

AFRICAN DEVELOPMENT BANK GROUP



AFRICAN WATER FACILITY

CLIMATE INVESTMENT FUNDS – PPCR BUSINESS DEVELOPMENT FOR RESILIENCE PROGRAM

Improving Climate Resilience of Communities and Ecosystems Through Integrated Water Resources Management in the Ziway-Shalla Lakes Sub-Basin

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1. INTRODUCTION

Ethiopia is the largest and most populous country in the Horn of Africa region covering an area of 1.1 million km². The current population is 109 Million and annually grows at an average rate of 2.6 %¹. It shares borders with Eritrea, Sudan, South Sudan, Kenya, Djibouti and Somalia. Ethiopia is landlocked and Djibouti port is the main outlet for its import and export trade. The country enjoys a very diverse cultural and natural landscape. It is a nation of more than 80 ethnic groups. The climatic contrast extends from the coolest Ras Dashen Mountain at 4550 m.a.s.l in the Central highlands to the hottest depression of Dallol at 120 meters below sea level in the North eastern lowlands. The African Great Rift Valley dissects the western and eastern highlands from North to South². From the five major water towers in Africa, the second largest is in the Ethiopian highlands. As a result, Ethiopia is endowed with huge water resource potential with 123 Bm³ annual surface runoff and 2.9 Bm³ ground water³. The few freshwater lakes, dispersed along the Rift Valley floor, are important sources of ecosystem goods and services to local communities. The Lakes include Ziway, Shalla, Abijata, Langano, Abaya, Chamo and Turkana. Fishery, irrigated agriculture, local transport, etc are among the few benefits from the Lakes to local communities. Tana is the largest freshwater Lake in the Northern highlands, which is the source of River Abay, the main tributary to the Nile River. Ethiopia shares several of its major river waters with Djibouti, Kenya, South Sudan, Sudan, Somalia, and Eritrea.

Agriculture is the largest contributor to Ethiopia's GDP. Agriculture is the cornerstone of the Ethiopia economy accounting to 46.3% and provides almost 80% of employment. About 82.9% of the Ethiopian population live in rural areas, predominately dependent on agriculture and subsistent farming. An estimated 46% to 74% of all working women (aged 15-49) and men of the same age, are engaged in agricultural occupations. Women in agriculture also engage in livestock and crop production, both for subsistence and for commercial use. Despite the lack of sex-disaggregated data, the participation of women in crop production is estimated to be 45 to 75%, depending on the crop and stage of the production. On top of food production, export earning is obtained from sale of high value crops including coffee and spices. However, food production is largely dependent on rainfall and often affected by droughts, limited use of inputs and technology. Despite the huge water resource potential, the country is not food self-sufficient and covers the gap by importing substantial amount of grain from external markets. Although the country is extensively engaged in irrigated agriculture, climate change poses a serious challenge to key sectors such as water, agriculture, and energy. Over the past decades, rainfall has become very erratic and more unpredictable; frequency of cyclic droughts increased; rivers have become seasonal and water flow decreased in the recent past decades⁴.

¹ <https://www.comesa.int/ethiopia/>

² Tamiru Lemi, EEFRI, 2019: Threats and Opportunities of Central Ethiopia Rift Valley Lakes

³ Global Water Partnership, 2009: IWRM Implementation Project in Ethiopia

⁴ Melese Gezie, 2019: Farmer's response to climate change and variability in Ethiopia: A review

The population of the Ziway-Shalla is approximately 2.0 million people, with approximately 20% of the population living in urban areas (primarily the towns of Assela and Ziway). Most households are dependent on subsistence farming or pastoralism. Consumptive water uses in the area include, amongst others, household uses, industrial uses (e.g. Soda Ash factory), and water for commercial farming (e.g. horticulture, vineyards). Crop production and cattle farming are major economic activities, with maize and wheat being the major crops for many households. Horticulture for export is an expanding activity, with many international companies operating in the region. Rain-fed wheat is generally found on the mid-level tablelands, and rain-fed maize and irrigated vegetables in the lowest parts of the Sub-Basin. Due to the growing interest for investment in the sub-basin, there has been steady increase in the demand for water by industries, irrigation water users associations and vegetable producer's cooperatives along the rift valley lakes, corporate businesses in the dairy and agro-processing sectors, individual small businesses, growing number of urban dwellers in the sprawling towns, the rural populations. These competing claims sometimes threaten the supply for consumptive use by decimating fresh water in the source rivers.

The Central Rift Valley (CRV) region of the Ziway-Shalla sub-basin is arid and semi-arid, which is highly susceptible to climate shocks¹. Women and men are experiencing climate change shocks differently therefore it is pivotal to consider them as decision makers, stakeholders, educators, carers and experts across sectors and at all levels to lead to successful, long-term solutions to climate change. The lakes, wetlands and rivers ecosystems are therefore stressed from competing claims for land, water, and other resources due to population pressure and investment projects. The landscape and communities in the low-lying lakes basin need to be resilient and build adaptive capacity to overcome the impacts of climate change, particularly on water availability and agriculture.

Ethiopia has adopted the principles of Integrated Water Resources Management (IWRM) in its Water Resources Management policy and has already established water legislation, strategy, and a program for their implementation. Ethiopia aims to become a lower middle-income country by 2025 on a climate resilient and green economic growth path that is socially equitable and inclusive. One of the pillars of the strategy is giving high priority to the water sector development⁵. With support from the PPCR, Ethiopia developed a Multi-Sector Investment Plan⁶ highlighting five key climate impact factors that require urgent investment action: (i) adverse impacts on the agriculture and livestock sectors; (ii) effects on the hydropower sector; (iii) increased flooding impacting on the transport sector; (iv) effects of drought on government expenditure associated with vulnerability and food insecurity; and (v) impacts on irrigation and hydropower due to conflicts associated with competing demands for water (SPCR 2017). These are distinct development priorities necessitating a range of investments for their fulfillment. Unfortunately, Ethiopia's SPCR has remained unfunded following its endorsement by the PPCR Sub-Committee in June 2017, and many of the espoused investment areas still lack key socioeconomic and ecological technical inputs, particularly at the sub-national level, to achieve the level of readiness needed to become effective.

To better understand the importance of climate-water-population linkages in addressing these challenges and to fully integrate the implications of these linkages into an effective water resources development plan, a significant amount of technical assistance is still needed. The technical assistance would contribute to mainstreaming climate risk management, gender, and resilience into economic planning and development in the Sub-Basin while considering inclusive stakeholder consultation. It would also build upon and scale up a water allocation plan to promote efficiency and ensure long term water security, address biodiversity issues surrounding several lakes in the area, and promote the upstream watershed management critical to building climate resilience.

⁵ FDRE, 2015: Climate Resilience Strategy: Water and Energy

⁶ SPCR, 2017: PPCR strategic program for climate resilience for Ethiopia

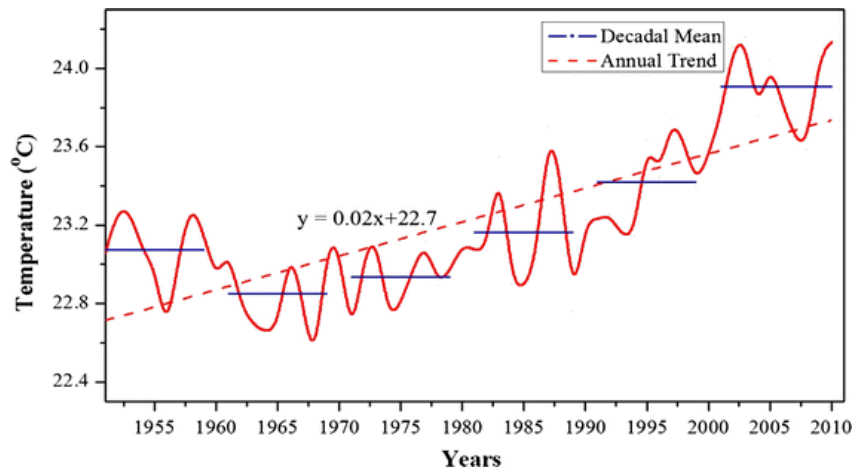
2. STRATEGIC THRUST AND RATIONALE

2.1. Climate Rationale

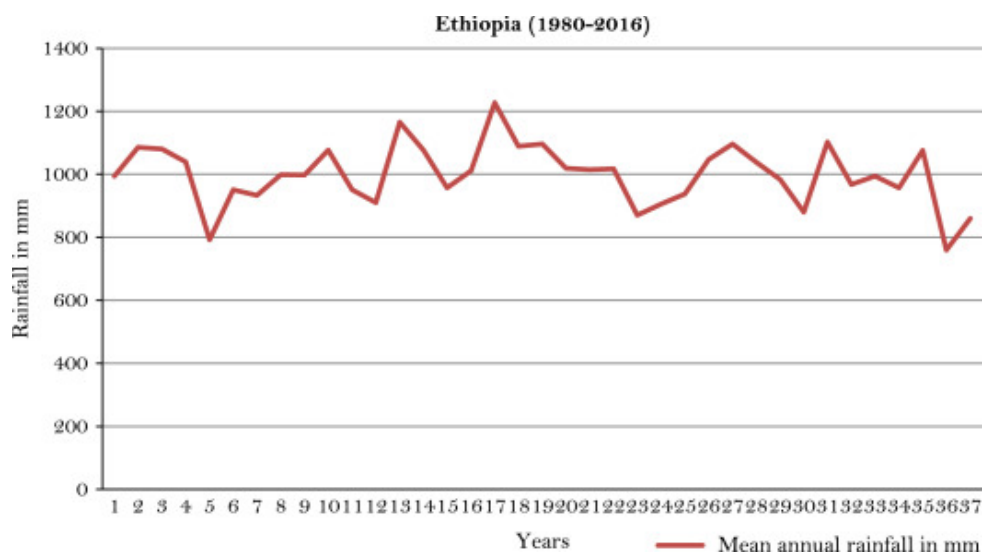
2.1.1 Climate change and variability, social and economic impacts in Ethiopia

In Ethiopia, climate variability and change are mainly manifested through the variability and decreasing trend in rainfall and increasing trend in temperature (Figure 1). The trend analyses of recorded data showed that mean annual temperature has been increasing at an average rate of 0.8 to 2.7°C in the past six decades⁷. Similarly, spatial and temporal variability of rainfall has increased with a more unpredictable pattern. Annual rainfall variability is the most significant climate variable that characterizes rainfall, and highly likely to be more unpredictable with expected increase in the frequency of climate extremes. The variability is more rampant in spatial terms and the country could experience changes in seasonal rainfall distribution. The pattern of the short rainy season could shift both temporally and spatially, which will have a serious impact on food production and rural livelihoods, particularly in the arid and semi-arid lowland regions including the Rift valley, and particularly affecting women and girls.

Figure 1. Mean annual temperature and rainfall trend in the past decades in Ethiopia



⁷ (FDRE, 2011): Climate Resilient Green Economy Strategy, Ethiopia.



Given the future climate change uncertainty in the country, projections for the future clearly show that temperature will rise within a range of 0.5°C to 2°C by the 2050s relative to current state. Not only a rise in temperature but also incidences of droughts and floods have increased in the last 10 years relative to the earlier decades. The social and economic impact relates to the risk of vulnerability. High level of urban and rural poverty is a key factor for increasing vulnerability to climate change in Ethiopia. The adaptive and coping capacity is very weak. In the past, weather variability, extreme events and hazards have resulted in a substantial negative impact on economic growth in agriculture and related sectors. Agriculture alone comprises 45% of total economic output and contributes 78% to employment. However, agriculture is dominated by smallholder subsistence farming (who also include women), with an average farm size of less than 0.5 hectares, making it very vulnerable to climate change. For instance, droughts reduced the total GDP by about 1-4%. Consequently, recurrent droughts and floods have resulted in severe loss of agricultural crops and livestock, undermining the country’s food security.

2.1.2 Climate Change Impacts on Water Resources

The water sector is among the most vulnerable to climate change in Ethiopia. The country relies on its water resources for power generation, improving food production through irrigation, and increasing water availability for industrial and domestic use. Under rising temperature and increasing variability, most of the rivers have experienced reduced annual flow due to increased surface runoff. High rates of deforestation, land degradation in the highlands and limited catchment management interventions contributed to the reduced river flows. Similarly, shallow and deep ground water resources are highly undermined from reduced infiltration and recharge. In its climate resilience strategy of the water sector (FDRE, 2014), the Ethiopian government prioritized actions that promote irrigation and improve access to water supply and hygiene (WASH). Some of these actions include expanding small and medium scale irrigation, improving resilience of rainfed agriculture with technology, improving water allocation through efficient management and coordination, strengthening the One WASH program to improve universal access and focusing on most vulnerable communities, and promoting self-supply by providing storage facilities and participatory management in areas of critical shortage. However, these actions require technical assistance in mainstreaming resilience and gender into policy and development planning from local to national level. Like in many other parts of the country, the Ziway-Shalla Sub-Basin faces a range of climate-affected land and water challenges such as land degradation, soil erosion, unsustainable water consumption, biodiversity loss, deforestation, climate variability and deteriorating water quality and quantity. Much of the population in the Sub-Basin has limited water resources and is dependent on rain-fed agriculture and pastoral farming. As the basin is a closed basin, upstream water-uses can have a substantial impact on the ‘terminal lakes’ found in the Sub-Basin.

2.1.3 Climate Change Impacts on Water Related Health Hazards in Ethiopia

Climate change triggers vector-borne and water-borne diseases to humans, crops and livestock. Because of the diverse agro-climatic variability, Ethiopia is affected by climate triggered diseases. An estimated 70 % of the population lives in malaria-infested areas and seasonal outbreaks cause up to 20 % of deaths of children under age every 5-8 years⁸. Hence, increased temperatures will likely expand the range of malaria to highland areas and increased flooding will facilitate the spread of waterborne diseases like diarrhea. The Rift valley lakes basin, including the Ziway-Shallla sub-basin are highly prone to Malaria during the dry spell. The link between climate triggered drought and health is a major challenge in the lowlands. More than 70,000 deaths annually are linked to indoor and outdoor air pollutants, which is expected to aggravate in a hotter and drought-prone climate. Evidence suggests that children born during a drought are 36 % more vulnerable to diseases and malnourishment. Recurrent El Niño droughts leave millions of people without access to water, sanitation and hygiene services. Drought episodes in the past have caused significant loss in property, human life and mass migration. Thus, future climate projections suggest health hazards due to climate change will rise⁷.

2.1.4 Projected Climate Change Impacts on Water Infrastructure

Climate projections for Ethiopia show Mean annual temperature set to increase by 1-3°C by 2060 with more erratic rainfall and increased seasonal unpredictability. This will be manifested in increased incidence of drought, heat waves, as well as more intense precipitation events⁹. The Climate Resilient Green Economy (CRGE) strategy identified health and water sectors as the most vulnerable next to agriculture. The existing high variability in the frequency and spatial distribution of extreme weather events is expected to intensify. This will affect water supply reservoirs, hydropower reservoirs, irrigation facilities, power availability, transportation, food production and export earnings. The freshwater lakes are anticipated to decrease in water volume and size due to increased evapotranspiration loss and sedimentation. As a result, the government of Ethiopia is embarking on a huge tree planting campaign to curb the environmental degradation in the major catchments of the water infrastructure in the country. Especially, water supply and irrigation infrastructure (reservoirs, canals, storage dams, etc) are the main facilities that climate change will affect most.

2.2. **COVID-19 Rationale**

Though COVID-19 has not been linked to climate change, outbreaks of zoonotic diseases such as COVID-19 may increase in the future due to human drivers such as deforestation and climate change, in turn creating the potential for more pandemics. The COVID-19 pandemic has demonstrated that sustainable access to adequate quantities of acceptable quality water are essential to prevent, suppress and treat future outbreaks. Medium term responses to COVID-19 should focus on strengthening water security to prepare for future pandemics and support human health. This could help societies avoid some of the economic and human costs associated with infectious disease outbreaks.

Ethiopia's response to COVID-19 is two pronged. The immediate and short-term focus is to prevent the spread of infection by putting strict guidelines on use of protective materials, hand washing facilities in public and private businesses, media campaign on COVID-19 information to the public, and implementing several regulatory and public service-related measures to contain the spread. Alongside the prevention, reducing the impact of COVID-19 on the vulnerable sections of the society particularly the poor, is a major focus. Redirecting resources to the provision of protective materials (masks, sanitization and handwashing), improving access to food for the poor and mobilizing communities to support fellow citizens are all some of the short-term targets.

⁸ USAID, 2016: CLIMATE CHANGE RISK PROFILE, ETHIOPIA: COUNTRY FACT SHEET

⁹ <https://www.who.int/globalchange/resources/wash-toolkit/ethiopia-climate-change-wash>

However, Government remains concerned about the water and food supply during the COVID-19 period and, the anticipated food shortage that might occur post COVID-19. Thus, Government's long-term focus is improving access to water and food supply in the medium to long-term period. Expanding small-scale irrigation is among the top priorities. Government is currently distributing small to medium capacity water pumps to farmers to boost food production. On the other hand, tree planting has become a priority action in reducing land degradation and landscape restoration for increased water production (the government has embarked on an ambitious plan to plant 5 billion seedlings in one season alone).

The proposed TA will directly contribute to enhancing and improving availability of water for domestic use to prevent COVID-19, as well as increased food production through small-scale irrigation to address the anticipated food shortage that will result from COVID-19. In addition, community and landscape resilience building against climate shocks will ensure the further safeguarding of livelihoods, which are doubly under threat from the current and potential impacts of COVID-19. Sustainable water management will be instrumental to the Government of Ethiopia's fight against COVID-19 over both the short and long terms.

2.3. Social, Environmental, and Governance Issues

Water is an essential good for social, economic and environmental wellbeing of society, and access to clean and fresh water is among basic rights of people. The WHO (2006)¹⁰ reported that about 84 % of the global rural population does not have access to potable water. In Ethiopia, due to complex social and economic factors, many communities in rural and urban centers do not have access to potable water. As a result, young children and women are exposed to diseases and malnutrition. Because of high population pressure, people are forced to live in unhygienic conditions. Moreover, access to water in rural Ethiopia remains a challenge to women and children, as they must travel long distances to fetch water. Water supply in the rural communities does not have a piped system and main sources of consumptive water are open sources such as rivers, ponds and lakes, most likely with high levels of pollution. The poor quality of water affects women's health, particularly during pregnancy and maternity. Due to the cultural bias on gender, and the labor needed to fetch water in the household, young girls and women end up uneducated or quit school at an early age, often leading to early marriage. Thus, access to water has a significant social impact in rural and poor urban centers.

In its national development plans, the Government of Ethiopia (GoE)¹¹ aims to increase access to safe water supply and basic sanitation in rural and urban areas and to invest more resources into water related infrastructure in the coming years. For example, under the One WASH National Program, the GoE targets to ambitiously increase access to safe water supply to 98 % for rural areas and 100 % for urban areas and to provide all Ethiopians with access to basic sanitation. However, this will perhaps require lots of resources from different potential sources (donors) and will take several years. The GoE has also put a lot of effort in incorporating water, sanitation and hygiene into its health, education, humanitarian assistance, democracy and governance programs. Similarly, water resources management efforts are incorporated into the agriculture and food security programs. In 2020, Ethiopia has comprehensively reviewed its water resources policy¹² and adopted the principles of Integrated Water Resources Management (IWRM) in the policy. It has also put in place the necessary water legislations, strategy, and programs for the implementation. Among them is the newly reorganized Basin Development Organization, mandated with the monitoring, planning and development of country's major water basins. The Rift Valley Lakes Basin Organization (RVLBO) was established in 2014 to regulate, monitor and manage the water resources of the Rift Valley Lakes Basin, including the Ziway-Shalla Sub-Basin.

¹⁰ https://www.who.int/water_sanitation_health/monitoring/water.pdf

¹¹ <https://www.usaid.gov/ethiopia/water-and-sanitation>

¹² (FDRE, 2020): National water policy and strategy (Final Draft, unofficial)

Among the environmental challenges linked to water resources management and development in the country, most serious is the impact from climate change extremes. Droughts (from El NINO events) cause water stress in the arid and semi-arid lowlands including the Rift Valley, leading to vegetation degradation, biodiversity loss and livelihood loss. In the highlands, the seasonal shift of onset and secession of rainfall, flood extremes during ENSO events, cause inundations, soil erosion, sedimentation of water infrastructures, crop failure, loss of assets and mass displacement. Such impact has already been witnessed in the summer of 2020 in the country. If not managed through policy and technical preparedness, the environmental disasters aggravate the social and economic losses. Hence, the TA will serve as a steppingstone to galvanize the efforts in building climate resilient landscapes and communities through the water sector intervention.

2.4. Strategic Thrust

Ethiopia has launched Climate Resilient Green Economy¹³ (CRGE) strategy, which aims to achieve middle-income status by 2025 while developing a green economy by following a green growth path that fosters development and sustainability. The green economy plan is based on four pillars: (i) Improving crop and livestock production practices for higher food security and farmer income while reducing emissions; (ii) Protecting and re-establishing forests for their economic and ecosystem services, including as carbon stocks; (iii) Expanding electricity generation from renewable sources of energy for domestic and regional market and (iv) Leapfrogging to modern and energy-efficient technologies in transport, industrial sectors, and buildings. Under the umbrella of the CRGE strategy, Ethiopia has prepared Climate Resilience Strategy for Water and Energy Sectors (FDRE, 2015). For the water sector resilience, seven strategic priorities, categorized under irrigation, access to WASH and Cross cutting issues (data systems and synergy with other CR sectors), are launched for implementation. Some of the priorities include accelerating irrigation, improving resilience of rainfed agriculture, balancing water demand and management of water allocation, increasing access to universal WASH and enhancing self-supply.

The proposed TA is, thus, in congruent with the national strategy for water resilience and complements the GoE's effort to address climate impact in water sector. The TA is also consistent with the National Adaptation Plan¹⁴ (NAP-ETH), which will build on the country's development policy framework, including the second Growth and Transformation Plan (GTP II), the NDC¹⁵ and the ten-year Home-Grown Economic Development Plan (2021-2030). Its goal is to reduce vulnerability to the impacts of climate change by building adaptive capacity and resilience. The various strategic plans focus on the sectors that have been identified as most vulnerable, which are agriculture, forestry, health, transport, power, industry, water and urban centers. The TA will enhance and promote the national efforts towards the efficient, equitable and optimum utilization of the available Water Resources.

This project will contribute to meeting the objectives of Ethiopia's SPCR particularly the Climate resilient forest and landscape development, conservation, and utilization. A baseline survey of the watershed and lakes environment and accrued ecological services will be conducted to take stock of the existing conditions and determine the interventions required to improve, protect and maintain the watershed and enhance the ecological services as part of an integrated project package. Improved land and water management contribute to the delivery of economic growth in agriculture, forestry and livestock production. The proposal will also contribute to Basin/Sub Basin Resource Planning and Management through the preparation of an optimized, climate-informed water resources development plan and agreed water allocation plan based on Integrated Water Resources Management (IWRM) principles for implementation in the Ziway-Shalla Sub-Basin.

¹³ (FDRE, 2011): Climate Resilient Green Economy Strategy, Ethiopia.

¹⁴ <https://www4.unfccc.int/sites/NAPC/Documents/Parties/NAP-ETH%20FINAL%20VERSION%20%20Mar%202019.pdf>

¹⁵ <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Ethiopia%20First/INDC-Ethiopia-100615.pdf>

The TA is aligned to the Bank Group's Ten-Year Strategy (2013 – 2022) with its twin objectives of inclusive growth and transition to green growth. It promotes green growth by improving catchment management for while ensuring inclusiveness of vulnerable and poor people as beneficiaries of the potable water supply and improved sanitation services. It is also aligned to the High 5 on improving the quality of lives of the people and the Bank's 2018-2022 Country Strategy Paper, the Bank's Second Climate Change Action Plan (2016-2020), the New Bank Policy on Water (2020), the New Gender Strategy for 2021-2025, and the Urban Development Strategy (2011) by integrating sustainable environmental management with water use.

3. PROJECT DESCRIPTION

3.1. Project Development Objective

Water is a very scarce resource in the sub-basin. The users are very diverse in consumptive demand, their scale of operation and quantity of utilization. In the upper catchments of the source rivers, water is mainly utilized for agriculture (smallholder production of irrigated crops such as vegetables), for consumption by people and livestock. The demand and claim for water increase towards the middle and downstream sections of the sub-basin with high level of competitive use. Water from the mid-course of the rivers and from the lakes is largely utilized by irrigated-agricultural producers of large number of user associations organized into cooperatives. These are commercial farmers with well-established market linkage from the farm-gate to the export market in the value chain. The scale of production has been increasing and their members are also increasing (currently estimated up to 500 farmers). Women farmers are well engaged members and fairly benefited from such associations. In the downstream areas of the lakes, large scale commercial farmers who produce flowers, beans and berries for the export market are the largest users of water in the sub-basin. These are large and many in numbers (from 50-60 in numbers). The demand for water is met not only from the surface sources but also ground water sources. Medium and large-scale industries such as wine-processing plants, soda ash production factory, agro-processing plants, water bottling plants, tanneries are also established in significant numbers (20-40 in numbers) further straining the demand for water in the sub-basin.

Besides, the rift valley is a major tourist rout and the lakes are used for navigation and recreational purposes. The downstream lakes depend on water flowing from the upper streams. Such activities support local livelihoods, mainly petty trades by women. The upstream rivers are also the main sources for urban water supply for the small town in the valley. Adding to these are those commercial businesses of the urban centers that require significant amount of consumptive water (Hotels, lodges, business centers, hospitals, abattoirs, schools, etc...). At the bottom of the demand ladder are the rural and urban people who depend on their daily needs of water for drinking, cooking, and hygiene. This already strained water use and demand is highly threatened by the impacts of climate change. It is with this compelling challenge that a climate-considerate allocation plan is sought, and this TA will contribute to ensure the interests of the users are addressed. Hence, the project objective is to contribute to the preparation of an optimized, climate-informed water resources development plan with an investment strategy and water allocation plan based on the existing realities on the ground and an Integrated Water Resources Management (IWRM) principle for implementation in the Ziway-Shalla Sub-Basin. Although the local level water utilization decisions are made by communities and local administrations, basin scale allocations and investment decisions are passed at the national and regional level institutions. Local level use and management are governed by bylaws whereas allocation for investments are made at the Federal and regional bureau levels and governed by proclamations, laws and regulations.

The proposed action specifically intends to:

- i. Contribute to mainstreaming gender, climate risk management and resilience into economic planning and development in the Sub-Basin.

- ii. Ensure the interests of the different economies of scale (smallholders, cooperatives, businesses, industries, etc...) are addressed in the planning and important segments of society, particularly women are given due consideration
- iii. Contribute to building upon and scaling up of a water allocation plan to promote efficiency and ensure long term water security, address biodiversity issues surrounding several lakes in the sub-basin
- iv. Promote the upstream watershed management that is critical to building climate resilience
- v. Enhance community resilience through climate smart water use and management technologies, particularly addressing the interests of women during technology selection
- vi. Increase awareness and capacity of local and regional government, water user cooperatives, business leaders, investors and community stakeholders on climate-resilience and water resource management.
- vii. Identify water resource utilization gaps (including gender gaps) and challenges that need to be addressed and mainstreamed in the planning and future project preparation at the different level of administration (national, regional, local)
- viii. Ensure continued management and engagement of stakeholders (inclusive participatory process) with particular emphasis on local water user's associations, women groups, local administrators, the national key players in the decision-making process

The project will have the following outcomes:

- i. Availability of quality hydro-metrological and climate data and information for WRD (Water Resources Development) planning and operations
- ii. Mobilisation of investment and implementation of gender responsive WRD projects and programmes in accordance with the Sub-Basin plan,
- iii. Management and use of water resources use in accordance with the water resources allocation plan;
- iv. Restoration of the depleted water resources environment achievement of sustainable water security in the Sub-Basin;
- v. Increased awareness and capacity of local and regional government and community stakeholders on climate-resilience and water resource management.
- vi. Identification of the gaps and challenges (including gender gaps) that need to be addressed and mainstreamed in the planning and future project preparation to; (i) improve the standard of living of the Basin's population, (ii) promote inclusive growth and, (iii) enhance the population's preparedness and adaptation to deal with vulnerability to climate change impact and while ensuring long term water security in the Sub-Basin.

3.2. Project Beneficiaries

Regional sectoral offices, water resources planning experts, Basin development organizations within the Federal Ministry and local councils are key beneficiaries. Particularly, the Rift Valley Lakes Basin Development Organization (RVLDO) will primarily benefit from the technical assistance since its mandate is to initiate and guide policy measures necessary for the implementation of an integrated water resource management process within the basin. Furthermore, HoA-REC&N will benefit from the information and knowledge to be generated from the project for promoting best practices on sustainable land and water resources management augmenting to its environmental management mandate in the Horn of Africa region.

Ultimate beneficiaries of the project would comprise poor rural communities across the Ziway-Shalla Sub-Basin who are susceptible to the negative impacts of climate change and are highly dependent on rainfed subsistent agriculture. Besides, the thriving private sector engaged in commercial irrigated farming in the lakes area will benefit from the initiative. The technical assistance provides an opportunity to ensure that gender-responsive water resources management and allocation planning is integrated with climate resilience strategies. This includes soil erosion prevention activities, irrigation, groundwater and catchment management. About an estimated one million people (at least 30 % women) are expected to benefit from the implementation of the project actions in the Ziway-Shalla Sub-basin.

3.3. Project Outputs and Activities

Output 1: Climate-resilient Water Resources Development plan that has integrated measures against the impacts of climate change (droughts and floods) developed for the Sub-Basin

Activity 1-1 Undertake hydrological assessment, gap analysis on impacts of climate change on the water resources, landscapes and socio-economy of the sub-basin; gender analysis and develop mitigation strategies and restoration measures.

Activity 1-2 Assess the state of climate resilience integration in the sectoral planning and development of water infrastructure in the sub-basin and at the national level; assess climate response tools, instruments, strategies and policies;

Activity 1-3 Contribute to integration of climate-resilience in designing an investment strategy and water allocation plan based on Integrated Water Resources Management (IWRM) principles

Activity 1-4 Review and support the development of a basin-wide water monitoring plan to provide a framework for monitoring the seasonal trends in water levels and quality and inform targeted interventions.

Output 2: Local and regional government capacity, local community awareness to incorporate gender-responsive climate resilience into economic and social development planning and water infrastructure increased

Activity 2-1 Conduct institutional capacity assessment on climate resilience integration into sectoral planning, coordination in the water and other sectors, knowledge and expertise gap analysis

Activity 2-2 Develop capacity building training manuals and provide gender-responsive capacity building training to decision makers, experts and local level representatives

Activity 2-3 Analyze Community vulnerabilities and capacities using the participatory Climate Vulnerability and Capacity Analysis (CVC A) to improve community resilience capacity

Activity 2-4 Assess the role of women in local-level water management, e.g in water use associations and farmer associations and recommend ways of promoting women's effective participation and leadership in local-level water management decision-making processes (e.g., water user associations) and their inclusion in IWRM planning processes, and water and land management planning.

Activity 2-5 provide local capacity improvement through awareness creation workshops and relevant gender-responsive training on climate resilience building activities including climate smart agriculture, climate smart water technologies, integrated land management to local communities. The support will target both men and women farmers and other water users. The training offered will ensure that the outreach, design, and delivery uses local/context-specific, and innovative approaches that would seek to improve women and men's uptake of new knowledge and technologies.

Output 3: Livelihood-based climate-resilient water resources management is promoted and access to economic assets to increase resilience in climate variability improved

Activity 3-1 Provide soft and hard capacity support to beneficiaries to enhance community resilience through climate smart water use and management (training and equipment)

Activity 3-2 Promote upstream catchment management interventions by local communities to build resilient landscapes and ecosystems that warrant sustainable supply of water for production

Activity 3-3 Support climate smart soil and water conservation technologies, including agro-forestry, climate-smart agriculture, reforestation, and livelihood development for strengthened resilience and water security in the sub-basin.

Activity 3-4 Promote alternative energy sources for productive use (solar) and local level production of energy efficient technologies for household use to ensure climate resilient water management, particularly among women

Activity 3-5. Organize women and young girls into user groups/business groups to access existing local saving and credit cooperatives for soft loans to start small businesses (e.g., souvenirs, handcrafts, etc..)

Activity 3-6. Provide social business and entrepreneurial skill development trainings (that fits well into the local conditions) to women business groups to promote and enhance self-reliance for income and economic empowerment.

3.4. Project Cost and Financing

The project is estimated to cost US\$930,000, financed through the CIF-PPCR Funds and co-financing. A summary of the expenditure is shown in Table 1. Detailed expenditure is presented in Annex 2.

Table 1. Project Cost and Disbursement Category

Nr.	Item	Quantity	Amount in applicable year (US\$)			Disbursement Category
			2021	2022	Total	
1	Output 1: climate-resilient Water Resources Development plan that has integrated measures against the impacts of climate change (droughts and floods) developed for the Sub-Basin	LS	250,500	116,300	366,800	Service, Goods, project Management
2	Output 2: Local and regional government capacity, local communities' awareness to incorporate gender-responsive climate resilience into economic and social development planning and water infrastructure increased	LS	159,000	82,900	241,900	Service, Goods, project Management
3	Output 3: Livelihood-based climate-resilient water resources management is promoted and access to economic assets to increase resilience in climate variability improved	LS	160,500	81,800	242,300	Service, Goods, project Management
	Sub-Total		570,000.00	281,000.00	851,000	
	Contingency (9.3%)		53,000	26,000	79,000	
	Grand Total		623,000	307,000	930,000	

The eligible expenditures include: (i) consultant services; (ii) non-consultant costs for local training and workshops and (iii) administration and operating costs essential to carry out the technical assistance, such as consumables, communications, direct costs (iv) project management costs, (v) transport and travel (vi) materials and equipment. The government will provide counterpart staff. The technical assistance consultants and housing accommodation, particularly in the field; data and information access; office supplies; secretarial assistance; and other in-kind contributions will be built into the cost of their services.

3.5. Lessons Learned from other Projects

In designing this project, lessons learned from other national and similar international programs from African countries were considered. The important lessons considered in this project design can be put into: (i) issues relating to climate resilient water security are wide ranging, complex, involve every sector of the economy, and can be grouped under three key categories: land management, water management, and human resource management and (ii) project design needs to be based on a realistic assessment of the country's (beneficiary) existing and potential future institutional capacity.

4. PROJECT FEASIBILITY

4.1. Cost Effectiveness

The project's strong focus on Cost-Effectiveness and Efficiency manifests in several elements. The Project includes an optimized mix of interventions for a paradigm shift towards a climate-resilient water sector: water efficiency, support for integration of water security into investment programming, and broad communication and awareness activities. This combination with interventions under the baseline operation will allow for increased resilience and optimization of synergies and the minimization of costs.

4.2. Gender

Gender inequalities in a changed climate could be increasingly complex. These inequalities occur within the context of the political, economic, and social structures of each individual country, and therefore are not related solely to changed biophysical climatic conditions. The adverse effects of climatic change are already felt in many aspects of Ethiopian women's lives, raising gender equalities considerations in the country. Projected climate change has a potential to exacerbate the existing inequalities further worsening.

In Ethiopia, food and water management are women's primary responsibilities. In a changed climate, poor women will be burdened with food preparation, distribution, and cultural expectations related to food management. Again, female-headed households will be particularly insecure. With lack of freshwater resources, women will be required to bring water from far away, which may increase their vulnerability to rape women's health and wellbeing indicators and decreasing their survival rate. Although the lack of water for drinking and cooking may affect women's survival, water use for personal hygiene, including menstrual hygiene, may increase women's risk of reproductive tract infections.

The proposed project will be consistent with the identified risks and be sustainable and accessible to even the most vulnerable groups. Parallel discussions will be facilitated with gender equality-based focus groups to ensure the representative inclusion of the priorities of men, women, and young people alike. The idea is to train the various groups on the climate-informed water resources development plan and water allocation plan relating to the root causes of community vulnerability. The training offered will ensure that the outreach, design, and delivery uses local/context-specific, and innovative approaches that would seek to improve women and men's uptake of new knowledge and technologies.

Additionally, the proposed action will promote social well-being through empowering women and girls on how to reduce the physical and health burden on them due to water collection; that will increase learning opportunities for girls and opportunities for productive and social application.

5. IMPLEMENTATION ARRANGEMENTS

5.1. Implementation Arrangements

The recipient of the project grant will be the Horn of Africa Regional Environment Centre and Network (HoAREC&N) and The Rift Valley Lakes Basin Organization (RVLBO). The HoAREC&N will be the Executing Agencies (EA) will be responsible for overall project and The RVLBO, as the co-implementer, will provide overall technical guidance and will be responsible for technical quality control, review of outputs, validation and adoption by the relevant authority. RVLBO was established in 2014 by the Government of Ethiopia for managing the water resources of the Rift Valley Lakes Basin, including the Ziway-Shalla Sub-Basin.

A Project Implementation Unit headed by a Project Manager with qualifications and experience acceptable to AfDB will be established in Hawassa. The Project Manager, with responsibility of project implementation, will be operationally responsible to HoA-REC&N and will receive guidance from RVLBA on project technical matters. The PIU staff will consist of a secretary, an administrative and financial officer, a coordination, and monitoring officer, nominated among HoA-REC&N and RVLBO staff with qualification and experiences acceptable to AfDB. HoA-REC&N will provide a procurement officer on part-time basis to support the PIU during the initial procurement phase. A gender officer from, from HoAREC/RVLBA will support the implementation and M&E phases. The Project Manager and PIU staff will be appointed/assigned from HoA-REC&N and RVLBA.

The services of a consultancy firm will be contracted to undertake the preparation of the basin development and water allocation plan and related institutional development and capacity-building tasks. The services will be provided by a reputable and qualified international consulting firm recruited on a competitive basis in accordance with the Bank rules and regulations. RVLBO will assign technical counterpart staff to work with the consultants' staff, help mobilize relevant local stakeholders, and participate in the analysis.

Project steering, validation and adoption of outputs will be assured through establishment of the Project Steering Committee (PSC) chaired by the Director General of the RVLBO. The PSC shall include representatives from the Federal Ministries responsible for water/irrigation; environment/climate change; agriculture/natural resources; fishery/livestock; gender and children affairs; Oromia Regional State; SNNP Regional State and HoA-REC&N. The Project Manager will serve as the Secretary of the PSC. A Technical Advisory Panel consisting of qualified and experienced professionals from the national universities active in the Sub-Basin will be established to support the PSC with respect to the technical and scientific integrity of the study. The PIU shall establish a stakeholders' engagement platform for consultation with key stakeholders in the Sub-Basin (including women) to ensure transparent, accountable participatory processes on the various elements of project activities and output development. The stakeholders will be consulted during the elaboration of the water resources development and water allocation plan.

5.2. Implementation Schedule

The project will be implemented over a period of 18 months from approval. The activity implementation schedule is presented in Annex 3.

5.3. Procurement

Procurement will be carried out by the Executing Agency, HoAREC&N. For each contract to be financed by the grant, the corresponding procurement methods and consultant selection methods; estimated costs; prior-review requirements; and timeframe that have been agreed between the Grantee and the AfDB will be provided in the updated procurement plan for the project.

5.4. Financial Management

HoAREC&N, as the project's Executing Agency will be responsible for coordination and management of the specific activities and financial management, including planning and budgeting, record keeping, accounting and reporting. Disbursement of the grant funds for the Technical Assistance for RVLBO will follow AfDB guidelines. The Executing Agency will open a special account in United States Dollars (USD) at National Bank of Ethiopia with the corresponding local currency operating accounts. Midterm and final auditing of the project will be conducted by external auditors and the result will be reported to the donor.

5.5. Results Monitoring and Evaluation

Based on the project result frame work and key milestones, project online monitoring and evaluation system will be developed. This will report on implementation progress directly from the target areas. Proper training will be delivered to project staff and they will report monthly on the activities that have been carried out. Furthermore, quarterly physical project site visit and supervision will be conducted, and implementation progress will be evaluated in accordance to the implementation plan.

The project will be monitored bi-annually, and narrative (including gender aspects) and financial reports will be prepared and submitted according to the Grant reporting requirements.

5.6. Sustainability

The project will ensure Social Sustainability through improving and developing new skills by strengthening the capacities at different institutional levels, including district and community level training. The project will also ensure environmental sustainability by mainstreaming climate risk management and resilience into economic planning and development in the Sub-Basin; build upon and scale up a water allocation plan to promote efficiency and ensure long term water security, address biodiversity issues surrounding several lakes in the area and promote the upstream watershed management critical to building climate resilience.

The project sustainability will be more guaranteed by building institutional and human capacity among local government experts and institutions and local community members on core issues of the project like on climate resilience water resource management.

5.7. Stakeholder Engagement Approach

This project will require broad stakeholder engagement from federal to local district governments, universities, local communities and civil societies. Project steering, validation and adoption of outputs will be assured through establishment of the Project Steering Committee (PSC) chaired by the Director General of the RVLBO. The PSC shall include representatives from the Federal Ministries responsible for water/irrigation; environment/climate change; agriculture/natural resources; fishery/livestock; gender and children affairs; Oromia Regional State; SNNP Regional State and HoA-REC&N. The Project Manager will serve as the Secretary of the PSC. A Technical Advisory Panel consisting of qualified and experienced professionals from the national universities active in the Sub-Basin will be established to support the PSC with respect to the technical and scientific integrity of the study. The PIU shall establish a stakeholders' engagement platform for consultation with key stakeholders in the Sub-Basin to ensure transparent, accountable participatory processes on the various elements of project activities and output development. The engagement platform will ensure outreach to and participation of local male and female water users in the CCVA or other stakeholder processes in the sub-basin, such as male and female members of farmers' unions; women's organizations; and local government officials both men and women (with participant numbers tracked, by sex). The stakeholders will be consulted during the elaboration of the water resources development and water allocation plan.

5.8. Knowledge Building

This project intends to develop skill and knowledge by enabling the Rift Valley Basin Authority, the Regional States and the Federal Government of Ethiopia to implement an Integrated Water Resources Management (IWRM) based water resources development strategy in the Sub-Basin that will focus on the sustainable use of the available water resources for economic and social development, as well as conserving and maintaining the Lakes' water resources.

The knowledge will be captured by conducting climate related gap analysis in the water sector, the socioeconomic including gender gaps and landscape impacts analysis, and the involvement of key stakeholders are all critical to identifying and preparing projects that respond to priority needs of communities, government, and the environment now and in the future. The key role women play/should play in local-level water management will be assessed, e.g. in water use associations and farmer associations and recommendations of promoting women's effective participation and leadership in local-level water management decision-making processes (e.g., water user associations) and their inclusion in IWRM planning processes, and water and land management planning.

6. KEY RISKS AND MITIGATION MEASURES

Political risk: Political instabilities in the region may affect the effectiveness of the implementation of the action. Lack of commitment by the Government may also affect the project - this is very unlikely to happen. Water resource management is in line with the national Government's long-term development strategies, poverty reduction programs and private sector-led economy. To secure continuous political commitment; advocacy meetings and workshops will be conducted. The capacity building, marketing network and the policy formulation requires stable political situations. Therefore, implementation in collaboration with the local administrations, community members (both men and women) as well as national and regional cooperation and policy will lessen the risks.

Social risk: Lack of awareness of the community and/or lack of interest to participate on the modern/ climate resilience water allocation plan is also a challenge. In this regard, the project proponents have developed significant experience to overcome any difficulty during project implementation through community participation. Proper training will be considered as important mitigation measures, and the training offered will be relevant and context specific, and this would encourage knowledge uptake and the implementation of the new technological skills acquired.

7. RATIONALE FOR BDRP FINANCING/INVESTMENT CRITERIA

Ethiopia Multi-Sector Investment Plan for Climate Resilient Agriculture and Forest Development (2017-2030) Identified five Activity Groups aimed at addressing the financial, thematic and spatial gaps through an analytical and inclusive process covering the following sectors and themes: “Enhancing climate resilience in agriculture, including: Climate smart and gender sensitive agricultural support services; Reduced vulnerability to rainfall variability and water supply uncertainty; Increased resilience through crop productivity improvements and more equal intra-household relationships; Increased resilience through income diversification; Better natural resource management (soil, water, agroforestry)” and “ Enhanced climate-resilient disaster risk management and early warning systems including: Improved drought and flood risk assessment and early warning systems; Increased resilience through coordinated food and non-food responses; Improved implementation of the Sendai Framework for Disaster Risk Reduction”. Ethiopia CRGE also identified a Strategic Priority on “Enhance the climate resilience of self-supply – additional approaches and interventions to supplement self-supply, for example: improving local water storage facilities or participatory water resource management. To fully implement this strategy in line with Vision 2030 CRGE, the financial consortium is the main problem and Ethiopia desired \$220m of investment.

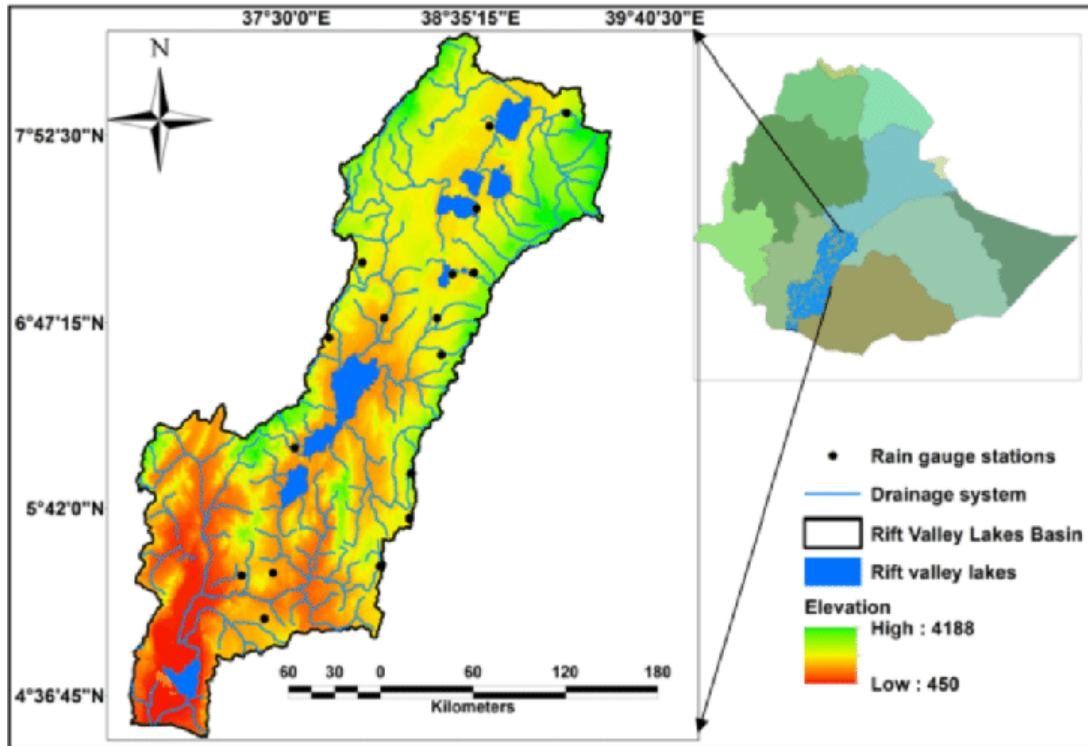
Ensuring an integrated sustainable water management strategy with climate-informed design this project has the unique ability to support Ethiopia's progress across the above strategies. The additional technical assistance in this area will significantly enhance Ethiopia's readiness to implement the other SPCR priorities. It will also ensure climate mainstreaming in economic and social development planning across multiple sectors at sub-national level, further contributing to the objectives of Track 1B. The proposal would directly fulfill the mandate of Track 1C through implementation of "critical technical assistance grants to pursue the objectives of the SPCRs of PPCR pilot countries.

8. CONCLUSION

The water sector is among the most vulnerable to climate change in Ethiopia. Like in many other parts of the country, the Ziway-Shalla Sub-Basin faces a range of climate-affected land and water challenges such as land degradation, soil erosion, unsustainable water consumption, biodiversity loss, deforestation, climate variability and deteriorating water quality and quantity.

The landscape and communities in the Ziway-Shalla Sub-Basin need to be resilient and build adaptive capacity to overcome the impacts of climate change, particularly on water availability and agriculture. This Technical Assistance is, therefore, designed to ensuring climate resilience is adopted and integrated into the water resources development planning and economic/livelihoods development planning. Through this effort, the project will contribute to mainstreaming climate risk management and resilience into economic planning and development in the Sub-Basin, build upon and scale up a water allocation plan to promote efficiency and ensure long term water security, address biodiversity issues surrounding several lakes in the area, and promote the upstream watershed management and alternative energy resource for productive use and energy efficiency for households that is critical to building gender-responsive climate resilient water management.

Annex 1: Location of Map of the Rift Valley Lakes Basins



Annex 2: Project Cost and Financing

Output	Activities	Inputs	Units	Quantity	Rate	Amount
Output 1: Climate-resilient Water Resources Development plan that has integrated measures against the impacts of climate change (droughts and floods) developed for the Sub-Basin	Activity 1-1 Undertake hydrological assessment, gap analysis on impacts of climate change on the water resources, landscapes and socio-economy of the sub-basin; gender analysis; and develop mitigation strategies and restoration measures	Consultants	Month	6	15,000.00	90,000.00
	Activity 1-2 Assess the state of climate resilience integration in the sectoral planning and development of water infrastructure in the sub-basin and at the national level; assess climate response tools, instruments, strategies and policies;	Consultants	Month	4	15,000.00	60,000.00
	Activity 1-3 Contribute to integration of climate-resilience in designing an investment strategy and water allocation plan based on Integrated Water Resources Management (IWRM) principles	Consultants	Month	2	15,000.00	30,000.00
	Activity 1-4 Review and support the development of a basin-wide water monitoring plan to provide a framework for monitoring the seasonal trends in water levels and quality and inform targeted intervention	Consultants	Month	3	15,000.00	45,000.00
Output 2: Local and regional government capacity, local communities' awareness to incorporate gender-responsive climate resilience into economic and social development planning and water infrastructure increased	Activity 2-1 Conduct institutional capacity assessment on climate resilience integration into sectoral planning, coordination in the water and other sectors, knowledge and expertise gap analysis	Consultants	Month	1	15,000.00	15,000.00
	Activity 2-2 Develop capacity building training manuals and provide gender-responsive capacity building training to decision makers, experts and local level representatives	Capacity development workshop	No	2	11,000.00	22,000.00
	Activity 2-3 Analyze Community vulnerabilities and capacities using the participatory Climate Vulnerability and Capacity Analysis (CVCA) to improve community resilience capacity	Consultants	Month	2	15,000.00	30,000.00
	Activity 2-4 Assess the role of women in local-level water management, e.g. in water use associations and farmer associations and recommend ways of promoting women's effective participation and leadership in local-level water management decision-making processes (e.g., water user	Consultants	Month	1	15,000	15,000

	associations) and their inclusion in IWRM planning processes, and water and land management planning.					
	Activity 2-5 provide local capacity improvement through awareness creation workshops and relevant training on climate resilience building activities including climate smart agriculture, climate smart water technologies, integrated land management to local communities.	Capacity development workshop and training	No	2	11,000.00	22,000.00
Output 3: Livelihood-based climate-resilient water resources management is promoted and access to economic assets to increase resilience in climate variability improved	Activity 3-1 Provide soft and hard capacity support to beneficiaries to enhance community resilience through climate smart water use and management (training and equipment)	Capacity development training	No	2	11,000.00	22,000.00
	Activity 3-2 Promote upstream catchment management interventions by local communities to build resilient landscapes and ecosystems that warrant sustainable supply of water for production	Capacity development training	Month	2	15,000.00	30,000.00
	Activity 3-3 Support climate smart soil and water conservation technologies, including agro-forestry, climate-smart agriculture, reforestation and livelihood development for strengthened resilience and water security in the sub-basin.	Capacity building workshop	No	2	11,000.00	22,000.00
	Activity 3-4 Promote alternative energy sources for productive use (solar) and local level production of energy efficient technologies for household use to ensure climate resilient water management.	Capacity building training	No	2	11,000.00	22,000.00
	<i>Activity 3-5.</i> Organize women and young girls into user groups/business groups to access existing local saving and credit cooperatives for soft loans to start small businesses (e.g., souvenirs, handcrafts, etc..)	Economic empowerment	Lumpsum			20,000
	<i>Activity 3-6.</i> Provide social business and entrepreneurial skill development trainings (that fits well into the local conditions) to women business groups to promote and enhance self-reliance for income and economic freedom	Entrepreneurial skills	Lumpsum			20,000
	Others	Project Management cost	Fees of project manager	Month	18	13,889
Fees of administration cost/operation cost			Month	18	1,944	35,000.00

Travel and Per diem	Fees of transportation	Month	3	20,000	60,000.00
Equipment's	Fees of materials and tools purchasing	Ls		41,000	41,000.00
	Subtotal				851,000.00
	Contingency (9.3%)				79,000.00
	Grand total				930,000.00

