CIF CLIMATE INVESTMENT FUNDS

PROJECT TITLE:

PROMOTING CLIMATE RESILIENT URBAN INFRASTRUCTURE IN LAKE VICTORIA WATER AND SANITATION PROJECT – PHASE III

COUNTRY/REGION: UGANDA

MDB: AFRICAN DEVELOPMENT BANK

AFRICAN DEVELOPMENT BANK GROUP
GROUPE DE LA BANQUE AFRICAINE DE DÉVELOPPEMENT

WATER DEVELOPMENT AND SANITATION DEPARTMENT

CLIMATE INVESTMENT FUNDS- PILOT PROGRAM FOR CLIMATE RESILIENCE (PPCR)

Technical Assistance Proposal for Promoting Climate Resilient Urban Infrastructure in Lake Victoria Water and Sanitation Project-Phase III (Greater Rakai, Greater Gomba and Greater Bugadde)

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1 INTRODUCTION

Urban areas in Uganda are confronting escalating water and sanitation-related challenges compounded by climate change and projected growth. According to the latest WHO/UNICEF Joint Monitoring report (2022) [5]., only 56% of the population had access to basic water supply services (79% urban), in Uganda, while only 20% has access to basic sanitation services (28% urban). In 2017, 23% of the population lived in urban areas where the population is projected to increase to 19.9 million by 2030,[6]causing increased pressure on urban infrastructure with increased likelihood of vulnerability for less-resilient communities.[7] Current urbanization patterns, existing water supply and sanitation systems, and governance models will be unable to meet the unprecedented rise in demand and handle water-related risks. These impacts will materialize with frequent extreme events, including floods and droughts, different rainfall patterns and seasonal shifts. Reversing the challenge requires transformative changes in water demand and supply.

However, many stakeholders, in the water sector do not yet fully consider future climate conditions as an input to business risk analyses and long-term planning. This failure to consider future climate conditions in planning can be explained by (i) lack of recognition that future climate trends will differ from historical data; (ii) limited knowledge about the potential risks to business operations over various timescales; (iii) inadequate access to climate and weather information to inform infrastructure design and business continuity plans; and (iv) the perceived costs of adjustments associated with planning for climate change[8].

The impacts of climate change and variability on water resources and water, sanitation, and hygiene are present in Uganda and will continue to grow, threatening sustainable and inclusive prosperity. Water supply may be constrained by (1) long-term reductions in water availability in basins (2) longer and more frequent droughts or dry seasons, (3) decreased precipitation in the rainy season with less water available for storage during the dry season, (4) reductions in groundwater levels, (5) increased water demand due to enhanced evapotranspiration and the necessity to expand irrigation, and (6) reduced rainwater capture due to increased runoff and less absorption by vegetation and soils. This reduced water availability may lead to groundwater over-exploitation, which can increase water costs and reduce water quality. An assessment of anticipated climate change, its impacts and potential adaptation strategies is needed to guide Water and sanitation sector programming. Such an analysis is needed for planned investments.

Uganda submitted its updated Nationally Determined Contributions (NDC) to the UNFCCC in September 2022, in fulfilment of Article 4 of the Paris Agreement. The country's number one priority response to climate change is adaptation in the context of addressing key vulnerabilities in sectors, building adaptive capacity at all levels, addressing loss and damage, and increasing the resilience of communities, infrastructure, and ecosystems. The water sector is a key priority in the NDC. Uganda has mainstreamed the Sustainable Development Goals (SDGs) into its development plan and developed a Green Growth Development Strategy to operationalize green growth into the country's development plans (Ibid)

2 STRATEGIC RATIONALE

2.1 STRATEGIC THRUST

The proposed TA is consistent with the aspirations of the National Development Plan (NDP III);Uganda's Vision 2040 and Uganda's Strategic Sector Investment Plan (2018-2030) which guides annual sector

[5] Progress on drinking water, sanitation and hygiene in Africa 2000-2020: Five years into the SDGs. New York: United Nations Children's Fund (UNICEF) and World Health Organization (WHO), 2022.
[6] World Bank Data Bank (2021). Health Nutrition and Population Statistics: Population estimates and projections – Uganda.
[7] Climate Risk Profile: Uganda (2021): The World Bank Group.
[8] World Bank. 2018. "Building the Resilience of WSS Utilities to Climate Change and Other Threats: A Road Map."

investments to the year 2030.[9] The sector has funding needs of almost 5 trillion UGX ($1.44 billion) in 2018 and this is estimated to increase to almost10 trillion ($2.8 billion) per year by 2030, driven by population growth. Key targets include the following: improving access to basic drinking water in rural areas from 70% to 100%; increase overall access to safe water supply in urban areas from 78% to 100; improving solid waste management from 68% to 90%; increasing the percentage of the population with hand washing facilities at home from 37% to 90%; increasing the percentage of the population with sewerage service from 6.4% to 40%; and reducing non-revenue water from 30% to 25% by 2021.

Climate change poses one of the greatest challenges toward achieving Uganda's development aspirations. Specifically, programme number nine under NDP III focuses on "Climate Change, Natural Resources, Environment, and Water Management". There is need to develop a coordinated plan for climate resilient development in the context of high exposure to hazard risk for urban centres, water supply and sanitation. Reducing the impact of climate change extremes, variability, and uncertainty will be key to enhanced functionality of the water and sanitation infrastructure investments.

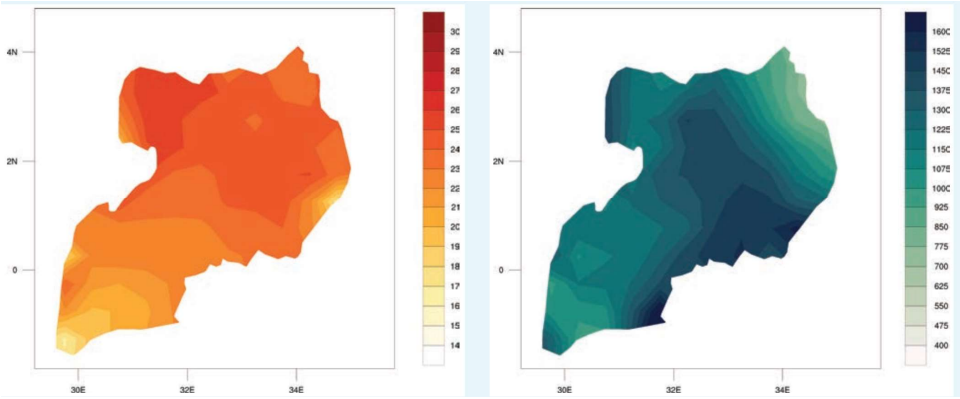
This TA will ensure the mainstreaming of climate adaptation across the project cycle. The TA will further contribute to the NDP objectives of promoting gender and equity and the empowerment of the vulnerable groups including women, young girls and boys, people with disabilities among others by ensuring equal access to clean water and sanitation services and participation in the development process.

2.2 Water Related Climate Risk Profile

Uganda is highly vulnerable to the effects of climate variability and change. The global index for risk management (INFORM) of 2023, rates Uganda very highly (7.1) as the 12th most exposed country to natural and human hazards. The Index rates Uganda as highly vulnerable to climate risks (6.9); lack coping capacities (very highly 6.3); floods (high at 5.1); drought (high at 6.1) and epidemic (very high at 7.9) [10].

The country experiences moderate temperatures ranging from 25°C – 29°C on average. Since 1950, average temperature has increased at a rate of 0.23 °C/decade, resulting in increased trends in the frequency of hot days and nights (UNMA, 2019 State of Climate Report). Uganda's climate is largely tropical with two rainy seasons per year, March to May and September to December. Figure 1 shows the average annual temperature; annual precipitation (right) of Uganda, between 1991–2020 .

Figure 1: Map of average annual temperature (left); annual precipitation (right) of Uganda, 1991–2020[11]



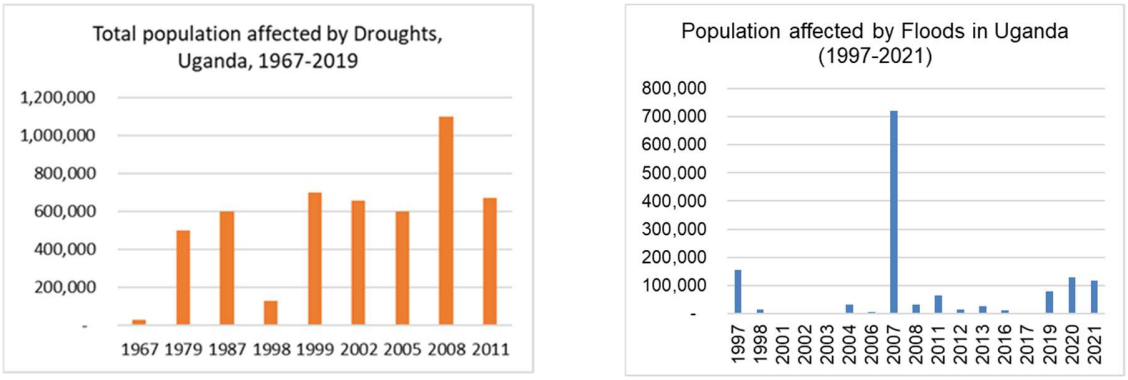
[9] MWE, 2018; Water and Environment Strategic Investment Plan 2018-2030; https://www.mwe.go.ug/library/water-and-environment-strategic-investment-plan-2018-2030.

[10] https://drmkc.jrc.ec.europa.eu/inform-index

[11] WBG Climate Change Knowledge Portal (CCKP, 2021). Uganda. URL: https://climateknowledgeportal.worldbank.org/country/uganda

Historically, Uganda has been well endowed in water resources, with precipitation ranging between 750 mm/year in the northeast concentrated in one rainy season, to 1,500 mm/year in the southwest across two rainy seasons. The increased variability and lower predictability of rainfall are undisputed and have emerged as a critical issue. In recent years, changes in precipitations have been observed consequent to climate change[12]. Recurrent droughts, floods, and rising temperatures make it difficult to manage water resources effectively and to ensure continuity in service delivery. Each year, floods impact nearly 50,000 people and costs over $62 million [13].Recurrent droughts, floods, and rising temperatures make it more difficult to manage water resources effectively and to ensure continuity in WSS service delivery. The statistics on the population affected by droughts and floods is shown in Figure 2.

Figure 2: Key drought and flood statistics in Uganda (EM-DAT)[14]



Each year, floods impact nearly 50,000 people and costs over $62 million [15]. The risks and associated costs of climate change are linked to structural inequalities, which leave communities more exposed and vulnerable. Often, the infrastructure in such fast-growing settlements is precarious, and its inhabitants often live in vulnerable situations. The integration of climate change information in district development planning frameworks remains inadequate, due to limited knowledge and climate change information. Coping with climate change and its impact on water resources requires the collection and analysis of water resource data, better forecasting of weather and long-run climate change impacts, increasing stakeholder involvement through education, and the establishment of early warning systems.

2.3 Climate Change Future Trends

Predictions indicate that Uganda's water resources will be impacted through climate change as a result of variability in precipitation, rising temperatures, and drought. The historical and projected average temperature and precipitation trends for Uganda from 1986 to 2099 are shown in Figures 3 and 4 (World Bank CCKP, 2020). While trends are uncertain in terms of total rainfall amounts[16],t is generally recognized that Uganda will keep recording more erratic rainfall, changes in the timing and distribution of rainfall, and an increase in the frequency and duration of droughts[17].6 In parallel, average temperatures have increased by 1.3°C since 1960, and they could rise by up to 2.5°C by 2050, with Uganda having hit the highest average monthly temperature in its history at 33.8°C in March 2016.[18]

[12] Uganda National Climate Change Policy, 2015.
[13] The World Bank (2020). GFDRR – Uganda Country Profile. URL: https://www.gfdrr.org/en/uganda
[14] EM-DAT | The international disasters database; https://emdat.be/, accessed June 30, 2020.
[15] The World Bank (2020). GFDRR – Uganda Country Profile. URL: https://www.gfdrr.org/en/uganda
[16] According to Uganda's Intended Nationally Determined Contribution (INDC), MWE 2015 (available at https://goo.gl/hDd9ce), climate projections for Uganda based on models used in the Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC) predict a slight decrease in total annual rainfall in most of the country
[17] Climate-Smart Agriculture in Uganda, CIAT, CCAFS BFS/USAID, 2017 (https://ccafs.cgiar.org/publications/csa-country-profiles).
[18] Uganda's National Adaptation Programme of Action (NAPA) cites an average temperature increase of 0.28 °C per decade in the country between 1960 and 2010, averaging an increase of 0.37 °C per decade.

Figure 3: Historical and projected average temperature for Uganda from 1986 to 2099

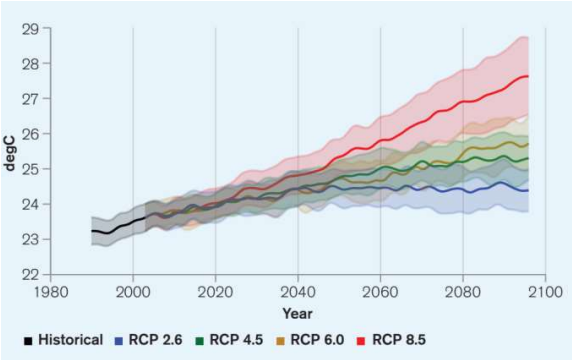
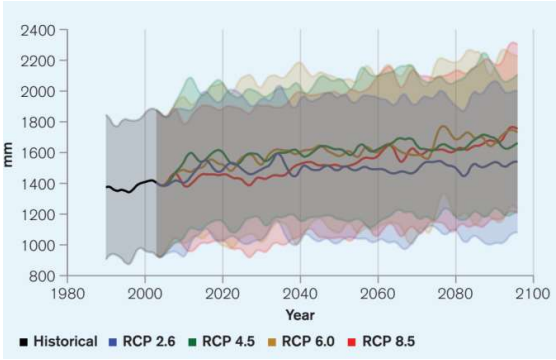


Figure 4: Annual average precipitation in Uganda for 1986 to 2099.



Uganda's per capita freshwater resources are among the highest in the world, and only 2.8% of its renewable water resources are currently utilized. It is estimated that water use will triple by 2035. Although this future demand would only constitute a fifth of the net water available, almost three-fourths of all districts will experience high or extreme water stress due to high climate variability and underdeveloped water resources infrastructure, particularly in the South-Western part of the country[19]

Projections suggest reductions in surface water and groundwater supplies as well as decreased groundwater recharge from reduced precipitation. Decreased availability and/or compromised quality of surface water supply will heighten the vulnerability of populations depending on these sources for daily activities; more intense and frequent storms and flooding may cause storm water flows, which increase the likelihood of water contamination of both surface sources and shallow wells. Water and wastewater infrastructure will face risks of damages; and services may be disrupted with greater frequency and at greater costs. These impacts may have potentially adverse consequences for achieving SDG 6 *"ensure universal access to water and sanitation"*. Increased temperatures and intense rainfall are putting greater pressure on the water and sanitation sector, with potential to further impact development gains.

2.4 CLIMATE RATIONALE

The PPCR SPCR for Uganda recognises the fact that the growing urban centres have poorly planned physical facilities and inadequate water and sanitation infrastructure that is not climate proofed, thereby increasing their vulnerability and risks to the impacts of climate change. This is apparent with regard to water abstraction, treatment, and distribution, and wastewater treatment infrastructure as well as water resources availability and quality that are highly vulnerable to the impacts of climate change. Existence of inadequate climate proofed basic infrastructure, including poor drainage, lack of flood protection and poor roads, exacerbates the vulnerability of urban communities to effects of climate change with all the attendant socio-economic risks. These impacts have consequences for the design, construction, location, and operations of water supply and sanitation infrastructure. Paying attention to these impacts during the project preparation will reduce the costs associated with climate variability and increase the delivery of intended benefits. The project will therefore integrate resilience into its design, implementation and monitoring of water sector programs. It will support the mitigation of the impacts of climate change stresses and shocks to urban water sector infrastructure nvestments.

[19] National Water Resources Assessment, 2013.

3 PROJECT DESCRIPTION

3.1 PROJECT DEVELOPMENT OBJECTIVE

The objective of the technical assistance is to enhance the resilience of the selected towns (Greater Gomba, Greater Bugadde and Greater Rakai small towns) under the Phase III of the Lake Victoria Water and Sanitation Project, by mainstreaming climate adaptation into water and sanitation supply systems to ensure all-year round access and services. The project interventions will entail: (i) Climate Risk Assessment for strengthened urban water supply and sanitation infrastructure investments in the selected towns (Greater Gomba, Greater Bugadde and Greater Rakai small towns) (ii) Mainstreaming of climate adaptation into WSS programming and design and (iii) Strengthened knowledge for improved climate informed decision-making for the water sector at all levels. Additional efforts will be made to align project planning with nationally determined contributions and long-term strategies, so that investment projects are planned with an adaptation focus, rather than simply climate proofing them.

The TA will help to enhance water sector stakeholders' awareness and capacity in climate-resilient policy making and investment planning. It will support counterparts in line agencies, utilities, local bodies, and planning, through workshops, seminars, and/or training to build capacity, create an enabling environment, and improve absorptive capacity to (a) balance water related investment and infrastructure needs against future risks and consideration of climate investment options; (b) enhance access to climate finance and (c) promote collaboration between stakeholders.

3.2 PROJECT BENEFICIARIES

The project will guarantee water security by providing improved access to water supply and sanitation services to an estimated 495,000 direct beneficiaries in greater Gomba, Bugadde and Rakai. The water supply facilities will serve a projected population of 908,035 people by 2040. The towns within the Lake Victoria Basin with great need for water and sanitation have been selected for implementation and these include: (i) **The Greater Gomba Project Area** (*Covering the cluster towns of: Kanoni, Kabulasoke, Maddu, Kifampa, Bukandula, Kiriri, Ngomanene, Nsambwe, Lugaaga, Butiti, Kisozi, Kajumiro, Bulo, and other en route Rural Growth Centres (RGCs)*) (ii) **The Greater Bugadde Project Area** (*Covering the cluster towns of: Bugadde, Kityerera, Busakira, Kuluuba and other en route Rural Growth Centres (RGCs)*) (iii) **The Greater Rakai Project Area** (*Covering the cluster towns of: Rakai, Nsaro, Rumbugu, Bilabago, Buyamba, Rwanda, Dwaniro, Byakabanda, Kamukala, Kibaale and other en route Rural Growth Centres (RGCs)*).

Beneficiaries include vulnerable groups (women, youth, people with disabilities etc) who are the most affected since they brave long walking distances, brave long queues and vulnerabilities in search of water. Provision of safe water will reduce the waiting time to collect water, improve school attendance by pupils, and improve sanitation and hygiene in the towns and hence fewer expenses on water borne and sanitation related diseases. The district and community leaders will benefit from capacity building interventions in managing and operating the infrastructure, but more importantly, climate proofing other local investments. The project will enhance learning and knowledge-sharing on the integration of climate resilience into water security and strengthen resilience to water-related shocks. Local authorities, service providers and their staff will benefit from technical assistance and the climate-resilient water management. Lastly, the trained groups are expected to become more proactively engaged in sustainable water management, which will in turn lead to improved water security outcomes

3.3 PROJECT COMPONENTS AND ACTIVITIES

Designing resilient WSS system requires (1) an understanding of the system's vulnerability to hazards, given the vulnerability of its components to climate change and/or natural disasters; (2) evaluating components' vulnerability to various hazards and estimating key components' type(s) of failure (and the corresponding minimum hazard level) and potential impact at various hazard levels; and (3) identifying risk mitigation options at the component (i.e., asset) level and selecting the optimum measures. Building flexibility into the design is expected to enhance resilience by selecting components or formulating standards that can easily be altered to accommodate increasingly severe climate change–related hazards. Project components and activities will include the following.

Component 1: Climate Risk Assessment for strengthened urban WSS infrastructure investments

Activity 1.1: Baseline assessment. The aim is to assess what the major development issues are in the project area with the potential to be exacerbated by climate risks or could pose a threat to the project due to their contribution to climate change. Tasks will include (i) analysis of socio-economic conditions (including but not limited to land use, livelihoods and economic activities, poverty issues, infrastructure, consumption patterns, and health issues etc) and (ii) description of the biophysical conditions (including but not limited to ecosystems and natural habitats, and water resources)

Activity 1.2: Climate risk assessment . Tasks will include (i) analysis of available data and data source(s)-based on official national, regional or local data on changes, trends and seasonal variations in air temperature, precipitation, winds, extreme weather events, etc. in the project area (ii) analysis of trends and climate risks based on the data collected under Task 1 above (iii) analysis of future scenarios of climate change, vulnerability of the project to climate impacts, and socio-economic dynamics in the project area and (iv) Identification of existing adaptation and coping experience and strategies

Activity 1.3 Assessment of Sensitivity and Vulnerability of the WSS infrastructure components: This involves the quantification and prioritization of the project's vulnerabilities to climate change. This requires analysis of the interaction of biophysical and the socio-economic elements and covers; exposure to specific social/environmental stresses, sensitivities, and adaptive capabilities. Tasks will include (i) identification of vulnerability issues/groups and (ii) screening project interventions for sensitivity and risks

Component 2: Mainstream of climate adaptation into WSS programming and design

Activity 2-1: Enhanced use of WRM data for climate resilient WSS designs. As part of strengthening capacity to mainstream climate adaptation, this activity will enhancement the linkage use of hydromet data collection, analysis, and water supply and sanitation systems design.

Activity 2-2: Formulate adaptation measures and strategy. This will include (i) formulation of formulate potential adaptation activities (ii) prioritising proposed adaptation measures and (iii) development of an action plan for the implementation of adaptation measures

Activity 2-3: Investment preparation (update of feasibility and engineering designs) for climate-adaptive technologies. The adaptation measures will be costed and incorporated in the Bills of quantities and included in the tendering documentation for implementation.

Activity 2-4: Development of an implementation and monitoring and evaluation plan. Tasks will include (i) establishing arrangements for monitoring the implementation of the climate adaptation interventions (ii) Identifying needs for capacity strengthening (iii) development of indicators for the adaptation measures and (iv) Development of a monitoring and evaluation plan

Activity 2-5: strengthening governance and capacity in climate proofing of WSS investments. Interventions will include (i) mainstreaming climate proofing through regulatory frameworks (ii) establishment of governance mechanisms for climate proofing and (iii) development of a plan for climate proofing water supply and sanitation investments. The TA will help develop and disseminate a range of knowledge products, which will include guidance and/or technical notes to support resilient development in the water sector and knowledge products to promote resilience tools and technologies. Dissemination will include various modalities, such as workshops, seminars, and/or training, use of social media platforms, and production of web-based materials, to facilitate wider reach and accessibility beyond the TA duration

3.4 Project Cost and Financing

The TA is estimated to cost USD 725,000 finance through the CIF-PPCR funds. The summary of the expenditure is shown in Table 3.1: Eligible expenditures include: (i) consultant services; (ii) non-consultant costs for local training and workshops and (iii) operating costs essential to carry out the technical assistance, such as vehicle rental. 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.

Table 3.1: Summary of the expenditure

S.N	Item	Qty	Amount (USD)	Disbursement category
1	Component 1: Develop climate risk information for integration into the urban water supply and sanitation infrastructure investments	Lumpsum	260,000.00	Services
2	Component 2: Mainstreaming of climate adaptation into water and sanitation programming and design		365,000.00	Services
			100,000.00	Workshops
	Total		725,000.00	

3.5 Lessons Learned and Reflected on the Project

The proposed TA builds on the lessons learned over the past decade, from multilateral agencies regarding climate proofing water supply and sanitation infrastructure investments in urban centres. One lesson is that measures to build climate change resilience should start early and require long-term support. Experience shows that climate change effects are not predictable nor are they consistent. For example, droughts can be followed by torrential rain and floods. This indicates that dealing with climate change is locally oriented, multifaceted, and complex, and the sooner mitigation measures are designed and implemented the less steep will be the learning curve. The Project acknowledges this lesson by building the foundations of weather statistics, establishing the capacity to track water resources in real time, strengthen early warning systems, and explicitly building climate change considerations into WSS sector designs and long-term planning. The UN HABITAT Climate Proofing Toolkit for Basic Urban Infrastructure, with a focus on water and sanitation of 2021, has provided relevant inputs on the preparation of the project. Best practices and learning experiences have been drawn from other AfDB funded projects of similar nature across Africa, like those from Malawi and Ethiopia.

4 PROJECT FEASIBILITY

4.1 COST EFFECTIVENESS

The Project includes an optimized mix of interventions for a paradigm shift towards a climate-resilient water sector: water efficiency, support for mainstreaming of climate adaptation into WSS sector design and programming, and broad communication and awareness activities. The project's plausible ground for cost effectiveness is the multiple, gender and equity-based climate resilience benefits associated with climate proofing of WSS infrastructure investments in urban centres. The project contributes to the socio-economic transformation agenda by strengthening human capital development and facilitating availability and access to production inputs. This combination with interventions under the baseline operation will allow for increased resilience and optimisation of synergies and the minimization of costs.

4.2 GENDER AND EQUITY

Inadequate WASH infrastructure disproportionately affects women and girls, who primarily bear the burden of water collection over long distances. Women and girls experience climate change differently from men and boys; reasons include division of labour and social norms. One of the identified gaps is the limited representation of women in the planning, implementation, and O&M of WASH facilities, leading to significant and continuing limitations in addressing women and girls' specific WASH needs. Ensuring women's participation and promoting their decision-making roles will help to better inform the design of the proposed WASH infrastructure to better suit their needs. Reducing gender inequality and social exclusion has become a top priority in all the country's development frameworks and interventions.

The Project includes actions to ensure women actively participate in (i) program-related public consultations and (ii) management decisions of community WASH services. The proposed actions will be closely monitored in the Results Framework by an indicator tracking the proportion of water user committees with at least 50% participation from women. The areas that are affected by perennial flooding will be of utmost importance. The project will also involve local women Engineers and other technical professionals in coordination activities with the lead design experts in the preparation of the climate proofed detailed engineering designs. This will also enable them to gain additional technical know-how on incorporating climate-proofing measures for water supply and other infrastructures.

4.3 DISABILITY AND INCLUSION

The Project will support the interventions under the baseline project to ensure provision of inclusive and accessible WASH facilities for all, from the household to public levels. The interventions will include tangible measures to enable all, including persons with disabilities, to participate fully and equally, and contribute to the WASH planning, implementation, management, and O&M of WASH facilities. These groups will specifically benefit from the following: (i) increasing water accessibility and availability (ii) strengthening their resilience by providing reliable livelihoods through water for production (iii) helping women, young girls and boys not only gain new employment and career development opportunities but also gaining knowledge on the critical aspects of climate change and climate resilience (iv) enhancing their sustainable socio-economic activities due to the enhanced flood protection investments; and (v) providing a sustainable healthy and clean environment with a climate proofed water supply system.

5 IMPLEMENTATION ARRANGEMENTS

5.1 IMPLEMENTATION ARRANGEMENTS

The project will be implemented under the current MWE established structures. The day-to-day activities of the project shall be managed by the Project Management Unit (PMU) which shall consist of the Project Coordinator, Project Engineer, Environmental Health Specialist, Social Scientist, Procurement Specialist and a Senior Accountant. These staff shall be the mainstream staff of the MWE specifically appointed to manage and implement the project. The Project has a Task Force that coordinates activities with the various agencies of the Government and provides guidance to project implementation. The Town Local Authorities shall be responsible for provision of land free of encumbrances for installation of project facilities. Town Project Teams (TPT) and Multi Stakeholder Forums (MSF) shall be formed consisting of key technical staff of the Town Local Authorities, political leaders and opinion leaders to engage in supervision of the project at the local level and facilitate solving challenges faced in project implementation.

5.2 IMPLEMENTATION SCHEDULE

The TA will be implemented over a period of 18 months expected to begin in July 2023 and end in December 2024. The detailed Implementation Schedule is attached as Appendix 2.

5.3 PROCUREMENT

The MWE will carry out the procurement in line with the Government of Uganda and African Development Bank procurement guidelines. The corresponding procurement methods and consultant selection methods; estimated costs; prior-review requirements; and timeframe that have been agreed between MWE and the Bank will be provided in the updated procurement plan for the project.

5.4 FINANCIAL MANAGEMENT

Financial management will be according to the guidelines provided by the Bank and the Government Financial Management procedures under the . The MWE Urban WSS Department (MWE-UWSSD), as the project's Executing Agency, shall coordinate project implementation and manage the specific activities, financial management, including planning, and budgeting, record keeping, accounting and reporting. Disbursement of the grant funds for the TA will follow AfDB guidelines. The Executing Agency will open a special account in United States Dollars (USD) with the Bank of Uganda (BoU) with the corresponding local currency operating accounts at a local commercial bank. The grant financing will be audited by the Auditor General or his appointee, according to Terms of Reference agreed with the Bank. The audit report will be submitted to the Bank six (06) months after the end of the financial year.

5.5 RESULTS MONITORING AND EVALUATION

A result-based monitoring and evaluation plan will be put in place to track the achievement of the objectives, targeted results and outputs; document lessons, challenges and inform measures for resilience improvement. The purpose is to ensure that interventions are moderating climate change impacts and enhancing beneficial project qualities. The PIU will monitor and evaluate the progress of the project and furnish project progress reports to the Bank. These reports will track the progress of implementation toward meeting the project development objective and indicators. The monitoring activities will be participatory, involving key stakeholders at the district and community levels. Capacity building for M&E will be a priority at the beginning of the project in order to support the implementation of the interventions. Annual performance reviews and a terminal evaluation will be undertaken. M&E activities will focus on knowledge and learning, capacity building and technology. Upon completion of the technical

assistance, the Bank Task Manager will prepare a simplified Project Completion Report, within one month of project closure, which will recap the various interventions carried out during the technical assistance.

5.6 Sustainability

By climate proofing the WSS infrastructure based on ecosystem-based adaptation, the technical assistance will take advantage of the conservation and sustainable use of natural resources to strengthen local resilience. It will also contribute to improvements in hydrological regulation, including enhanced water storage. To enhance the beneficiaries' resilience to floods and droughts, the scheme design will include assessment of the sustainability of water sources (including catchment protection). Demand management activities in areas where water consumption is high would be also conducted to minimize negative effect from drought risks. Optimal design for climate resilience of infrastructure, energy efficiency in operation, and reduction of pollution in flooding events will be pursued.

5.7 Stakeholder Engagement Approach

The project will use a participatory approach and engage an array of stakeholders ranging from policy makers to direct beneficiaries from the community. Stakeholder participation will be ensured at all stages of the project cycle, from identifying information needs to vulnerability assessment, planning and choosing priority adaptation measures, the knowledge, capacity and views of everyone involved are crucial to ensure sound, effective and sustainable adaptation. Stakeholder mapping will be undertaken to identify and analyse the key actors in the water supply and sanitation sector, bearing in mind their relevance to climate change, area of operation, mandates, roles and responsibilities, capability (expertise, financial resources, capacity building, livelihoods support, etc.), and gender and equity.

The key principles that underpin stakeholder engagement are: (i) Gender and Equity (G&E) responsiveness (ii) Materiality: determination of the most relevant issues for MWE and its other stakeholders and develop a plan of action; and (iii) Responsiveness: focusing on the decisions, actions, performance and communications related to the material issues raised in the climate proofing process.

The stakeholder engagement process will encompass; 1) setting clear objectives and expectations; 2) provision of a platform for exchanging information and experience; 3) supporting information on policy and research; and 4) creation of ownership of climate adaptation and action plans.

The line ministries involved include Ministry of Agriculture, Animal Industry and Fisheries, Ministry of Finance, Planning and Economic Development and other stakeholders particularly the private sector players, UN agencies, development partners, Civil Society Organizations, Academia, and Community-Based Organizations. The aim will be to ensure a multi-stakeholder involvement from a Gender and Equity perspective in climate proofing the infrastructure investments. This will help to establish gaps in the roles and efforts and generate interventions for stakeholders' involvement and commitment in the implementation and monitoring and evaluation of the climate proofing measures.

5.8 Knowledge Building

This TA will develop knowledge on climate-resilient infrastructure development and management practices. Knowledge will be captured and disseminated through reporting from the executing agency, supervision reports and project-specific reports. Training workshops will be held at national, district and community level to enhance Knowledge, Attitude and Practice (KAP) regarding climate proofing.

6 KEY RISKS AND MITIGATION MEASURES

Institutional capacity and sustainability risks are rated, high. There are capacity gaps at national, district and community levels regarding climate proofing of urban infrastructure projects. Integration of climate change information in district development planning frameworks is inadequate, due to limited knowledge and availability of climate change information. Project design, implementation and monitoring will use a participatory approach, drawing together stakeholders at the national, district and community levels. Other measures such as tailored capacity building will be incorporated into proposed activities.

7 RATIONALE FOR PPCR FINANCING / INVESTMENT CRITERIA

This proposal seeks to advance one important component of Uganda's underlying climate resilience priorities from its 2017 Strategic Program for Climate Resilience (SPCR), which has to date remained unfunded. By providing funding toward TA for climate proofing and other project activities, the proposal will contribute to one of the earmarked investment priority areas under the SPCR- **promoting climate resilient urban development and infrastructure** and is in line with Track 1C of the BDRP funding window. In order to guarantee the sustainability and performance of the urban WSS investment infrastructure, it is imperative to climate proof them. Inadequate attention to climate impacts can increase the long-term costs of WSS investments and increase the likelihood that they do not deliver their intended benefits.

This TA also meets the overarching criteria of the PPCR funding window in terms of an advanced level of readiness, as Bank engagement in the project area has been well established through the planned baseline operation. Given the proposed activities to climate proof the water supply and sanitation infrastructure investments in the critical areas of Greater Bugadde, Greater Gomba and Greater Rakai along Lake Victoria, this will enhance the climate resilience of the urban infrastructure developments and contribute to the overall government efforts toward socio-economic transformation.

8 CONCLUSION

Climate proofing is one of the strategies for reducing climate risks and vulnerability of urban infrastructure investments, thereby ensuring their high performance and sustainability. It is imperative that policymakers, planners, practitioners, engineers and utility managers ensure that the potential impacts of climate change are factored in the design, construction, location, and operation of current and future infrastructure investments. This calls for integrating climate change risks and opportunities in the design, operation and management of the water supply and sanitation infrastructure. Climate proofing of this critical infrastructure will reduce loss of lives, physical damages and interruptions in water supply and sanitation services. This technical assistance is therefore timely and will provide incremental adaptation benefits by promoting good governance, building adaptive capacity and strengthening the resilient of water supply and sanitation systems to climate variability and change.

9 APPENDIX

9.1 APPENDIX 1: PROJECT COST AND FINANCING

Component	Activities	Inputs	Units	Qty	Amount (USD)
Component 1: Develop climate risk information for integration into the urban water supply and sanitation infrastructure investments	Activity 1.1: Baseline assessment and description of the socio-economic and biophysical conditions in project area Activity 1.2: Analysis of current and future climate trends, risks, and impacts to assess climate changes and likely scenarios for climate changes within the project area. Activity 1.3 Assessment of Sensitivity and Vulnerability of the water supply and sanitation infrastructure components	Consultant	Months	4	260,000
Component 2: Mainstream of climate adaptation into WSS programming and design	Activity 2-1: Enhanced use of WRM data for climate resilient WSS designs Activity 2-2: Formulate adaptation measures and strategy Activity 2-3: Redesign of the WSS infrastructure with clear climate proofing measures Activity 3-1: Development of an implementation and monitoring and evaluation plan Activity 3-2: strengthening governance and capacity in climate proofing of WSS investments.	Consultant	Months	6	365,000
	Workshops			LS	100,000
	Sub Total				725,000
	MDB Fees				35,000
	Total Grant				760,000

9.2 APPENDIX 2: TA IMPLEMENTATION SCHEDULE

Component		2023				2024						2025		
	Activities	Q3			Q4		Q1			Q2			Q3			Q1		
Component 1: Develop climate risk information for integration into the urban water supply and sanitation infrastructure investments	Activity 1.1: Baseline socio-economic and biophysical conditions assessment																	
	Activity 1.2: Analysis of climate trends, risks, and impacts to assess climate changes and scenarios for climate change																	
	Activity 1.3 Assessment of Sensitivity and Vulnerability of WSS infrastructure components																	
Component 2: Mainstream of climate adaptation into WSS programming and design	Activity 2-1: Enhanced use of WRM data for climate resilient WSS designs																	
	Activity 2-2: Formulate adaptation measures and strategy																	
	Activity 2-3: Redesign of the WSS infrastructure with clear climate proofing measures																	
	Activity 2-4: Development of an implementation and monitoring and evaluation plan																	
	Activity 2-5: strengthening governance and capacity in climate proofing of WSS investments.																	