

Requesting country or countries:	<i>Kingdom of Eswatini</i>
Request title:	<i>Developing a financing strategy and roadmap for implementing and uptake of priority water related adaptation climate technologies for the Kingdom of Eswatini.</i>
NDE	<i>Mr. Bafana Simelane Instrument Engineer Ministry of Tourism and Environmental Affairs, Department of Meteorology, P.O. Box 2652, Mbabane, Eswatini bafanasim@gmail.com</i>
Request Applicant:	<i>Sindy Mthimkhulu Chief Executive Officer Joint River Basin Authorities P.O. Box 381 Siphofaneni, Eswatini sindymthimkhulu00@gmail.com https://www.jointrbas.org/</i>

Climate objective:

- Adaptation to climate change
 Mitigation of climate change
 Combination of adaptation and mitigation of climate change

Geographical scope:

- Community level
 Sub-national
 National
 Multi-country

If the request is at a sub-national or multi-country level, please describe specific geographical areas (provinces, states, countries, regions, etc.).

Problem statement related to climate change (up to one page):

This section should answer the question “what is the problem?” Please summarise the problem related to climate change and/or the negative impacts of climate change in the country that the request aims to address.

Climate change in Eswatini is expected to lead to overall warming and drying, with a greater frequency and intensity of droughts as well as floods. Climate variability, including the increased frequency and intensity of extreme weather events, will disproportionately affect the poor. Drying of water sources such as springs, small streams, boreholes is projected to increase with the increased frequency of prolonged droughts and heatwaves. A Water Point Mapping study, 2016, indicated that due to long

periods of drought, the groundwater water yields declined leaving some water access boreholes dry while the extent of groundwater salinity increased, a condition attributed to the dry soil¹. Rainfall variability will affect water storage infrastructure such as dams, reducing its quality. Heavy rains will increase sedimentation in bulk water infrastructure therefore reducing its volumes. Increasing water temperatures and eutrophication will increase the proliferation of invasive aquatic plants such as water hyacinth which may be very costly to eradicate.

A large share of water resources of Eswatini are utilized in agricultural irrigation especially for sugarcane. However, most of the irrigation systems and technologies used such as furrow and sprinklers are inefficient and increases water use including energy consumption. This makes the water sector highly vulnerable to the negative impacts of climate change including threatening the profitability of livelihoods for the majority smallholder farmers in the water reliant agriculture sector. Moreover, poor monitoring of water use especially in the sugarcane irrigation subsector makes planning and managing water demand difficult. As such, impacts of climate change threaten the developmental aspirations of Eswatini's populace as this also has adverse effects on food, energy, health, education and access to social services. Therefore, building adaptive capacity and resilience of her populace and the economy is of utmost priority if Eswatini is to achieve her quest towards sustainable development and poverty eradication.

The request therefore aims to alleviate such challenges by increasing the opportunities for adoption of water related climate technologies which is envisaged to potentially improve resilience and build adaptive capacity amongst the vast majority of the population in particular smallholder farmers. For the work, Eswatini has engaged a national consultant to lead the work for the next four months. CTCN is thus requested to provide technical guidance to the work of the national consultant to ensure quality and relevant international standards. This will be done through the review and advise of methods used, stakeholder consultations, reports and others as necessary.

Past and on-going efforts to address the problem (up to half a page):

This section should answer the question "what has been done or is currently being done to address the problem?" Please describe past and on-going processes, projects or initiatives implemented in the country or region to tackle the climate problem as described above.

In 2017, Eswatini conducted technology needs assessment (TNA) studies for both adaptation and mitigation in priority sectors including the water sector. These studies were aimed at supporting the country's efforts to accelerate and enhance action on climate change through reducing greenhouse gas emissions and adapting to the adverse effects of climate change. In particular, prioritized technologies for the water sector included Integrated River Basin Management, Artificial groundwater recharge, Wetland restoration, Water efficient technologies (drip irrigation, efficient sprinklers), Leakage Detection, Rooftop Rainwater Harvesting, Sand dams, Water recycling and reuse, long distance water transfer, and Earth dam lining.

Although the TNA broadly outlines the country's climate change technology needs, it is still insufficient for the country to inform a technology-driven approach to designing climate investments to facilitate a paradigm shift towards low-emissions pathways and climate-resilient sustainable development. The technologies, particularly those related to water use efficiency, are not distinctly identified and prioritized. Moreover, these climate change technology needs for Eswatini are outlined with no strategy or plan for financing and implementation. They lack the sufficient detail to help advance from

¹ Water point mapping exercise, Department of Water Affairs (DWA), 2016

the identified areas to the next stage of identifying and mobilising suitable sources of finance to enable the implementation of these technologies.

It is therefore against this background that Eswatini seeks assistance in re-prioritising water related climate technologies and further develop a financing strategy and roadmap of these technologies. This is aimed facilitating the adoption and uptake of these technologies.

Specific technology² barriers (up to one page):

This section should answer the questions “what are the technology barriers that hinder national efforts described above” and “how will the CTCN technical assistance complement these efforts?” Building upon the problem statement and taking into consideration the existing efforts described above, please describe the specific technology barriers encountered by the requesting applicant to identify, assess or deploy climate technology(ies) in an effort to address the problem statement. The described barriers should be within the scope of the requested CTCN technical assistance (described in the section below).

As alluded above, Eswatini’s TNA identified and prioritized a number of these climate technologies however uptake has been slow for those in the water sector. The first key barrier identified for the slow adoption of these technologies is due to the poor identification of these technologies to fit the local context and conditions. Identification approaches adapted to the context of the introduction of a technology requires a comprehensive understanding of indigenous knowledge systems and appropriate and effective information sharing and communications, is crucial, in order to encourage users to incorporate new technologies. As such, to ensure sustainable and effective application of these technologies a stakeholder led reprioritisation process in its three forms of hardware, software and orgware is required. This will ensure that capacities for adoption are well defined relative to local contexts. We do believe that CTCN can provide the necessary guidance to ensure that the reprioritisation process is conducted more efficiently to fit local needs.

The second identified barrier is lack of identification for sources and limited mobilisation of finances to promote adoption and uptake of these technologies. Opportunities for finance and funding are critical to help bridge and close the financing gap for water related investments/technologies. There are a range of options to leverage funding and financing on the local level. For example, the government can employ a variety of economic and financial policy instruments to influence the behaviour of individuals, communities and organisations to help achieve adoption of these water technologies. The private sector is also another key in leading the diffusion through investments, financing and promotion of the technologies. Additionally, a broader range of sources of capital and financing can be mobilised through climate finance which the country should maximise to benefit for water resources management and climate change adaptation. The CTCN can/will assist greatly in ensuring all available sources and options of financing these technologies are identified including options which could be adopted from the international space.

A third barrier is the lack of a clear implementation plan to facilitate the adoption of these climate technologies. Without a roadmap specifying the actions and key activities including timelines, deliverables and indicators to be conducted by the different stakeholders in the short, medium and long-term will lead to slow diffusion or uptake.

² *“any equipment, techniques, practical knowledge and skills needed for reducing greenhouse gas emissions and adapting to climate change” (Special Report on Technology Transfer, IPCC, 2000)*

Sectors:

Please indicate the main sectors related to the request:

- | | | | |
|---|---|---|--|
| <input type="checkbox"/> Coastal zones | <input type="checkbox"/> Early Warning and Environmental Assessment | <input type="checkbox"/> Human Health | <input type="checkbox"/> Infrastructure and Urban planning |
| <input type="checkbox"/> Marine and Fisheries | <input checked="" type="checkbox"/> Water | <input checked="" type="checkbox"/> Agriculture | <input type="checkbox"/> Carbon fixation |
| <input type="checkbox"/> Energy Efficiency | <input type="checkbox"/> Forestry | <input type="checkbox"/> Industry | <input type="checkbox"/> Renewable energy |
| <input type="checkbox"/> Transport | <input type="checkbox"/> Waste management | | |

Please add other relevant sectors:

Cross-sectoral enablers and approaches:

Please indicate the main cross-sectoral enablers and approaches

- | | | | |
|--|--|--|---|
| <input type="checkbox"/> Communication and awareness | <input type="checkbox"/> Economics and financial decision-making | <input type="checkbox"/> Governance and planning | <input checked="" type="checkbox"/> Community based |
| <input type="checkbox"/> Disaster risk reduction | <input type="checkbox"/> Ecosystems and biodiversity | <input checked="" type="checkbox"/> Gender | |

Technical assistance requested (up to one page):

Founded on the problem statement, past/on-going efforts and technology barriers, please describe the requested technical assistance. The technical assistance should clearly contribute to mitigation or adaptation to climate change as described in the problem statement and contribute to overcome the specific technology barriers.

Within a clearly defined scope, the description of technical assistance should be structured into the following:

- Overall objective
- Anticipated groups of activities to be performed by the technical assistance
- Anticipated products to be delivered by the technical assistance.

Please note that the CTCN facilitates technical assistance and is not a project financing mechanism.

Objective

The primary objective of this request for technical assistance is to develop a priority list of key water related climate technologies including the identification of existing and potential barriers, risks and gaps that are hindering adoption of these. The work will further include the development of a financing

strategy and roadmap for implementing these adaptation water-related priority technologies. This is expected to establish a framework to guide the planning, design, financing and implementation of priority climate technologies in Eswatini and facilitate a more rapid uptake of water-related climate-resilient and low-emission technologies in the country.

Activities to be performed.

1.1. Develop updated priority water related climate technologies for Eswatini.

- Review the water related priority technologies that were identified in the 2017 Technology Needs Assessment.
- Review water related climate change adaptation options and technologies from the ongoing National Adaptation Planning process, NDC and other processes.
- Review other relevant sources of technologies for the water sector.
- Design applicable tools and methodologies for re-prioritizing water related technologies through a stakeholder-led engagement process.
- Identify existing and potential barriers, risks and gaps that hinder the acquisition, deployment, and diffusion of prioritized technologies.
- Identify opportunities for the uptake of climate technologies.

1.2. Develop a financing strategy for water related priority climate technologies.

- Review existing opportunities at national level for financing the development, transfer, adoption and application of water-related climate technologies in Eswatini.
- Identify financing opportunities at the global level that Eswatini can access for water related climate technologies.
- Review the adequacy of the existing systems in Eswatini to facilitate access to the financing opportunities at national and global levels.
- Assess the existing capacity in the country in terms of accessing finance for water related climate technologies.
- Recommend on what needs to be done to strengthen the existing system and capacity to access finance for water related climate technologies.
- Develop strategies on how Eswatini can finance priority water related climate technologies.
- Identify youth led opportunities which could be harnessed in the operation and maintenance of these proposed technologies.

1.3. Develop a roadmap that will guide the implementation of the financing strategy.

- Develop a roadmap specifying activities including timelines, deliverables and indicators to be conducted by the different stakeholders in the short, medium and long-term to implement the strategy.
- Assist in stakeholder workshops to review and validate the final strategy and roadmap.

Anticipated outputs

1.1 Report on the updated priority water related climate technologies for Eswatini.

1.2 Financing strategy for water related priority climate technologies.

1.3 Roadmap for implementation of Climate technology financing strategy.

Expected timeframe:

Please indicate the expected duration period for the requested technical assistance. Please note CTCN technical assistance is limited to a maximum duration of 12 months.

The expected duration for this technical assistance is four months. The technical advisor will work with

the national consultant and Project management unit to ensure that the quality reports are developed inline with international standards and procedures.

Output	Weeks															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Activity 1.1: Re-prioritization of water technologies																
Review the water related priority technologies that were identified in the 2017 TNA																
Review water related climate change adaptation options and technologies on NAP and NDC processes																
Review other relevant sources of technologies for the water sector																
Design applicable tools and methodologies for re-prioritizing water related technologies																
Identify existing and potential barriers, risks and gaps that hinder the acquisition, deployment of technologies																
Identify opportunities for the uptake of climate technologies																
Final Reprioritisation and Gap Report								X								
Activity 1.2: Financing strategy of climate technologies																
Review existing opportunities at national level for financing the development, transfer, adoption and application of water-related climate technologies in Eswatini																
Identify financing opportunities at the global level that Eswatini can access for water related climate technologies																
Review the adequacy of the existing systems in the Eswatini to facilitate access to the financing opportunities at national and global levels																
Assess the existing capacity in the country in terms of accessing finance for water related climate technologies																
Recommend on what needs to be done to strengthen the existing system and capacity to access finance for water related climate technologies.																
Develop strategies on how Eswatini can finance priority water related climate technologies.																
Final Financing Strategy Report																X
Activity 1.3: Roadmap for financing strategy																
Develop a roadmap specifying activities including timelines, deliverables and indicators to be conducted by the different stakeholders in the short, medium and long-term to implement the strategy.																
Assist in stakeholder workshops to review and validate the final strategy and roadmap.																
Final Roadmap Report																X

Anticipated gender and other co-benefits from the technical assistance:

Please describe the activities with gender linkages as well as the anticipated gender and other co-

benefits (e.g. biodiversity, economic, social, cultural, etc.) that are likely to be generated as a result of the technical assistance.

For more information you can find guidelines on the CTCN's website here:

<https://www.ctc-n.org/technologies/ctcn-gender-mainstreaming-tool-response-plan-development>

Further reading on gender can be found on the CTCN website here:

<https://www.ctc-n.org/technology-sectors/gender>

Increasing gender equality in the water sector has been prioritised by Eswatini due to the global commitments which the country is signatory to including 2030 Agenda for Sustainable Development. Climate related water technologies are not gender neutral, and tackling climate change demands that everyone's experience and skills are utilized. The slow adoption and diffusion of the prioritised technologies may also have gender related dynamics which influence the slow uptake. As such, the anticipated technical assistance is expected to ensure gender considerations throughout the process. The first key area is that linked to the reprioritisation process which is expected to adopt a multi-criteria methodology which gender considerations amongst the variables. Other variables which will inform the reprioritisation process include economical, social, cultural, mitigation co-benefits and others. Moreover, the stakeholder consultation process is also expected to include all key gender groups including women and youth for transparent and informative process.

Another key area is that of the financing strategy development where opportunities for financing the technologies will be explored. These opportunities will be assessed in terms of the procedures and requirements on whether they are not gender discriminatory. The technical assistance is therefore anticipated to gender proof the process including ensuring equal participation and engagement from stakeholders. Lastly, the roadmap to be developed aims to guide actions of all stakeholders on what to do to ensure financing and concurrently the adoption of these technologies. The assistance therefore aimed ensuring that women and men are both engaged in the decision-making process, financing and use of the technologies, and benefit from the outcomes.

Key stakeholders:

Please list the stakeholders who will be involved in the implementation of the requested CTCN technical assistance and describe their role during the implementation (for example, government agencies and ministries, academic institutions and universities, private sector, community organizations, civil society, etc.).

Stakeholders	Role to support the implementation of the technical assistance
Ministry of Tourism and Environmental Affairs (MTEA), Meteorology Department	<ul style="list-style-type: none"> • Is Eswatini CTCN NDE • Will provide linkage with CTCN and support the application process. • Host the national climate change coordination unit • Will also provide strategic and implementation guidance to overall process
Global Water Partnership Southern Africa (GWPSA)	<ul style="list-style-type: none"> • Proponent of the technical assistance request and implementing partner to the MTEA Climate Change Unit.
Joint River Basin Authority –	<ul style="list-style-type: none"> • Host institution for the PMU working under the programme.

Project Board	<ul style="list-style-type: none"> • Providing guidance on local context water sector issues and water technologies.
Ministry of Natural Resources and Energy – Department of Water Affairs	<ul style="list-style-type: none"> • Providing linkages with local water stakeholders. • Providing access to key critical water technologies.

<p>Alignment with national priorities (up to 2000 characters including spaces):</p> <p>Please describe how the technical assistance is consistent with national climate priorities such as: Nationally Determined Contribution, national development plans, poverty reduction plans, technology needs assessments, Low Emission Development Strategies, Nationally Appropriate Mitigation Actions, Technology Action Plans, National Adaptation Plans, sectorial strategies and plans, etc.</p>	
Reference document (please include date of document)	Extract (please include chapter, page number, etc.).
Nationally Determined Contribution (NDC)	<p style="background-color: yellow;">Direct alignment and contribution to NDC implementation is required for all CTCN technical assistances. Please include a direct reference to the INDC/NDC document (chapter, page number, etc.).</p> <p>1. “Secure climate proof water infrastructure including through developing resilient/ climate proof WASH infrastructure to increase community resilience and boost adaptive capacity.”³</p> <p>The water sector is one of the key sectors for Eswatini’s updated NDC and one of the goals is quoted above. This work has clear linkages in that the work aims to develop a financing strategy and roadmap to ensure that technologies that have a potential for climate proof and improve community resilience will be prioritised. This will assist in ensuring that are secured and adopted. Eswatini’s Initial Nationally Determined Contribution (INDC) to the UNFCCC, also prioritized adaptation technologies including micro and drip irrigation.</p>
Technology Needs Assessment	The primary document which this work will be building up on the water sector chapter. Prioritised water related technologies include groundwater recharge, wetland restoration, water efficient technologies (drip irrigation, efficient sprinklers), leakage detection, rooftop rainwater harvesting, sand dams, water recycling and reuse, long distance water transfer, and Earth dam lining.
National Adaptation Plans	Still under development, however initial reports will be reviewed.
National Communications	The Third National Communication to UNFCCC (2016) prioritized adaptation technologies including micro and drip irrigation. The report further highlights Integrated River Basin Management, Wetland Restoration and Rooftop harvesting as key adaptation technologies in the water sector. ⁴

³ <https://unfccc.int/documents/497962> (Page 4. Section 3.2)

⁴ <https://unfccc.int/sites/default/files/resource/swznc3.pdf> (page 148)

National Climate Change Policy	<p>1. “Enhance the adoption of rain harvesting technologies.”⁵</p> <p>The work will contribute to ensuring that the adoption of rainwater harvesting related technologies are prioritised.</p>
National Development plan 2019	<p>1. “Improved Management & Access to Safe Drinking Water & Sanitation.”⁶</p> <p>It is therefore for the same reason that the work will ensure that such goal is achieved through prioritisation of technologies which potentially improve management and access safe water.</p>
Water Act 2003	<p>The Water Act promotes increasing access to water⁷. At the centre of this work is the adoption of climate smart technologies which have a potential to improve water management and therefore increase access to communities.</p>

Development of the request (up to 2000 characters including spaces):

Please describe how the request was developed at the national level and the process used by the NDE to approve the request before submitting it (who initiated the process, who were the stakeholders involved and what were their roles?) and describe any consultations or other meetings that took place to develop and select this request, etc.

This request has been requested due to an on-going GCF readiness project under the name, “*Strengthening the NDA’s institutional and technical capacity to mobilize gender-responsive climate finance for Eswatini*”. Part of this readiness work is to develop a financing strategy and roadmap for climate water related adaptation technologies. A national consultant has already been engaged by the project to lead the work at the local level under the guidance of the Project Management Unit, NDA and JRBA. The request was forwarded by GWPSA in her position as the implementing partner to the MTEA/NDA. The request process was initiated by GWPSA through a Memorandum of Understanding (MoU) with CTCN as a partner organisation. A follow up meeting was held on the 13th of March 2023 with CTCN, GWPSA and GWPO where CTCN advised on the development of this request to be signed by the NDE at the national level. The National Designated Entity to the UNFCCC Technology Mechanism Mr. Bafana Simelane was contacted and briefed on the work. Simelane has also been instrumental to the development of this request in guiding the team on how to complete sections. Furthermore, the national GCF Focal Point who is also a recipient of this technical assistance was informed about the process has signed the same request.

Background documents and other information relevant for the request:

- Please list all relevant documents that will help the CTCN analyse the context of the request and national priorities. Please note that all documents listed/provided should be mentioned in this request in the relevant section(s), and that their linkages with the request should be clearly indicated. For each document, please provide web-links (if available) or attach to the submission form. Please add any other relevant information as required.
- Please indicate if this request has been developed with the support of the CTCN Request Incubator.

⁵ <https://faolex.fao.org/docs/pdf/swa205039.pdf> (page 26)

⁶ <https://faolex.fao.org/docs/pdf/swa198143.pdf> (page 110)

⁷ <https://www.ielrc.org/content/e0309.pdf>

1. Nationally Determined Contributions (NDC) - <https://unfccc.int/documents/497962>
2. Third National Communication to the UNFCCC - <https://unfccc.int/sites/default/files/resource/swznc3.pdf>
3. National Climate Change Policy - <https://faolex.fao.org/docs/pdf/swa205039.pdf>
4. National Development Plan - <https://faolex.fao.org/docs/pdf/swa198143.pdf>
5. National Water Act - <https://www.ielrc.org/content/e0309.pdf>

OPTIONAL: Linkages to Green Climate Fund Readiness and Preparatory Support

The CTCN is collaborating with the GCF in order to facilitate access to environmentally sound technologies that address climate change and its effects, including through the provision of readiness and preparatory support delivered directly to countries through their GCF NDA. These actions are in line with the guidance of the GCF Board (Decision B.14/02) and the UNFCCC, particularly paragraphs 4 and 7 of 14/CP.22 that addresses Linkages between the Technology and the Financial Mechanisms⁸.

The CTCN is therefore implementing some of its technical assistance using GCF readiness funds accessed via the country's NDA. Any application for GCF support, including the amount of support provided, is subject to the terms and conditions of the GCF and should be developed in conjunction with the NDA.

Please indicate whether this request has been identified as preliminarily eligible by the NDA to be considered for readiness support from the GCF.

Initial engagement: The GCF NDA of the requesting country has been engaged in the design of this request and the NDA will be involved in the further process leading to an official agreement for accessing GCF readiness support.

Advanced engagement (preferred): The GCF NDA of the requesting country has been directly involved in the design of this request and is a co-signer of this request, the signature indicating provisional agreement to use readiness national funds to support the implementation of the technical assistance.

NDA name:

Date:

Signature:

Monitoring and impact of the assistance:

By signing this request, I affirm that processes are in place in the country to monitor and evaluate the technical assistance provided by the CTCN. I understand that these processes will be explicitly identified in the CTCN Response Plan and that they will be used in the country to monitor the implementation of the technical assistance following standard CTCN procedures.

I understand that, after the completion of the requested assistance, I shall support CTCN efforts to

⁸ Please see:

https://unfccc.int/files/meetings/marrakech_nov_2016/application/pdf/auv_cop22_i8b_tm_fm.pdf

measure the success and effects of the support provided, including its short, medium and long-term impacts in the country.

Signature:

NDE Name: Simelane Bafana N.

Date: 3 April 2023

Signature: 

THE COMPLETED FORM SHALL BE SENT TO THE CTCN@UNEP.ORG

The CTCN is available to answer all questions and provide guidance on the application process.