UN Climate Technology Centre & Network
UNFCCC Technology Mechanism

CTCN Technical Assistance
Request Submission Form

Requesting country or countries:	REPUBLIC OF MALDIVES
Request title:	Develop design criteria and technical specifications for sustainable storm management systems in the islands to address climate change impacts
NDE	Ahmed Waheed Director Climate Change Department Ministry of Environment, Climate Change and Technology Email: ahmed.waheed@environment.gov.mv
Request Applicant:	Afsal Hussain Director Water and Sanitation Department Ministry of Environment, Climate Change and Technology Email: afsal.hussain@environment.gov.mv

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

Problem statement related to climate change:

The Maldives consists of 26 natural atolls, comprising of 1,192 small, low-lying coral islands, stretching north to south over a total area of 90,000 sq.km. The population of Maldives is 407,660 (Census: 2014) dispersed over 188 islands. These islands do not have surface freshwater. Freshwater resources in Maldives are very scarce and the scarcity is both temporal and spatial. The main natural freshwater resources available in the country are groundwater aquifers that occur in the porous coral sands and rainfall.

Groundwater lenses in the islands lie at an average depth of 1-1.5 m below the ground surface. They exist as thin fresh water lenses floating on top of the underlying saline water. Traditionally drinking water was abstracted from these shallow aquifers using hand-dug open wells. However, in many inhabited islands of Maldives, fresh groundwater has been depleted as a result of salt-water intrusion due to over-extraction of fresh groundwater. The shallow depth of the groundwater lenses of the

islands makes this freshwater resource vulnerable and susceptible to contamination from land-based human activities. Hence, people are reluctant to use groundwater for drinking or cooking as the quality has deteriorated.

Climate change and the events resulting from it such as sea level rise and changes in precipitation patterns have increased the frequency and intensity of flooding events in the country. This continues to affect the fresh water lens in most islands and consequently the society as a result of flooding due to heavy rainfall and inundations. The establishment of drainage systems in islands is used as a mitigation measure to combat and reduce the effects of flooding in islands and to preserve the fresh ground water lens in island thus, the need for proper technical specifications and guidelines is of utmost importance.

The need and requirement for the development of design criteria and technical specifications for sustainable storm water management systems is highlighted in the Water Resource Protection and Management Regulation (2021 R-22) and the Strategic Action plan for water and sewerage (2020-2025).

Past and on-going efforts to address the problem:

A designated policy towards flood mitigation and adaptation issues have been brought into effect via the development of the National Water and Sewerage Strategic Action Plan (2020-2025) indicating "building flood resilient island communities". This has provided policy focus in the governance and planning of the flood event. The Maldives updated NDC and Maldives Climate Emergency Act has also emphasised on building resilient communities by providing better climate proof infrastructure including flood mitigation measures.

Specific technology[1] barriers:

Limited technical resources is a great challenge to the sector towards the development of the technical document based on international best practices adapted to the local condition.

Sectors:

Please indicate the main sectors related to the request:

☐ Coastal zones	☒ Early Warning and Environmental Assessment	☐ Human Health	☒ Infrastructure and Urban planning
☐ Marine and Fisheries	☒ Water	☐ Agriculture	☐ Carbon fixation

[1] *"**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)*

☐ Energy Efficiency	☐ Forestry	☐ Industry	☐ Renewable energy
☐ Transport	☐ Waste management		

Please add other relevant sectors:

Cross-sectoral enablers and approaches:

Please indicate the main cross-sectoral enablers and approaches

☐ Communication and awareness	☐ Economics and financial decision-making	☒ Governance and planning	☒☐ Community based
☒ Disaster risk reduction	☐ Ecosystems and biodiversity	☐ Gender	

Technical assistance requested (up to one page):

The objective of this consultancy is to develop the Technical Specifications and Guidelines to develop design criteria and technical specifications for sustainable storm water management systems in the islands.

The envisaged and planned scope of work for respective deliverables includes but not limited to the following;

2.1 Preliminary Investigation

a) Conduct a literature review of all existing regulations, guidelines, policies and relevant documents in place and being drafted, used or in practice in Maldives related to the task.

b) Conduct preliminary meetings with relevant stakeholders and agencies to identify the policies and strategies of the government and relevant institutions with regard to flooding, storm water and drainage

c) Conduct a review of previously installed and constructed storm water and drainage systems. Provide feedback on the issues identified on the previous designs and improvements to be made.

d) Conduct review on regulations, guidelines and policies being used in the developing countries, particularly in Small Island Developing States (SIDs), which is appropriate in the context of Maldives.

2.2 Draft and develop the technical specifications and guidelines

a) Draft and develop the technical specifications and guidelines for the design criteria and technical specifications for sustainable storm water management systems in English language, as listed in the objectives of this TOR

2.3 Conduct stakeholder meetings

a) Conduct stakeholder meetings to discuss the draft of the technical specifications and guideline

2.4 Finalization of document

a) Finalization of the draft of the Technical Specifications and Guideline.

b) Provide the Dhivehi language translation after finalization of the English version of the specifications and guidelines

Expected timeframe:

MAJOR TASKS	DELIVERABLE	DEADLINE
Draft technical specification and guidelines document	Desk Review and stakeholder meetings to identify existing information in the sector	15 days from signing of contract
	Review of draft regulations, guidelines, relevant policies and existing designs	15 days from completion of deliverable 1.1
Final technical specification and guidelines document	Technical specification and guidelines document in separate volumes	30 days from completion of deliverable 1.2
Approval and Finalization	3.1. Submission and approval of final specifications	15 days from completion of deliverable 2.1
	3.2. Submission and approval of Dhivehi translation of the guideline and specification	15 days from completion of deliverable 3.1

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

Key stakeholders:

Ministry of Environment, Climate Change and Technology (MeCcT) – Lead Agency

Ministry of National Planning, Housing and Infrastructure (MNHPI)

Utility Regulatory Agency (URA)

Maldives Road Corporation (MRC)

Maldives Transport and Contracting Company (MTCC)

Local Government Agency (LGA)

Stakeholders	Role to support the implementation of the technical assistance
National Designated Entity	The NDE will contribute the works through the technical staffs of the Climate Change Department to incorporate climate change impacts and climate proofing into the proposed guidelines and tools
Request Applicant	The Water and Sanitation Department will oversite the works and facilitate provision of guidance and policy direction towards developing the proposed guidelines and tools, and further it will also facilitate interagency coordination while developing the guidelines and tools
Please add as many stakeholders and lines as required.	

Alignment with national priorities (up to 2000 characters including spaces):

The need and requirement for the development of design criteria and technical specifications for sustainable storm water management systems is highlighted in the Water Resource Protection and Management Regulation (2021 R-22) developed under the Water and Sewerage Act (8/2020) and the Strategic Action plan for water and sewerage (2020-2025), Policy 6 which address building flood resilient island communities. Similarly the Maldives' updated NDC and Climate Emergency Act will also emphasizes the importance of building climate proof infrastructure and also on investing flood mitigation measures.

Reference document (please include date of document)	• Strategic Action plan for water and sewerage (2020-2025). • Water Resource Protection and Management Regulation (2021 R-

	22) • Maldives Nationally Determined Contribution 2020 • Maldives Climate Emergency Act
Nationally Determined Contribution (NDC)	Maldives Nationally Determined Contribution 2020, Enhancing Water Security.
Technology Needs Assessment	NA
National Adaptation Plans	NA
Nationally Appropriate Mitigation Actions	NA
Add others here as relevant	NA

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

The development of design criteria and technical specifications for sustainable storm water management systems would enable to set standards for sustainable development and management of stormwater/flood management infrastructure in Maldives.

Background documents and other information relevant for the request:

- Strategic Action plan for water and sewerage (2020-2025).
- Water Resource Protection and Management Regulation (2021 R-22)
- Maldives Nationally Determined Contribution 2020

Monitoring and impact of the assistance:

The developed design criteria and technical specification for sustainable storm water management systems will be put to enforcement via policy direction in the road development projects and management of the existing road infrastructure via city and island councils.

Signature:

NDE name:	Ahmed Waheed
Date:	24 March 2022
Signature: