and year round access to water supply and food.
• The inhabitants suggested that the implementation of the proposed projects should not create any adverse impact on the environment.
• The community also added their fear about the scarcity of water at the downstream for both crop cultivation and livestock as well as on the timely starting of the project implementation. Since the area has large number of livestock resources they strongly suggested that sufficient amount of water should be released for the downstream users.
• The community accepted and suggested that soil and water conservation activities would be implemented in the area so as to minimize the risk of erosion siltation in the dam.

Figure 7.1 Photo for community consultation
**Grievance Redress Mechanism**

Project implementation may be a source of grievance. Grievance may be during compensation, payment modality, pollution, resource use conflict etc. The government of Ethiopia has a system of addressing grievances using the Ethiopian Ombudsman Institution and Public Grievance Hearing Offices (PGHO) at all levels of the decentralized administration and this can be applied for any grievance arose under the implementation of the SD. To this effect, Grievance Point Person (GPP) can be assigned at the two regions and the PAPs are aware of the GPP so that grievances (if any) could be addressed quickly and smoothly. The main responsibility of the GPP is to serve as a bridge between the people who have compliant and the government responsible to address the complaints.

Grievance mechanisms provide a formal avenue for affected groups or stakeholders to engage with the project implementers or owners on issues of concern or unaddressed impacts. Grievances are any complaints or suggestions about the way a project is being implemented. They may take the form of specific complaints for damages/injury, concerns about routine project activities, or perceived incidents or impacts. Identifying and responding to grievances supports the development of positive relationships between projects and affected groups/communities, and other stakeholders.

The Ethiopian government standards outline requirements for grievance mechanisms for projects. Grievance mechanisms should receive and facilitate resolution of the affected institutional or communities’ concerns and grievances. In this regard, concerns will be addressed promptly using an understandable and transparent process that is culturally appropriate and readily acceptable to all segments of affected communities, at no cost and without retribution.
Mechanisms should be appropriate to the scale of impacts and risks presented by a project. Grievances can be an indication of growing stakeholder concerns (real and perceived) and can escalate if not identified and resolved. The management of grievances is therefore a vital component of stakeholder management and an important aspect of risk management for a project. Projects may have a range of potential adverse impacts to people and the environment in general, identifying grievances and ensuring timely resolution is therefore very necessary. As such the ESMF has developed a grievance management process to serve as a guide during project implementation.

As stated above the government of Ethiopia has developed a grievance management mechanism that will be used in case of any incidence or complaint from the public or affected persons. It should be noted that if complainants are not satisfied with the grievance process, they have the right to present their complaint through the court system.

**The Grievance Redress Process**

**Development and Publicizing the grievance management procedures**

The grievance mechanism will be introduced to the project stakeholders for inputs as a part of the project stakeholder engagement program stating the purpose of the projects grievance mechanism and the type of responses complainants can expected. The uptake channels should be publicized and advertised via public meetings, through the woreda administration office and at the implementing sector office and where relevant contractors. It is important to note that every sub project will have its own grievance redress mechanism which will include different users that can submit their claims and will allow even anonymous claims.

**Receiving and registering the grievance**

Any member of the grievance redress committee can receive the complaints from the public either through direct face-face meetings or in writing.
The members who receive complaints verbally should put them in writing for them to be considered. Recognizing that many complaints may be resolved ‘on the spot’ and informally by committee, there are opportunities to encourage these informal resolutions to be registered to

(i) Encourage responsiveness; and

(ii) Ensure that repeated or low-level grievances are being noted in the system. The GRM should have the ability to handle anonymous complaints.

**Documenting the grievance**

All grievances received will be documented and records kept. The records should indicate the grievances received, grievances resolved, and grievances not resolved. Complainants should be handed a receipt and a flyer that describes the GRM procedures and timeline (staff should be trained to read this orally for illiterate complainants). Where possible, the grievance log should capture complaints being made via informal or traditional systems, such as village councils or elders.

**Reviewing and investigating grievances**

The grievances shall be screened to determine whether they are eligible for the grievance mechanism. Ineligible complaints include those that are not project related or those that the community procedures are more appropriate to address. Eligibility should be a procedural step to ensure that the issue being raised is relevant to the project. It is often better to ensure a relatively low barrier to entry with quick turnaround rather than to prevent users having their issues considered. Complaints that cannot be resolved on the spot should be directed to the grievance focal point who will have a set number of days to assess the issue and provide a written response to the complainant, acknowledging receipt and detailing the next steps it will take (one week or less is recommended).
The grievances are categorized in three categories (A, B or C)

*Category A: Immediate action*-these issues require immediate actions are typically issues which threaten the short-term safety or the community member’s e.g. chemical spills or accidents near community water supply or sensitive environments.

*Category B: Urgent action*-these are issues which cause a nuisance or a long-term safety to the community members, employees and the environment. They should be communicated to the the committee within 12 hours after receiving and be responded to within 72 hours.

*Category C: action* – these are issues requiring action which is not of urgent nature and are typically procedural or dispute type issues.

**Action and Feedback**

This is the development of resolution options taking into consideration the community preferences, project policy, past experience, current issues and potential outcomes.

**Closure**

All grievance records and supporting documents will be filled and recorded in the database. Upon completion of the agreed upon corrective actions, collect proof that these actions have taken place this includes photos, documentary evidence record of resolution which is signed and dated by the responsible staff member and if the resolution have been to the satisfaction of the complainant confirmation of this for the record. These are all included and recorded in the case documentation. If complainants remain unsatisfied with the grievance process, they have the right of recourse to the courts.

**Monitoring, Reporting and Evaluating**

Monitoring and reporting are the tools for measuring the effectiveness of the grievance mechanism, efficient use of project resources and for determining trends and recurring problems
to facilitate proactive resolution. The Grievance Redress Process is summarizing in the following table.

**Table 2: Summary of Grievance Redress Process**

<table>
<thead>
<tr>
<th>Process</th>
<th>Description</th>
<th>Time Frame</th>
<th>Other Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grievance submission</td>
<td>Face to face; phone; letter, email; recorded during public/community interaction. Anonymous claims</td>
<td>1 Day</td>
<td>Using Grievance Focal Persons Address</td>
</tr>
<tr>
<td>Grievance assessment and log</td>
<td>Grievance significance assessed and recorded or logged (i.e. in a log book)</td>
<td>3-6 Days</td>
<td>Significance criteria: Level 1 – one off event; Level 2 – complaint is widespread or repeated; Level 3- any complaint (one off or repeated) that indicates breach of law or policy or this ESMF/RPF provisions</td>
</tr>
<tr>
<td>Grievance is acknowledged</td>
<td>Acknowledgement of grievance through appropriate medium</td>
<td>3-5 Days</td>
<td>Email, letter, call.</td>
</tr>
<tr>
<td>Development of response</td>
<td>Grievance assigned to appropriate party for resolution Response development with input from management/ relevant stakeholders</td>
<td>4-15 Days</td>
<td>Response would take the form of meeting with aggrieved person/s, investigations and resolution agreed.</td>
</tr>
<tr>
<td>Response communication</td>
<td>Redress action approved as appropriate</td>
<td>5-10 Days</td>
<td>Resolution delivered</td>
</tr>
<tr>
<td>Implementation of response</td>
<td>Redress action implemented and update of progress on resolution communicated to complainant</td>
<td>5-15 Days</td>
<td>Progress of implementation</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
<td>-----------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Grievance closure</td>
<td>Grievance Closure</td>
<td>3-10 days</td>
<td>Grievance Closure report</td>
</tr>
</tbody>
</table>
CHAPTER VIII: ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

Potential Impacts of Sub-projects and Impacts Mitigation Strategies

Table 3: Potential Impacts and mitigation strategies

<table>
<thead>
<tr>
<th>Sub-project</th>
<th>Potential impacts</th>
<th>Mitigation strategies</th>
<th>Cost</th>
<th>Responsible</th>
</tr>
</thead>
</table>
| Sirel-tsemera water supply projects | • Disturbance of a small amount of agricultural land and vegetations during lying of pipelines.  
• expansion of malaria COVID exposure of the drilling crew during operation  
• potential exposure to Communicable diseases including COVID-19  
• Improper disposal of construction wastes that could reduce the aesthetics of the area and may cause pollution. | • Awareness creation for water users regarding the prevention of Mosquito breeding  
• Avoid stagnation of the water in the water system, regular cleaning of drainage systems  
• Promote utilizing of mosquito net in the project area  
• proper planning of the construction activities such as making the construction work to begin in non-farming and non- harvesting season  
• Ensure STD/HIV/AIDS/ awareness and prevention program into training program for all construction workers and project beneficiaries.  
• promoting safe sex awareness and protection for construction and in-flow workforces;  
• promote STD/HIV/AIDS awareness and prevention system to local communities.  
• Promote and create awareness on COVID-19 prevention for the labourers and ensure all protective measures such as keeping distance, waring masks and having sanitizer are | 2500 | Bureau of water, Woreda administration, contractor, |
in place.

- ensure the site is restored to its former state
<table>
<thead>
<tr>
<th>Project Type</th>
<th>Issue and Impacts</th>
<th>Actions</th>
</tr>
</thead>
</table>
| Adiarkay Water Supply Projects | Loss of trees; Block of access and routes or disrupt normal operations; Occupational Health and safety Risks. | - Replanting trees to substitute trees that were cut
- Fulfill Safety kits and emergency facilities in case of any accidents
- All workers to use appropriate PPE and be trained at project induction. |
| Jandab Water Supply Projects | Loss of crops and fruit trees -Poor construction management practices that lead to adverse effects in safety, human health and wellbeing; Solid or Liquid Wastes generation; Occupational Health and safety Risks | - Provide compensation for the affected individual farmers;
- Excavation after harvesting/dry season for transmission line; try to install/construct where trees are not found; otherwise Replanting trees to substitute trees that were cut; Cut, store and restore topsoil and then
- Backfill
- Keep topsoil surface soil (20cm) and reserved for reclaiming farm and grazing lands.
- Carry out the construction works in the dry season;
- Refill the excavated soil soon |

Bureau of water, Adi Arkay Utility and town administration, contractor,
<p>| Lalikw water supply projects | During the excavation of the pressure line and transportation material to site, it may occur dust on site of the project; Solid and liquid wastes; Safety and Occupational health problems | Properly used water spray by water tanker; If the contractor will build temporary houses for its employee (which is most improbable) Latrines will be constructed away from the borehole site; The civil works during the construction phase and during operation phase can cause operational safety and health problem to the temporary and permanent employees of the project. These problems will be avoided or minimized, as per Labor proclamation (No 377/2003) and Public health-proclamation (No 200/2000), | 13400 | . Bureau of water, Gazgibla woreda administration office, contractor |</p>
<table>
<thead>
<tr>
<th>Project Name</th>
<th>Task Description</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arbit water supply projects</td>
<td>During the excavation of the pressure line and transportation material to site, it may be occur dust on site of the project; Safety and Occupational health problems; Solid and liquid wastes.</td>
<td>Bureau of water, Dahana woreda administration office, contractor</td>
</tr>
<tr>
<td></td>
<td>Properly used water spray by water tanker; If the contractor will build temporary houses for its employee (which is most improbable) Latrines will be constructed away from the borehole site; The civil works during the construction phase and during operation phase can cause operational safety and health problem to the temporary and permanent employees of the project. These problems will be avoided or minimized, as per Labor proclamation (No 377/2003) and Public health-proclamation (No 200/2000), by providing appropriate safety equipments and creating conducive environment to the employees.</td>
<td>13400</td>
</tr>
<tr>
<td>Bursa water supply projects</td>
<td>During the excavation of the pressure line and transportation material to site, it may be occur dust on site of the project; Safety and Occupational health problems; Solid and liquid wastes.</td>
<td>Bureau of water, East Belesa woreda administration office, contractor</td>
</tr>
<tr>
<td></td>
<td>Properly used water spray by water tanker; If the contractor will build temporary houses for its employee (which is most improbable) Latrines will be constructed away from the borehole site; The civil works during the construction phase and during operation phase can cause operational safety and health problem to the temporary and permanent employees of the project. These problems will be avoided or minimized, as per Labor proclamation (No 377/2003) and Public health-proclamation (No 200/2000), by providing appropriate safety equipments and creating conducive environment to the employees.</td>
<td>13400</td>
</tr>
</tbody>
</table>
| Damot water supply projects | Block of access and routes or disrupt normal operations; Occupational Health and safety | • Make ready passage ways/ cross structures  
• Timely refilling/backfilling the excavations; Cut, store and restore topsoil and then Backfill; Keep topsoil surface soil (20cm) and reserved for reclaiming farm and grazing lands; Carry out the construction works in the dry season; | 13400 | Bureau of water, Damot kebele administration office |
| Hamusit water supply projects | Risks; Excreta contamination; Solid Wastes generation | Refill the excavated soil soon; Make landscape/level all spoil disposal sites; fulfill Safety kits and emergency facilities in case of any accidents  
• All workers have to use appropriate PPE and be trained at project induction. | Contractor, Damot kebele administration office |
| | • Spoil and construction wastes  
• Occupational Health and safety Risks  
• Water user Conflicts  
• Block of access and routes or disrupt normal operations in the general area  
• Contamination and pollution Hazards  
• acquisition of land (public or private, | • Cut, store and restore topsoil and then Backfill; fulfill Safety kits and emergency facilities in case of any accidents  
• All workers to use appropriate PPE and be trained at project induction.  
• Construct public fountains for the periphery liver communities  
Apply fair water supply shifting program (if shortage)  
• 1st give for vulnerable groups that can’t afford to pay  
• Timely backfill and labeling excavated area  
• Make structure to protect run off from town to well  
Site selection for liquid waste disposal/ treatment  
Facilitate the vacuum track supply chain from big cities trend  
• Done compensation in cash or land for land | 2324 | BOW, contractor, Woreda administrator, woreda water offices |
| Nefas mewicha town water supply system | • temporarily loss of land  
• Solid and liquid waste generation  
• Occupational  
• Health and safety Risks  
• Block of access and routes or disrupt normal operations in the general area  
• Run off, Contamination and pollution Hazards to Well |
| --- | --- |
| | • Adequate land substitution or compensation as per latest compensation directives of Ethiopia  
Implement the Construction during dry season  
• Cut, store and restore topsoil and then Backfill  
• fulfill Safety kits and emergency facilities in case of any accidents  
All workers to use appropriate PPE and be trained at project induction as per Ethiopian labor proclamation No 337/2007  
• Timely backfill and labeling excavated pipe trenches, quarries area  
• Make structure/retaining wall to protect run off over drilled well(Borehole),  
Dispose properly wastes of the project on expert recommended disposal site (EPA)  
Aware the community to construct pit latrine and communal latrine for effective use |
| | 5479  
BOW,contractor,Woreda administrator, woreda water offices |
<table>
<thead>
<tr>
<th>Location</th>
<th>Noise, dust and vibration; Soil layer disturbance and compaction due to the entrance of heavy machinery and trucks; Soil erosion if trenches are excavated in the rainy season.; Some trees may also be cut during excavation of trenches for pipe laying.</th>
<th>Incorporation of Water Safety Plan in the WSS; Limit the number of trees felled because of the project to the minimum possible and replanting after pipe lying to compensate for the vegetation cleared and to make the project environmentally sound. In addition, they should be compensated if they are privately owned; Excavation and pipe lying should be carried out after crop harvesting not to interfere with cropping practices; Immediate pipe lying after excavation and completion of pipe lying on time to reduce some temporary impacts like noise, dust, visual impacts, accidents of falling and drowning; Safety equipment like helmets, safety shoes, hand gloves, ear protection, eye goggles and apron should be used during excavation and pipe lying activities to come up with some accidents. Fire extinguishers and first aid kits should also be in place Construction; Limit working hours to the day time in order to reduce noise impacts. Because, people are more sensitive to noise in the night times; Put appropriate signs of the excavated trenches to avoid accidents of falling.</th>
<th>10,000</th>
<th>Water and agriculture bureau, communities, contractors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chelli water supply projects</td>
<td>Noise, dust and vibration; Soil layer disturbance and compaction due to the entrance of heavy machinery and trucks; Soil erosion if</td>
<td>Incorporation of Water Safety Plan in the WSS; Limit the number of trees felled because of the project to the minimum possible and replanting after pipe lying to compensate for the vegetation cleared and to make the project environmentally sound. In addition, they should be compensated if they are privately owned; Excavation and pipe lying should be carried</td>
<td>5,000.</td>
<td>Water and agriculture bureau, communities, contractors,</td>
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</tbody>
</table>
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| Diesa irrigation project | • Climate risks impacts | • Ensure climate data reliability and linkages between regional climate changes and its impacts at local level, |
| | • Communicable Disease Impacts | • Identify specific risks to the water resources sector that need be addressed and included in the project management, |
| | • Land acquisition | • Improvements in water allocation aiming at sharing existing resources among users and uses in a way that is equitable and ensures maximum benefit for human, livestock including the environment, |
| | • Droughts impacts | • Water augmentation or extension seeking to increase available supply of fresh water through active recharge or protection water recharge areas; |
| | • Water shortage impacts | |
| | • Agrochemicals use impacts | |
| | | | woreda Health office |
| | | | 23,675.00 |
| | | | BOA, the community. |
- Wind erosion impacts
- Water quality deterioration
- Minimizing flow water
- Conflicts on resource use
- Inefficient irrigation water use impacts
- Impacts of crop pests
- Proliferation of new plant species

- Water storage to sustain agricultural and other socio-economic activities even during dry seasons;
- Planning early warning systems, disaster response procedures and alerting communities at risk, and
- Implementation of disaster response technology to ensure that expected exposed communities, understand and follow evacuation or other procedures in the event of a natural disaster
- Re-site and/or reroute water distribution pipelines, main pipe to water treatment plant, to storage tanks and any water supply components of the project; and/or
- Compensate based on existing rules and regulations for affected parties, if any, if there is no option
- Ensure STD/HIV/AIDS awareness and prevention program into training program for all construction workers and project beneficiaries.
- Promoting safe sex awareness and protection for construction and in-flow workforces;
- Promote STD/HIV/AIDS awareness and prevention system to local communities; and
- Strictly follow the agronomist’s agrochemical use recommendation which shall be based on the project command area soil fertility status,
• implement appropriate agrochemicals application methods as per agronomist recommendations either top, side dressing, basal dressing, etc

• minimize water use and apply only enough to meet crop-water demands through regular soil moisture monitoring,

• optimize agrochemicals utilization based on irrigation command area soil fertility,

• use appropriate dose and selective type of agrochemicals

• Use recommended agrochemicals such as pesticides, fungicides and herbicides based on recommended crops variety.

• apply non-chemical prevention methods such as field sanitation, crop rotation, insect free variety, disease free variety, proper crop and water management systems.

• Maintain Economic Sustainability of the Water Users Association (WUA) through allocation of an equal optimized irrigated land and formation of group fund and saving bank account of the users (WUA) so that they can utilize whenever their exists canal damage and other tools maintenance.

• Maintain Technical Sustainability of the Water Users Association (WUA) through training so as to promote their irrigation performances, reduce water seepage and others
| Maymuq irrigatio n projects | Health impact; Aesthetic value; dust due to soil excavation and disposal; HIV AIDS, NTD, water born diseases transmission; health and safety risks to construction workers and local communities; Access Disruption due to canal construction. | • Construct optimal number of canal crossing culverts for human and animals as per designed and agreed by the beneficiaries;  
• Distribute goggles, masks, gloves, safety shoe, helmets respirators etc for the construction workers especially for those involved in stone crashing and other similar activities;  
• Undertake awareness creation on occupational health and safety for the construction workers.  
• Provide adequate facilities for treating emergencies in the case of dangerous occurrence.  
• Provide health education mainly focusing on HIV transmission and prevention; provide free counseling and distribute condoms and leaflets to workforce and | TEPA, TWRB, TEPAULA, WOA, IWUC, BOH, BOA, WHO, HC, contractor, water users committee, Irrigation beneficiary, farmers, environmental persons | 20,000 |
vulnerable groups of nearby communities; designing drainage systems for effective removal of excess water to avoid stagnant water and pool water formation.

- Locate spoil disposal site in unproductive in unproductive use it to fill borrow and quarry sites properly following safety measures.
- A waste (debris, soil, plastics, tree cuttings) management plan would be prepared and followed Strategically located and maintained temporary latrine facilities should be made available for construction workers

<p>| Gazgibla woreda small scale irrigation projects | Soil and tree loss due to quarry site excavation; The farmers farmland will be occupied by the canals; dust due to soil excavation and disposal; Damage on workers | 8450 | Communities and contractors, project supervisors |</p>
<table>
<thead>
<tr>
<th>Woreda</th>
<th>Irrigation Projects</th>
<th>Vulnerability to Water Logging (Poor Drainage; Wastage and Damage of Facilities; Dust Due to Soil Excavation and Disposal; Damage on Workers and Communities During Construction)</th>
<th>Kebele and Agricultural Office</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adiarkay</td>
<td>Small scale</td>
<td>• Avoidance of stagnant water Use of straight/slightly curving canals; Screen guide line how to manage facilities during and after the project constructed; Distribute goggles, masks, gloves, safety shoe, helmets, respirators etc for the construction workers especially for those involved in stone crashing and other similar activities</td>
<td>Kebele and agricultural office</td>
</tr>
<tr>
<td>Beyeda</td>
<td>Small scale</td>
<td>• Avoidance of stagnant water Use of straight/slightly curving canals; Screen guide line how to manage facilities during and after the project constructed; Distribute goggles, masks, gloves, safety shoe, helmets, respirators etc for the construction workers especially for those involved in stone crashing and other similar activities</td>
<td>Kebele and agricultural office</td>
</tr>
<tr>
<td>West Belesa</td>
<td>Small scale</td>
<td>• Do not disturb the spring eye source / provide spring cut-off at least 3m from the source and do not pass the canal alignments in other existing water</td>
<td>Communities and contractors,</td>
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<tr>
<td>Logging source; Introduction/ incidence of water borne &amp; water related diseases;</td>
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<tr>
<td><strong>irrigation projects</strong></td>
<td>(poor drainage; dust due to soil excavation and disposal; Damage on workers and communities during construction)</td>
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<td></td>
<td>• avoidance of stagnant water Use of straight/slightly curving canals</td>
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<td></td>
<td>• masks, gloves, safety shoe, helmets respirators etc for the construction workers especially for those involved in stone crashing and other similar activities</td>
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<td>• Construct the schemes would be in compliance with the design</td>
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<td>• Use less productive land for camp site</td>
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<td>• Use less productive land for camp site</td>
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<td></td>
<td>• During site selection, consult local inhabitants and needs consensus</td>
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<td>• Remove all temporary facilities and restore land to original condition or better</td>
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<td>• Provisional loss of land due to land required for camp sites</td>
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<td>• Waste generated from the camp site.</td>
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<td>• Waste generated from the camp site.</td>
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<tr>
<th>Dehana woreda small scale irrigation projects</th>
<th>Damage on workers and communities during construction</th>
</tr>
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<tr>
<td></td>
<td>• Distribute goggles, masks, gloves, safety shoe, helmets respirators etc for the construction workers especially for those involved in stone crashing and other similar activities</td>
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<td>13787.41</td>
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<td></td>
<td>Communities and contractors, project supervisors</td>
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<thead>
<tr>
<th>Gazo woreda small scale irrigation projects</th>
<th>Project sustainability due to The structure may not suitable due to upper catchment geology the project life span may reduce</th>
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<tbody>
<tr>
<td></td>
<td>• Construction of the schemes would be in compliance with the design</td>
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<td>12194</td>
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<td></td>
<td>Communities and contractors, project supervisors</td>
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<tr>
<th>Seqota zuria woreda small scale irrigation projects</th>
<th>• Provisional loss of land due to land required for camp sites</th>
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<td></td>
<td>• Waste generated from the camp site.</td>
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<td>• Use less productive land for camp site</td>
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<td>• During site selection, consult local inhabitants and needs consensus</td>
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<td></td>
<td>• Remove all temporary facilities and restore land to original condition or better</td>
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<td>100,000</td>
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<td></td>
<td>Communities and contractors, project supervisors</td>
</tr>
<tr>
<td>Safety Hazards</td>
<td>Environmental Impacts</td>
</tr>
<tr>
<td>---------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>Unsafe access routes and traffic hazards.</td>
<td>Impact on the existing eucalyptus trees</td>
</tr>
<tr>
<td>Impact on the existing eucalyptus trees</td>
<td>Temporary loss of land due to poor mining operation;</td>
</tr>
<tr>
<td>Temporary loss of land due to poor mining operation;</td>
<td>Health &amp; safety hazards of operation and borrow pits</td>
</tr>
<tr>
<td>Health &amp; safety hazards of operation and borrow pits</td>
<td>Unwise disposal of excess materials can affect usable lands</td>
</tr>
<tr>
<td>Unwise disposal of excess materials can affect usable lands</td>
<td>Improper disposal of solid and liquid wastes</td>
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<tr>
<td>Improper disposal of solid and liquid wastes</td>
<td>Dust nuisance or hazard</td>
</tr>
<tr>
<td>Dust nuisance or hazard</td>
<td>Barrier effects of new constructed canals</td>
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<tr>
<td>Barrier effects of new constructed canals</td>
<td>Transmission of STDs: HIV/AIDS &amp; others</td>
</tr>
<tr>
<td>Transmission of STDs: HIV/AIDS &amp; others</td>
<td>Injuries due to lack of personal protective clothes</td>
</tr>
<tr>
<td>Injuries due to lack of personal protective clothes</td>
<td></td>
</tr>
</tbody>
</table>
- Disturbance of wildlife
- Inefficient water use
- Decline in soil fertility

Impact of vertisols on:
- Structures
- Pollution of water sources due to agrochemicals
- Crop pests and diseases infestation
- Improper use of pesticides
- Prevalent of Malaria case
- Scarcity of water due to inefficient water use, during dry season which can lead Conflicts between users
- Ineffective operation of WUAs and poor Irrigation Scheme Management will reduce project benefits

- To use the mining sites, Prior approval shall be given from the environmental regulator and obtain construction inputs from certified suppliers.
- Cloth all borrow pits and quarries to minimize health and safety hazards
- Provide protective/safety clothes (Masks, eye goggles, field shoes) to lessen health and safety hazards of construction workers
- Re-use of excavated materials for site restoration and for others similar purposes
- Dispose of spoil only at designated sites
- Conducting waste separation for effective management and act according to their nature.
- Conducting waste separation for effective management and act according to their nature.
- Solid waste from packaging materials can be minimized packaging bags instead of burning or land filling
- Safely disposed non recyclable waste in garbage containers and at designated site
- Give training for all Construction staffs about waste
<table>
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<th>•</th>
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<tr>
<td>management</td>
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<tr>
<td>• Undertaking Vehicle maintenance on designated site (&gt;20m from rivers, streams, lakes or wetlands)</td>
</tr>
<tr>
<td>• Reduction of traffic volume and speed on unpaved roads and enforce maximum vehicle speeds (at or below 10mph or 4.5 m/s within working area at all times)</td>
</tr>
<tr>
<td>• Watering accesses haul roads and exposed surfaces (particularly in the vicinity of inhabitants).</td>
</tr>
<tr>
<td>• Construct road crossing structures over the main canal</td>
</tr>
<tr>
<td>• Basic health education for the employs &amp; community concerning STDs and AIDS.</td>
</tr>
<tr>
<td>• Make available free Access condoms</td>
</tr>
<tr>
<td>• Provision of personal protective/safety cloths for the construction workers</td>
</tr>
<tr>
<td>• Train all construction workers in safe use of tools and equipments</td>
</tr>
<tr>
<td>• Awareness creation concerning wildlife protection</td>
</tr>
<tr>
<td>• Try to avoid or minimize movements and noise in wildlife habitats (specifically, forests sites)</td>
</tr>
<tr>
<td>Awareness creation</td>
</tr>
<tr>
<td>• concerning wildlife protection</td>
</tr>
</tbody>
</table>
| Laygayint woreda small scale irrigation projects | • Under take timely maintenance & repair system components (canals, weir)  
• Establish buffer zones between command area and river  
• Apply Integrated pest management  
• Encourage environmentally friendly systems like IPM, manual weeding than herbicides  
Awareness creation for irrigation users regarding the prevention of Mosquito breeding  
• Develop an integrated water resources management (IWRM) plan  
• Establish an effective scheme operating organization (Encourage leaders and members involvement in system planning and management)  
Due to the location of the irrigation project, the project may create a Conducive environment for malaria reproduction; During project construction a limited area of land along the main canal & the weir site can be affected on which the system should be designed well equipped with drainage facilities so that no water lodging formation in the farm and canal structures.  
• Conservation practices should be developed such as growing grass strips, check-dam, and earth barriers. | 10517.88 | Communities and contractors, project supervisors |
| lay out | system |  |  |
**BUDGET**

The ESMF implementation budget refers to all costs that will be incurred to implement the requirements or recommendations of the ESMF. The ESMF requirements ensure that implementation of the projects integrates environmental and social issues for the sustainability of the project as well as the sub-projects. Among other things the ESMF recommends the following key issues, namely; training, capacity building, screening, reviewing and monitoring mechanisms. These issues are clearly described here under; the staff- who will be involved in the implementation of the project should be trained to enhance their skills on environmental and social issues. Building the capacity of staff from implementing Division/departments/ sections such as projects, SHE, Network Management, Chain Supply Management and Finance will enable them to screen, review and monitor environmental issues in the sub-projects to ensure compliance with requirements of the national policies and Acts as well as AfDB safeguard policies. The estimated cost for technical assistance for capacity building would be 82,118 USD.

Furthermore, screening and reviewing processes would also involve some cost implications. Every sub-project would be screened and reviewed by the implementing unit while involving Environmental Experts. The estimated costs for mobilizing and engaging the communities and implementation of ESMP would be 360,000 USD.

Monitoring plan: there will be monitoring during the implementation of the sub-projects in order to measure the effectiveness of the mitigation measures. The monitoring and reporting procedures will ensure early detection of conditions that necessitate particular mitigation measures and will furnish information on the progress and results of mitigation. The monitoring component will involve some cost implications. Based on previous experience from related projects, the estimated costs for monitoring would be 61,001 USD.

The cost implications for implementing this ESMF are reflected in the following table below. The estimates reflect the level of cost but the actual costs will be determined during the implementation phase, when the specific number of people required for training will be identified and the level of technical assistance required.
Table 4: Estimated level of costs for ESMF implementation

<table>
<thead>
<tr>
<th>S/NO</th>
<th>ESMF proposed actions</th>
<th>Concerned institutions</th>
<th>Level of cost (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Training and capacity Building</td>
<td></td>
<td>82,118</td>
</tr>
<tr>
<td>2.</td>
<td>Project footprint Offset-tree planting</td>
<td></td>
<td>140,000</td>
</tr>
<tr>
<td>3.</td>
<td>Screening and reviewing including Mobilization and engagement of communities ESMP implementation including GRM issues coordination (targeted also include LAs and CBOs)</td>
<td></td>
<td>360,000</td>
</tr>
<tr>
<td>4.</td>
<td>Supervision and monitoring activities</td>
<td></td>
<td>61,001</td>
</tr>
<tr>
<td>5.</td>
<td>LIP/A/RAP cost</td>
<td></td>
<td>80,000</td>
</tr>
<tr>
<td>6.</td>
<td><strong>Grand Total</strong></td>
<td></td>
<td><strong>723,119</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Contingency (13.2%)</strong></td>
<td></td>
<td><strong>95,685</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Total cost</strong></td>
<td></td>
<td><strong>818,804</strong></td>
</tr>
</tbody>
</table>
CHAPTER IX: MONITORING AND EVALUATION

Monitoring and Evaluation (M and E) is an important component of any project implementation and is used to check if things are going as per the plan and also to address any faults. In here, M and E will be used to see compliance against the environmental and social management plan (ESMP) which in turn will help to identify potential bottlenecks that limit implementation of the mitigation measures and also to work on correction measures so that the ESMP will be applied smoothly. The PIU, EFCCC, AfDB etc have the responsibility for the M and E of the SD implementation on a regular basis.

The monitoring and evaluation plan will follow the project activities cycles. Accordingly, twice yearly a project monitoring and evaluation will be conducted based on the environmental and social management plan. The Environment and social safeguard officer will be responsible for overall project reporting on ESMP.
CHAPTER X: CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The Seqota Declaration aims to achieve ending stunting through nutrition sensitive, specific and infrastructure interventions. Among these integrated water and irrigated projects implementation are the major priorities to achieve the goal of the declaration. On this base, various water supply and irrigation projects are designed and their positive and negative impacts were assessed. Accordingly impact mitigation strategies are put in place and resources are allocated to implement interventions that will mitigate the potential impacts of these interventions. The stakeholders responsible for taking the actions were also identified to effectively implement the ESMF.

Recommendations

To effectively implement the ESMF water and irrigation projects and their sub-projects:

• All stakeholders to be mobilized for effective implementation of the ESMF.

• To promote ownership and sustainability of the project, encourage maximum participation of the community in all stages of project planning and design, implementation and operation. For example; incorporate indigenous knowledge during the design and development phases of the scheme.

• The required compensation cost for individual land owners has to be solved before starting construction activities.

• For effective functioning of the water and irrigation scheme, close monitoring of environmental and social management plans has to be put in place. In addition, the ESMF performance monitoring as part of the Seqota Declaration high level as well as regional and woreda level performance monitoring;

• The program should encourage the use of environmentally friendly technologies (IPM,
organic agriculture, etc) and the government should provide incentive measures to promote the use of these technologies.

- The project should assist the local community by offering employment opportunities in the project activities.

- The organization of water and irrigation water users association is very essential that should be given attention.

- During the life of operation or implementation of a project there is always the possibility that some issues will change through time, this environmental management plan (EMP) should therefore be revised where necessary to mitigate the unanticipated impacts and changes in the future.
Annex I: Proposed Environmental and Social Screening Form

Name of sub-program ........................................................................................................

Sector ..............................................................................................................................

Name of the Woreda/Town/Municipality in which the sub-program is to be implemented

Name of Implementing Agency ....................................................................................

Name of the Approving Authority ................................................................................

Name, job title, and contact details of the person responsible for filling out this ESSF:

Name: ..............................................................................................................................

Job title: ............................................................................................................................

Telephone numbers: .................................................. ;

E-mail address ..........................................................

Date: .........................................................................................................................

Signature: .............................................................................................................

Part A: Brief Description of the Sub - Program

Please provide information on the type and scale of the sub-program (area, required land, approximate size of total building floor area).

____________________________________________________________________________

____________________________________________________________________________

____________________________________________________________________________

Provide information about actions needed during the construction/rehabilitation of facilities including support/ancillary structures and activities required to build it, e.g. need to quarry or excavate borrow materials, laying pipes/lines to connect to energy or water source, access road etc.
Describe how the sub-program will operate including support/activities and resources required to operate it e.g. roads, disposal site, water supply, energy requirement, human resource etc.
Part B: Brief Description of the Environmental Situation and Identification of Environmental and Social Impacts

Environmentally sensitive areas or threatened species

Are there any environmentally sensitive areas or threatened species (specify below) that could be adversely affected by the program?

i. Intact natural forests: Yes______No______

ii. Riverine forest: Yes______No______

iii. Surface water courses, natural springs: Yes______No______

iv. Wetlands (lakes, rivers, swamp, seasonally inundated areas): Yes______No______

v. How far is the nearest wetland (lakes, rivers, seasonally inundated areas)? ------------

vi. Area of high biodiversity: Yes______No______

vii. Habitats of endangered/threatened, or rare species for which protection is required under Ethiopian national law/local law and/or international agreements: yes______No______

viii. Others (describe). Yes______No______

Rivers and Lakes Ecology

Is there a possibility that, due to construction and operation of the sub-program, the rivers and lake ecology will be adversely affected? Attention should be paid to water quality and quantity; the nature, productivity and use of aquatic habitats, and variations of these over time.

Yes______No______

Comments:________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Site Hydrogeology (according to available information)
Type of aquifer (continuous, fracture)__________________________
Depth of aquifer__________________________
Seasonal fluctuations__________________________
Known quality problems__________________________

**Surface Water**

What is the water course in the surrounding of the site?
  Nature (river, stream, spring, lake)__________________________
Distance to site ____________________________
Downstream/upstream the site ____________________________
Give an assessment of potential water course sensitivity to water point construction and operation ____________________________

**Drainage conditions on-site**

Description of present drainage conditions on site (site topography, infiltration capacity of soil):
Risks of water retention (site in a low point): ____________________________
Feasibility of simple drainage improvements to eliminate water retention problems: __________
________________________________________________________________________

**Water Use and Water Users**

Describe the water use in the vicinity of the site: ____________________________

Is there potential for conflict between users; if so, how should this conflict be solved?
________________________________________________________________________

**Protected areas**

Does the sub-program area (or components of the sub-program) occur within/adjacent to any protected areas designated by government (national park, national reserve, world heritage site etc.)? Yes____ No_____

If the program is outside of, but close to, any protected area, is it likely to adversely affect the ecology within the protected area areas` (e.g. interference with the migration routes of mammals or birds). Yes____ No_____

**Contamination and pollution Hazards**

Is there a possibility that the sub-program will be at risk of contamination and pollution hazards (from latrines, dumpsite, industrial discharge, drilling oils etc)? Yes____ No_____


Landscape/aesthetics

Is there a possibility that the program will adversely affect the aesthetic attractiveness of the local landscape? Yes______No_______

Historical, archaeological or cultural heritage site

Could the sub-program alter any historical, archaeological, cultural heritage traditional (sacred, ritual area) site, cemetery, graves, or require excavation? Yes______No_______

Resettlement and/or Land Acquisition

Will involuntary resettlement, land acquisition, relocation of property, or loss, denial or
restriction of access to land and other economic resources be caused by program implementation?
Yes______ No______

Loss of Crops, Fruit Trees and Household Infrastructures
Will the program result in the permanent or temporary loss of crops, fruit trees and household infra-structure (such as granaries, outside toilets and kitchens, livestock shed etc)?
Yes______ No ______

Block of access and routes or disrupt normal operations in the general area
Will the program interfere or block access, routes etc (for people, livestock and wildlife) or traffic routing and flows? Yes______ No ______

Degradation and/or depletion of resources during construction and operation
Will the operation involve use of considerable amounts of natural resources (construction material, water spillage, land, energy from biomass etc.) or may lead to their depletion or degradation at pointsofsource?Yes ______ No______

Solid or Liquid Wastes
Will the program generate solid or liquid wastes? (Including human excreta/sewage, hospital waste,) Yes______ No______
If “yes”, does the sub-program include a plan for their adequate collection and disposal?
Yes______No______

Public Health
Will the sub-program contribute to increase in malaria due to an increase in water supply?
Yes______No______
### Part C: Social Safeguards Screening Form:

<table>
<thead>
<tr>
<th>Social safeguards screening information</th>
<th>Yes</th>
<th>No</th>
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<tr>
<td>1  Will the sub project activities reduce other people’s access to their economic resources, like land, pasture, water, public services or other resources that they depend on?</td>
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</table>
2 Will the project result in resettlement of individuals or families or require the acquisition of land (public or private, temporarily or permanently) for its development?

3 Will the project result in the temporary or permanent loss of crops, fruit trees and Household infra-structure (such as granaries, outside toilets and kitchens, etc)?

4 Will the project require excavation near any historical, archaeological or cultural heritage site?

5 Might the project adversely affect vulnerable people (e.g., elderly poor pensioners, physically challenged, women, particularly head of Households or widows etc) living in the area?

For all issues indicated by “Yes”, the applicant is expected to explain how he/she intends to mitigate them. Implementation of the mitigation measures will require using the RPF

Public Consultation

Has public consultation and participation been sought? Yes____ No____

Document meetings in the Meeting Form and attach to this ESSF (Annex 3)

Part D: Mitigation Measures

For all “Yes” responses above, describe briefly the measures taken to this effect.

<table>
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<tr>
<th>Identified Impacts</th>
<th>Mitigation</th>
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Sub-Program Categorization (tick applicable box)

- **Category A**: This sub-program has been categorized as A (Schedule 1) due to one or more major adverse impacts, and therefore cannot be funded under the UWSS Program. It will be either re-designed and re-submitted to the environmental screening process after re-design, or abandoned.

- **Category B**: This sub-program has been categorized as B (Schedule 2) due to potential environmental issue identified which can be mitigated as follows:
  - **Category B1**: No further Environmental Assessment work required; application of mitigation measures as outlined in the ESMF
  - **Category B2**: Further Environmental Assessment work required: Preparation of a separate ESIA to get a better understanding of the potential environmental and social issues that have been identified in the screening process and develop a specific Environmental and Social Management Plan

- **Category C**: No significant environmental issue identified, no specific mitigation required; sub-program implementation can proceed. Environmental Guidelines for Construction Contractors shall be appended to construction contract and applied.

- Based on the recommendations applicable in the Resettlement Policy Framework (see RPF in a separate document).

- Based on the recommendations applicable in the Resettlement Policy Framework (see RPF in a separate document).

Prepared by (name, position, signature): Date: ________________________________

Reviewed by (name, position, signature): Date: ________________________________

Cleared by (name, position, signature): Date: ________________________________