

# **TERMS OF REFERENCE**

## **Consultancy Services for Development, Implementation and Maintenance of WATSAN LMS (e-Learning Platform)**

### **INTRODUCTION**

The outer islands of the Maldives experiences drinking water shortages during the dry season. These shortages have had significant adverse human, environmental and social impacts on the outer island communities. Based on this climate change induced problem, in 2016, the Government of the Maldives, with the support of the UNDP received financing from the Green Climate Fund (GCF) to undertake the “Supporting Vulnerable Communities in Maldives to Manage Climate Change-Induced Water Shortages” Project. The objective of the project is to deliver safe and secure freshwater to 105,000 people in the islands of Maldives in the face of climate change risks. This will be achieved through the following Outputs of the project:

1. Scaling up an integrated water supply system to provide safe water to vulnerable households; the proposed adaptation solution is to maximize water production and scale up the use of an integrated water supply system that will bring three primary sources of water (rainwater, groundwater and desalinated water) into a least cost delivery system that is able to maintain service levels in the face of climate change related pressures;
2. Introduction of decentralized and cost-effective dry season water supply systems; The proposed solution is to create additional, atoll level water hubs to improve timeliness and efficiency of water delivery during the periods of water shortages; and
3. Groundwater quality improved to secure freshwater reserves for long term resilience. The proposed solution is improving groundwater quality through better protection policies, including controlled recharge and extraction methods.

A paradigm shift will be achieved by addressing the main barriers to implementing integrated water supply systems (including cost recovery; management capacity; and institutional mandates, coordination and policy direction). The project is one of the first projects to be funded through the Green Climate Fund and is implemented by joint partnership between Ministry of Environment and Energy and UNDP from 2016 through to 2020.

The unique geographic attributes of the Maldives make its water resource situation both complex and diverse. With widely ranging populations numbers on the islands, even basic water and sanitation service must be tailored to local resources and population needs. Management of the limited water resources is also highly complicated.

Ultimately, the project will achieve an uninterrupted water supply on the islands that currently experience a 90 day chronic water shortage during dry season and depend on transported water from Malé, which is an extensive, overlong and costly operation. As a result of the project, 25 priority islands will have increased rainwater collection capacities, out of which, 4 bigger islands will additionally have water production

systems of water desalination (Reverse Osmosis – RO water production plants), that will secure sufficient water production capacity enabling a decentralized and timely water distribution across outer atolls during the extended dry periods, when shortages may occur.

Water stress alert information based on forecasted meteorological information will feed into the Standard Operating Procedures (SOPs) for system management, thereby protecting lives and livelihoods from environmental risks associated with climate change. This will also feed into strengthening the Meteorological - MMS services on reaching out to the communities actionable early warning information, and preparing the water utilities, island councils and the communities to receive and act on such information.

The exercise intends to achieve coordination efficiency and cost effectiveness in service provision through effective management of water resources and the use of renewable energy and locally appropriate technologies. Alongside the system design will be a capacity development work stream designed to obtain the support and ownership from communities, which is necessary for sustainability of the system, as well as the capacity development of the State Utilities to manage service delivery, and of the decentralized authorities and central government to provide an enabling environment for sustainability and scale up.

## **OBJECTIVES**

The overall objectives of the assignment will be the following:

- To rebuild the WATSAN LMS e-learning platform making its architecture robust, secured and flexible to integrate different e-learning features.
- To develop WATSAN LMS as an e-learning framework based on multilayered business, content and operational components along with multitenancy supports.

## **SCOPE OF WORKS**

The design & development scope will be limited to the scope of work as identified in the TOR. The scope of work can be categorized with the following tasks:

1. Conduct a needs assessment of the existing system to prepare the precise System Requirement Specification (SRS) for designing and developing a new version of WATSAN LMS and Provide concrete development plan in the SRS, which should include context diagram of the proposed system, Sequence Diagram, Use case Diagram, and Process Flow Diagram.
2. Design the solution architecture of the WATSAN LMS in a manner for better performance, flexibility, scalability, extendibility and multitenancy of the system for future expansion.
3. Compatible for exchanging data with other e-learning platforms or a2i-owned portals/platforms

4. Ensure access control, application level security and on-demand support to Helpdesk (layer-2) for uninterrupted LIVE service.
5. Design and develop Role-wise credential system incorporation for better user role management. System should support user registration in multiple ways including mobile number, Google ID, email, NID etc. User information can be imported from the NID system.
6. System shall provide the ability to encrypt user IDs and passwords and impose minimum password lengths along with ability to reset passwords following a standard password strategy. User log management shall be recorded.
7. The system will have an e-communication module, which will be used for sending email and sms the categorized users and relevant reports of e-communication should be produced.
8. There will be a Dashboard presenting dynamic data in reports in tabular and graphic presentations.
9. The WATSAN LMS will have Accessibility compliance as per W3C to support learning for the differently abled persons.
10. The proposed WATSAN LMS should have a robust multimedia content management system with support of video, audio, pdf, word, ppt etc. It should have an on-demand video streaming capability for conducting live sessions. It should have provision for Two-way real-time audio and video chat support. Third party tools can be integrated for this.
11. The system should have provision for periodical & instant Data Backup & Auto Archiving System.
12. The system should migrate all data from previous version of WATSAN LMS with appropriate data validation; a report should be presented of data migration.
13. It should have a dynamic content management system (CMS) with support of contents upload, tagging, searching and download features. Content hit/view/download count will be recorded and presented in dashboard and printable reports. A user level permission will be set to control who can upload, publish and download contents. The CMS should also migrate contents (video, audio, images, texts, pdf etc.) from the previous version of WATSAN LMS
14. There should be provision to integrate payment gateway integration in the system for the paid courses of WATSAN LMS
15. WATSAN LMS should be SCORM compliant: it should have open ended API to share or exchange data with 3rd party e-learning system.
16. WATSAN LMS should be cross browser compatible, responsive and graphically attractive.
17. The system must have a Certificate Verification mechanism with Block Chain Technology.

18. The developed system must support Dhivehi UNICODE enable font so that Dhivehi content can be viewed properly from any machine, which support Unicode. The proposed system must facilitate for showing the content both in English and Dhivehi Language.
19. Vendor Company will ensure system to be tested at module integration and load level. All necessary security test at application level architecture needs to be followed and conducted by the vendor.

## **SUPPORT AND MAINTENANCE REQUIREMENT**

1. Provide 2 Years support & maintenance service of the WATSAN LMS from the date of contract signing. Support & Maintenance will cover fixing all bugs and system errors as and when identified by the system users.
2. Vendor shall take or advice server maintenance engineer to take timely backup of the entire database to meet up the challenge of system recovery, in case of any disaster or missing data.
3. The vendor's team will work at their office premises, but in case of special requirement, they may work at the client's premises or any client designated location.
4. Assign a Project Manager who will work closely with the clients designated official to ensure proper delivery of any assignment during the support and maintenance phase.
5. The concerned company cannot assign the programmers to other project till completion of the assignment and will ensure the continuity of the scheduled work by other programmer in case of his/her absence.
6. The hired and assigned IT personals for support & maintenance must be regular employees of the vendor company.
7. Training of IT personals for support and maintenance.

## **EXPECTED OUTPUTS AND DELIVERABLES**

1. Inception Report
2. Software Requirement Specification SRS.
3. Development of WATSAN LMS
4. Data Migration Document
5. API Specification of the WATSAN LMS
6. Software Deployment on Live Server.
7. User Manual
8. Knowledge transfer through workshop/Training.
9. Source code & database
10. Project Completion report including upcoming challenges if any.
11. Provide 24 months Support & Maintenance Service.

## **TECHNOLOGICAL SPECIFICATION**

1. Need to use Open Source Development Platform.
2. PHP based platform with tool architecture like Bootstrap, framework like CakePhp/ Laravel/codeigniter can be used.
3. Future technology Change, iterative prototyping and agility in product design are the generic expectation.
4. Technology and all related design/data will be open to Client.
5. The vendor should follow any of the industry standard secure development methodology such as (but not limited to) Comprehensive Lightweight Application Security Process (CLASP) by OWASP etc. The vendor should consider (but not limited to) common vulnerabilities such as SQL Injection, Cross Site Scripting (XSS) etc. Vendor will undertake responsibility for Input Validation Controls, Authorization/Authentication Control and other security controls in place in both test and production environment of application

## **DELIVERABLES & PAYMENT SCHEDULE – ICT COMPONENT**

### **DELIVERABLES AND TIMELINE OF WORK – ICT COMPONENT**

Activity No.	Activity	Deadline
	Phase 1: Development	
1	Conduct background scoping and research work and finalizing the system	10 days from contract Signing
	Approval from WATSAN Department	5 days
2	Development of WATSAN LMS, interactive features, dashboard, communication, payment supports etc. to incorporate client requirement as per approved SRS	30 days after completing Activity no 1
	Approval from WATSAN Department	12 days
3	1st level feedback collection and incorporation	10 days after completing Activity no 2
	Approval from WATSAN Department	5 days
4	Testing, debugging, update	10 days after completing Activity no 3
	Approval from WATSAN Department	5 days
5	Delivery of UAT and 2nd level feedback collection	5 days after completing Activity no 4
	Approval from WATSAN Department	5 days
6	Knowledge transfer through workshop/training	5 days after completing Activity no 5
7	Delivery of the final version of the system along with all required documentation including source code, user manual and technical documentation (SRS Final Version)	10 days after completing Activity no 6

	Approval from WATSAN Department	10 days
	Sub-Total	4 Months
<b>Phase 2: Support</b>		
8	Provide required and necessary support & maintenance	24 Months
<b>Total</b>		<b>28 Months</b>

### QUALIFICATIONS AND EXPERIENCE

The Consultant should submit full CV's the proposed staff members highlighting the criteria given below.

	DEVELOPER		Sub- Category		Total Score	Sub-Score
Education, Qualification and Experience	University Degree in Computer Science/Software Engineering or Information Technology	(a)	Submission of educational certificates of consultants		15	15
			Submission of completed CV			
General Experience	<ul style="list-style-type: none"> <li>Strong experience in developing well known and widely used platforms.</li> <li>Understanding of End Users needs to match with suitable technical solutions.</li> </ul>	(a)	No. of completed projects/assignments	5	20.0	20
		(b)	No. of completed projects/assignments	4		15
		(c)	No. of completed projects/assignments	3		10
Specific Experience	<ul style="list-style-type: none"> <li>Should have strong knowledge and skills in PHP or .NET</li> </ul>	(a)	No. of completed projects/assignments	4	25	25
		(b)	No. of completed projects/assignments	3		18
		(c)	No. of completed projects/assignments	2		12

	<p>Technologies, be able to design, code and develop production level applications independently</p> <ul style="list-style-type: none"> <li>• Evidence in the use of web technologies including but not limited to JavaScript, HTML5, CSS3 and jQuery in similar projects.</li> <li>• Should have knowledge of database management systems, either MSSQL Server and MySQL</li> </ul>					
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The minimum technical score (s) required to pass is: **40** Points

**REPORTING REQUIREMENT**

1. Report directly to the Project coordinator on all aspects throughout the duration of the contract unless otherwise advised by the Client.
2. The Specialist shall ensure that all the required reports for the project are prepared on time, in accordance with the requirements of Client

**SCHEDULE FOR THE ASSIGNMENT**

Duration of the assignment is 28 months from the commencement of the works. The successful candidate is expected to commence the services in November 2021.

## PAYMENT SCHEDULE

Activity No.	Activity	Payment (%)
1	Upon completion of Phase 1	100% of contract price

### Financial Proposal (40%)

Financial proposal will be evaluated as per total cost quoted on Financial Proposal form in Annex A.

Financial Score (Sf) will be calculated by the following formula:

The formula for determining the financial scores is the following:

$Sf = 40 \times Fm / F$ , in where Sf is the financial score, Fm is the lowest price and F the price of the proposal under consideration.

### 1. Fee Proposal/ Price Schedule

The consultant is expected to include his/her proposal a lump sum fee in Maldivian Rufiyaa (MVR) for carrying out this task as in the FORMAT provided in the **ANNEX A**, fees will be paid based on completion of deliverables as detailed in the scope of work.

### 2. Required Documents for submitting proposals

The following documents shall be submitted with the application for this consultancy:

1. Completed proposal submission form (Form-1)
2. A cover letter indicating why the candidate considers himself/herself suitable for the required consultancy;
3. CV of the applicant (in format provided **ANNEX B**)
  - i. Summary on similar works (experiences) performed in the past
  - ii. Reference letters of works carried out
4. Copy of identification (National Identity Card or Passport Copy) and contact details
5. Copies of Educational Certificates (copies taken from accredited original certificates)
6. Financial Proposal (All fees inclusive of tax should be included) as in the FORMAT provided in the **ANNEX A (all prices must be in MVR)**.

### 3. **REGISTRATION AND CLARIFICATIONS**

1. The Bidder shall be registered to submit a bid upon submission of a written application to the email address [proc.gcfws@environment.gov.mv](mailto:proc.gcfws@environment.gov.mv) not later than **1200 hours on 20<sup>th</sup> October, 2021**. Unregistered parties will not be able to participate in the bid.
2. Any clarifications to the bid may be sent to the email addresses [proc.gcfws@environment.gov.mv](mailto:proc.gcfws@environment.gov.mv) on or before **1400 hours on 20<sup>th</sup> October 2021**.

### 4. **SUBMISSION**

The Bidder shall be registered to submit a bid upon submission of the attached bidders registration form to the email address [proc.gcfws@environment.gov.mv](mailto:proc.gcfws@environment.gov.mv) not later than **1200 hours on 20<sup>th</sup> October,2021**. Unregistered parties will not be able to participate in the bid.

Interested consultant may **submit their proposals on or before 1100hrs 26<sup>th</sup> October 2021**, to the following address in a sealed envelope. The proposals are expected to be submitted to the address on local time **1100 hrs 26<sup>th</sup> October 2021**. Only bids submitted at this time will be eligible to proceed to evaluation and **Late bids will be rejected**.

Those wishing to be considered for this consultancy should submit their technical and financial proposals in a sealed envelope to:

GCF Project Management Unit  
Ministry of Environment, Climate Change and Technology  
Green Building, Handhuvaree Hingun,  
Maafannu, Male', 20392,  
Republic of Maldives.  
Tel. (960)-3018-395  
Email: [proc.gcfws@environment.gov.mv](mailto:proc.gcfws@environment.gov.mv)

# ANNEX 1

## 1. STANDARD FORMS

### 1.1 FORM -1: PROPOSAL SUBMISSION FORM

[Location, Date]

To: [Name and address of Client]

Dear Sirs:

[I/We], the undersigned, offer to provide the “ ” in accordance with your Terms of Reference dated [Insert Date] and our Proposal. [I am/We are] hereby submitting [my/our] Proposal; [my/our] financial offer is for the sum of [Insert amount(s) in words and figures (Should quote the amount in Maldivian Rufiyaa)] which is inclusive of the all applicable taxes.

[I/We] hereby declare that all the information and statements made in this Proposal are true and accept that any misinterpretation contained in it may lead to [my/our] disqualification.

Proposal validity is for a period of [Insert number of days, 45 days minimum] days. If negotiations are held during the period of validity of the Proposal, we undertake to negotiate on the basis of the price and work plan. [My/Our] Proposal is binding upon [me/us] and subject to the modifications resulting from Contract negotiations.

[I/We] undertake, if our Proposal is accepted, to initiate the services and fulfil the requirements of the terms of reference.

[I/We] understand you are not bound to accept any Proposal you receive.

[I/We] remain,

Yours sincerely,

Authorized Signature [In full and initials]: \_\_\_\_\_

Name and Title of Signatory: \_\_\_\_\_

Name of Company/Partnership/Institution/Individual: \_\_\_\_\_

Address: \_\_\_\_\_

## 1.2 FORM FIN-1: Financial Proposal Submission Form

[Location, Date]

To: [Name and address of Client]

Dear Madam/ Sir:

We, the undersigned, offer to provide consultancy service for “Consultancy Services to development of national water resources management framework and associated works” in accordance with your Request for Proposal dated [xxx] and our Technical Proposal. Our attached Financial Proposal is for the sum of [*Insert amount(s) in words and figures*<sup>1</sup>]. This amount is inclusive of the all taxes.

Our Financial Proposal shall be binding upon us subject to the modifications resulting from Contract negotiations, up to expiration of the validity period of the Proposal.

We understand you are not bound to accept any Proposal you receive.

We remain,

Yours sincerely,

Authorized Signature [*In full and initials*]: \_\_\_\_\_

Name and Title of Signatory: \_\_\_\_\_

Name of Firm/ organization: \_\_\_\_\_

Address: \_\_\_\_\_

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1 Amounts must coincide with the ones indicated under financial proposal in Form Fin-2

## ANNEX A – FINANCIAL PROPOSAL (FORMAT)

<b>Deliverables/ Outputs</b>	<b>Total amount (MVR)</b>
<b>Total :</b>	
<b>GST :</b>	
<b>Total with GST:</b>	

Indicate the total cost with detail cost to be paid in Maldivian Rufiyaa.

*Note:*

- *The consultancy firm/ organization is to submit copy of the GST registration certificate along with the financial proposal.*
- *All Consultancy firms / organization shall express the price of their services in Maldivian currency*
- *Bidder is liable to clarify (and present necessary documentary evidence) and include all relevant tax for the assignment.*
- *If the firm / organization is subject to GST/BPT as per MIRA Regulations and Guidelines the GST/BPT Registration Certificate and GST quote in the financial proposal need to be included*

**ANNEX B – CURRICULUM VITAE (CV) (FORMAT)**

**1. Proposed Position** [*only one candidate shall be nominated for each position*]: \_\_\_\_\_

**2. Name of Firm** [*Insert name of firm proposing the staff*]: \_\_\_\_\_

**3. Name of Staff** *Insert full name* \_\_\_\_\_

**E-mail Address** \_\_\_\_\_

**4. Date of Birth:** \_\_\_\_\_ **Nationality:** \_\_\_\_\_

**5. Education** [*Indicate college/university and other specialized education of staff member, giving names of institutions, degrees obtained, and dates of obtainment*]: \_\_\_\_\_

**6. Membership of Professional Associations:** \_\_\_\_\_

**7. Other Training** [*Indicate significant trainings since degrees under 5 - Education were obtained*]: \_\_\_\_\_

**8. Countries of Work Experience:** [*List countries where staff has worked in the last ten years*]: \_\_\_\_\_

**9. Languages** [*For each language indicate proficiency: good, fair, or poor in speaking, reading, and writing*]: \_\_\_\_\_

**10. Experience/ Employment Record** [*Starting with present position, list in reverse order every employment held by staff member since graduation, giving for each employment (see format here below): dates of employment, name of employing organization, positions held.*]:

From [Month/Year]: To [Month/Year]: \_\_\_\_\_

Employer: \_\_\_\_\_

Positions held: \_\_\_\_\_

Summary of Projects Undertaken/Role: \_\_\_\_\_

**11. Current commitments in Ongoing Projects with the Ministry of Environment, Climate Change and Technology**

Name of the Contract/Project: \_\_\_\_\_

From [Month/Year]: \_\_\_\_\_ To [Month/Year]: \_\_\_\_\_

Positions held: \_\_\_\_\_

Summary of Role: \_\_\_\_\_