

## CLIMATE-FRIENDLY AND RESILIENT APPROACHES TO WATER AND SANITATION MANAGEMENT IN KENYA

<p><b>Introduction</b></p>	<p>Water Sector Trust Fund (WaterFund) is the Kenyan State Corporation under the Ministry of Water, Sanitation and Irrigation, mandated to assist in financing water, sanitation and water resources management projects to the underserved and marginalized rural and urban areas. In the Water Act, 2016, the WaterFund is mandated to provide conditional and unconditional grants to the Counties and to assist in financing the development and management of water services in the marginalized and underserved areas. The role and functions of the WaterFund are anchored in the various national, global and regional development blueprints</p>
<p><b>Project Overview</b></p>	<p><b><i>WaterFund seeks to demonstrate how integrated water resources management, green growth and climate proofed interventions in water and sanitation have impacted communities in Arid and Semi-Arid Areas of Kenya</i></b></p>
<p><b>Problem Statement</b></p>	<p>Clearly articulate the climate-related challenges that your project aims to tackle, emphasizing their significance and urgency.</p> <p><b>From the Climate- Water Nexus challenges and Issues to be addressed in summary includes:</b></p> <ul style="list-style-type: none"> <li>• Increased saline intrusion into groundwater aquifers.</li> <li>• Warmer temperatures may increase evaporation from surface waters and reduce water supply availability.</li> <li>• Extreme weather events, floods, drought, etc., damaging Water supply and wastewater treatment infrastructure</li> <li>• Difficulty and costly treatment due to higher water temperature</li> </ul> <p>Kenya is a water-scarce country<sup>1</sup> with its freshwater resources under stress due to low rates of replenishment and higher rates of abstraction in parts of the country. Water availability in Kenya is estimated at approximately 620m<sup>3</sup> per capita per year, significantly lower than the UN's global benchmark of 1,000m<sup>3</sup> per capita per year<sup>2</sup>. Kenya faces water shortages in all areas (urban, peri-urban and rural), and vulnerable people (women, children, low-income, PWD<sup>3</sup>) are disproportionately affected by scarcity and shortages. Global warming, contamination of drinking water, and a lack of investment in water resources have aggravated the water crisis in Kenya creating a chronic and acute water shortage in the major cities, a situation that</p>

<sup>1</sup> According to classification by the United Nations and the Water Resource Institute (WRI).

<sup>2</sup> SOURCE: GOK Statistics, 2018 & FAO, Annual 2020

<sup>3</sup> People Living With Disabilities - PWDs

	<p>continues to worsen with increasing urbanization, water pollution and encroachment of water catchment areas.</p> <p>Climate change is posing an increasing threat to Kenya's socio-economic development and environmental sustainability. Extreme weather changes are affecting water resources by affecting their availability (rising temperatures, unpredictable rainfall, severe and prolonged drought); and quality (extreme flooding, soil erosion).</p> <p>Despite the water challenges facing urban populations, Kenya possesses sufficient water resources to meet demand if the available resources are properly managed. Improving access to water for urban and peri-urban communities cannot be solved from a distribution perspective alone. The crisis in Kenya requires a need for sustainable management of water resources (particularly those that provide supply to large urban and peri-urban areas), as well as improved mitigation of the current climate change crisis and the implementation of sustainable and well-thought-out strategies and policies to ensure the protection of water catchment areas, reduction of pollution as well as enhancing access to clean water and sanitation.</p>
<p><b>Solutions and Innovations</b></p>	<p>Present the key solutions and innovative approaches your project offers to address the identified challenges effectively</p> <p><b>Green Economy &amp; Green Growth:</b> Fostering economic growth while safeguarding the environment- Goal 8</p> <p><b>Green Growth Innovations:</b></p> <ol style="list-style-type: none"> <li><b>1. Innovation &amp; Technology (Water, Climate &amp; Environmental issues) -</b> examples include: Surface runoff collection; dams, water pans, roads for water, ground water exploration</li> <li><b>2. Inclusive &amp; efficient use (Reuse, reduce waste &amp; energy consumption);</b> Aquifer recharge, Gravity, solar &amp; wind, Biogas, Ecosan toilets, DTFs</li> <li><b>3. Green Economy (New markets);</b> Carbon Capture/Reduce GHG emissions; Conservation – mangroves &amp; afforestation, reverse natural resource degradation</li> </ol> <p><b>Nature Based solutions -</b> Nature-based solutions will enhance the resilience of communities and ecosystems to climate change impacts, such as flooding and drought. Some of the technologies to be enhanced include; - wetlands restoration, green infrastructure, and preservation of natural water retention areas for improved water absorption and storage thus reduced incidences flooding while replenishing groundwater during dry periods.</p> <p>From a Water supply perspective, Water Supply: Nature-based solutions will focus on harnessing and maximizing the utilization of available water resources through rainwater harvesting, soil moisture conservation, and water-efficient agriculture will enable communities to capture and store water for various uses, ensuring a sustainable water supply during prolonged dry spells</p> <p><b>Climate Proofing:</b> From water supply perspective it implies: explicit consideration and internalization of the risks and opportunities that alternative climate change scenarios are likely to imply for the design, operation and maintenance of infrastructure. Further integrating climate change risks and opportunities into the design, operation, and management of infrastructure</p> <p><b>Climate proofing Approaches:</b> 1. Knowledge sharing &amp; dissemination of lessons learnt 2. Use of resistant and resilient materials, engineering design</p>

principles, source protection, water treatment (High Density Polyethylene (HDPE) Pipes. 3. Reduction of non-revenue water 4. Water Storage & treatment 4. Policy instruments strengthening climate impact management 5. Adopt green energy, gravity flows.

**Impact and Outcomes**

Showcase the measurable impact your project has achieved or is projected to achieve, including environmental, social, and economic benefits.

**Renewable Energy –Solar**

- **Inclusion** of solar energy for pumping in all new projects
- **Replacement** (or hybrid) of gensets and grid pumping systems.
- **Upgrade to gravity schemes for water supply systems**



**CLEAN AND RENEWABLE ENERGY**

**Waste Water Reuse technologies –institutional Bio-digester – household & communities**



**GREEN TECHNOLOGIES**

**Climate proofed water supply infrastructure;** Managed Aquifer Recharge (Purify/treat surface water naturally - infiltration, monitoring wells, distribute/irrigate). Water use efficiency/ Non-Revenue Water (NRW) management – Bulk, Smart meters, water tracking and leakages detection, pipelines upgrade Ground water use monitoring.



## **FAECAL SLUDGE MANAGEMENT**

### **Waste Water Reuse technologies –**

- Decentralized Treatment Facilities
- Produce bio gas, briquettes, fertilizer and safe water for re-use,



## **LIVELIHOOD PROJECTS**



### **Mangrove and ecosystem restoration**

Nature Based Solutions; Mangrove and indigenous tree nurseries in Tana River & Lamu -Gender and Social Inclusion



### **Water for livestock ASAL Counties**



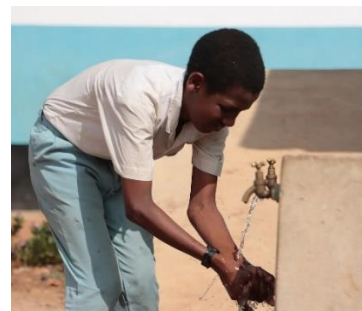
### **IMPROVE WATER STORAGE & QUALITY**

**Water Storage/ Storm water management** for recharge & use

- Water pans ( $\geq 30,000m^3$ ), small dams, rock catchments, irrigation
- Small dams, rock catchments, djabia, berkads.
- Roads for water initiative- storm water use - borrow pits, drainages, roads design - WWDAs



**WASH in schools** for drinking and hand washing in Lamu, Tana River and Turkana Counties.





**Water access**



**Financial Needs**

Provide a transparent breakdown of the funding requirements, demonstrating how the investment will be utilized for project implementation and scaling.

<b>Climate Friendly and Resilient Approaches to Water and Sanitation Management in Kenya</b>						
<b>Outputs</b>	<b>Budget in US \$ million</b>					
	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>Total</b>
Output 1: Counties and implementing partners capacity strengthened for improved service delivery and maintenance	0.6	0.5	0.3	0.2	0.2	1.8
Output 2: Increased access to sustainable water supply and integrated water resources management, in the targeted Counties	4.0	5.0	5.0	4.8	2.2	21
Output 3: Integrated water resources management and environmental conservation	3	2	4	1	1	11
Output 4: Increased access to sustainable sanitation services and hygiene promotion practices in targeted Counties	2	2	2	1	1	8
Output 5: Enhanced institutional capacity of the WaterFund to deliver on its mandate	0.3	0.6	0.6	0.5	0.2	2.2
Technical assistance	1	1.0	0.7	0.6	0.4	3.7

Audits	0.1	0.1	0.1	0.1	0.2	0.6
WaterFund Admin fee 5% of output 2, 3, 4	0.505	0.5	0.55	0.34	0.21	2.105
<b>Total</b>						<b>50.405</b>

**Partnerships and Collaborations**

Highlight any existing or potential partnerships with relevant stakeholders, governments, NGOs, or private sector entities to strengthen the project's credibility and potential for success

1. Sustainable Management and Access to Water and Sanitation in the ASALs (SWASAP), 2021 - 2025 (DANIDA)
2. Climate Proofed Infrastructure Programme (GOK-European Union)
3. Upper Tana Natural Resources Management Programme (GOK-IFAD-Spanish Trust)
  - a) Water Resources and Forests protection & conservation through Community initiatives through Water Resource User Associations (WRUAs), Community forest Associations (CFAs), Water Service Providers (WSPs) and civil society organizations
  - b) Incentives through livelihood projects (energy saving stoves, eco-tourism, bee keeping, tree nurseries etc.)
  - c) Innovations around water shed restoration working conservancies on mangroves reforestation, octopus' closures within the marine ecosystems contributing towards reduction in climate change effects, environmental products value addition, employment and income for women and youth.
4. Upscaling Basic Sanitation for the Urban Poor (GOK-Gates Foundation & Kfw)
  - a) Implementing sanitation value chain; clean and profitable waste management
5. Decentralized Sanitation Management in target towns in Kenya (GOK, AfBD)

**Sustainability and Long-Term Vision**

Explain the project's sustainability plan and long-term vision, including how it aligns with climate goals and contributes to a greener, more resilient Africa.

The project aligns with the following:

1. Climate Change Act, 2016, National Climate Change Action plan (2018-2022) and Kenya National Adaptation Plan, 2030, Water Act, 2016 and Irrigation Act 2019, provide for enhanced capacities of water and sanitation implementers and practitioners.
2. The Sustainable Development Goals (SDGs) - Including SDG 6, and more. United Nations Framework Convention on Climate Change (UNFCCC)
3. Kenya's Constitution 2010 that gives the right to clean and safe water of adequate quantities, and reasonable standards of sanitation and offers legalization that provides for environmental protection.
4. Kenya's Vision 2030 aims to have a clean, secure and sustainable environment by the year 2030.
5. Gender equality and social inclusion (GESI) that have been recognized by the Government of Kenya as critical to equitable development.
6. The National Climate Change Response Strategy (NCCRS, 2010), Kenya's Adaptation Technology Needs Assessment (2013), National Climate Change Action Plan (NCCAP, 2013) and more recently Kenya National Action Plan 2015-2030 (NAP, 2016).

	<p>7. National Water Master Plan 2030 which aims to make improved water and sanitation and sustainable.</p> <p>With regards to sustainability planning this programme will lay the foundation for Water Service providers, Community Forest Associations, Water Resources Users Associations, Conservancies, NGOs and Private sector participation by providing greater availability of financing. Private sector participation will enhance accountability, efficiency and effectiveness of the water and natural resources management, water supply, sanitation and irrigation business and establishment of viable operations and maintenance modalities that will enhance sustainability of climate resilient infrastructure. Gender and vulnerability responsive measures will ensure partners and stakeholders adopt climate resilient practices that will lead to sustainable increased and equitable access to opportunities and resources for children, women, youth and socially excluded groups.</p> <p>The outcome of this programme will be increased climate resilience in water and natural resourced management, water supply, sanitation and irrigation services in marginalized and underserved areas and reduced CO2 emissions through replacing traditional diesel based or grid connected water technologies with efficient green technologies.</p>
<p><b>Monitoring and Evaluation</b></p>	<p>Describe your project's monitoring and evaluation framework to measure its impact and ensure accountability to funders and stakeholders.</p> <p>WaterFund has a Monitoring and Evaluation policy and strategy with an elaborate M&amp;E framework and plan for funded projects. The M&amp;E framework is complimented by an M&amp;E system that ensures capture of M&amp;E data, analysis, reporting and escalation of project challenges. In addition, WaterFund has engaged Quality Assurance Monitors at projects level who are responsible for tracking progress at the ground level. The Quality Assurance Monitors submits periodic M&amp;E reports and also act as the liaison focal points between WaterFund and project stakeholders. The resources for monitoring are budgeted for within the project cost including activities and infrastructure needed to undertake the monitoring and evaluation activities. WaterFund has a Planning and Quality Management Department with a M&amp;E division responsible for coordinating M&amp;E activities of the Fund by documenting lessons learnt and providing data and records on monitoring. The M&amp;E reports are shared with Partners, Ministry Departments and Agencies and relevant stakeholders.</p>
<p><b>Call to Action</b></p>	<p>Clearly communicate what you expect from potential funders, whether it's financial support, collaboration, or advocacy.</p> <p>Kenya's annual budget for water and sanitation on average is KES 70 billion (approx. USD 560 million) against a requirement of KES 100 billion (USD 900 million). Kenya is currently exploring innovative and sustainable ways of financing the sector, as stipulated in the Ministry of Water, Sanitation and Irrigation's Strategic Plan and the National Water Sector Financing and Investment Framework (NAWASIP).</p> <p>To this end, the Water Act 2016 provides for the Water Sector Trust Fund with the mandate to collaborate with Development Partners and other stakeholders to increase the investment levels, and raise the amount of funding needed to support sustainable investment in access to water and sanitation, and effective water resource management in Kenya.</p> <p>The WaterFund is seeking increased collaboration in addressing the challenges in the Water and Sanitation Sector, and in addressing climate</p>



change impact (mitigation and adaptation). As a key actor in the sector, the WaterFund has the capacity to serve as the pivotal coordination agency that can bring to the table public, private and development agencies in a collaborative effort aimed at the implementation of innovative and catalytic strategies and policy reform actions.

**Justification**

WSTF is a government entity mandated to resource mobilize for water, sanitation, water resources management, research, climate change and capacity building within the water sector.

WSTF has experience in working with all water sector players including national institutions, county government and private sector across the country.

WSTF has developed Green Growth Strategy and has planned for adoption and rolling out by all counties.

WSTF has developed Climate change strategy that links water to climate change for partnership and resource mobilization.