



Republic of Maldives

**TERMS OF REFERENCE  
FOR  
CONSULTANCY SERVICES**

to

**DESIGN AN AIR QUALITY MONITORING  
PROGRAMME FOR THE GREATER MALE'  
REGION**

Issued by:

Ministry of Environment  
Green Building, Handhuvaree Hingun, Maafannu, Male'-20392  
Republic of Maldives

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## **TERMS OF REFERENCE**

### **BACKGROUND**

The Maldivian capital of Malé, grapples with classic problems of urban growth: a surge in vehicle ownership and construction within a confined area, waste management and sustainable energy supply. It is also one of the most densely-populated cities in the world, home to 153,904 residents (2014 census) — about a third of the population of the Maldives — in an area of just 5.8 square kilometres (or 2.2 square miles).

In order to reduce the risks of air emissions on human health and the environment, and address the challenges; the Government of Maldives has planned important intervention to manage air quality (AQ), especially in urban areas.

Monitoring is only a single aspect of AQ management; and while the Maldives does not conduct routine monitoring of local air quality, it has been active in shepherding international action for climate change, itself committing to and taking action that has positive impacts for both climate mitigation, adaptation and AQ.

AQ measurements provide information on the nature of the pollution and on the temporal, spatial variation of concentrations and insight into the contributing sources. This information may be used to develop environmental policy and legislation.

However, the design of an air pollution monitoring network should not be undertaken without consideration and resolution of several factors. Extensive planning needs to be done before requirements are firmly established and translated into hardware specifications.

### **OBJECTIVES**

In this regard, the Ministry of Environment is seeking a national and/or international consultant(s) or a firm to design an Air Quality Monitoring Network (AQMN) for the greater Male' region. The development of AQMN includes determining the number and location of sampling sites, selecting appropriate instrumentation, determining frequency of sampling, and establishing instrument siting criteria.

### **SCOPE AND DELIVERABLES**

In close collaboration with the MoEn and relevant stakeholders as necessary provision of technical support for the tasks listed below

- Collect and interpret data for a dispersion model
- Conduct preliminary meetings with relevant stakeholders and agencies, and conduct site visits as necessary
- Identify and propose the most suitable approach for AQ monitoring for the greater Male' region

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	<b>Deliverable</b>	<b>Scope</b>	<b>% of payment</b>	<b>Duration</b>
1	<b><u>A screening study</u></b>	<p>1. An initial <b><u>screening study</u></b> using simple measurement instruments or simple dispersion models, which estimates the:</p> <ul style="list-style-type: none"> <li>- magnitude and variation of pollutant concentrations</li> <li>- availability of supplementary information such as topographical data, population density and spatial distribution, background concentrations, air quality standards or guidelines, sources, emission estimates, wind speed and direction distribution, dispersion modelling capacity, and others;</li> <li>- required accuracy of the estimated concentrations.</li> </ul> <p>The estimates will give some information on the expected air pollution levels, high impacted areas and general air pollution background levels.</p>	30%	1.5 months
2	<b><u>An air quality monitoring programme (AQMP)</u></b>	<p>2. Based on the results of the screening study develop an <b><u>air quality monitoring programme (AQMP)</u></b> which address the following areas in detail for the greater Male' region:</p> <ul style="list-style-type: none"> <li>- Spatial density and number of sampling stations required</li> <li>- selection of monitoring sites</li> <li>- Parameters to be monitored</li> <li>- layout and instrumentation of monitoring stations</li> <li>- requirements for additional laboratory facilities</li> <li>- Measurement techniques</li> <li>- Configuration of sensors and stations</li> <li>- Sampling requirements (eg: frequency, time, number of samples)</li> <li>- network organization, staff requirements and training demands</li> <li>- operation, maintenance and repair</li> <li>- How the data shall be accessed, processed, used, communicated and managed</li> <li>- Quality Assurance/Quality Control plan for the data</li> <li>- Justification for online/ automated data collection systems vs manual sampling or a hybrid network</li> </ul>	50%	3 months
3	<b><u>A procurement package</u></b>	<p>Prepare a <b><u>procurement package</u></b>/ set of documents referring to deliverable 2 which ensures standardization of the bid process to supply, install and operate an AQM system in the greater Male' region. It must include the</p> <ol style="list-style-type: none"> <li>i. Administrative and tender documents</li> <li>ii. Technical specifications and schedule</li> <li>iii. Drawings and layouts</li> </ol>	20%	0.5 months

## **PAYMENT SCHEDULE**

The payment will be released as follows

- a) 30% on timely submission and approval of the screening study
- b) 50% on timely submission and approval of the air quality monitoring programme
- c) 20% on timely submission and approval of the procurement package

## **CHECK-LIST OF DOCUMENTS TO SUBMIT**

Kindly take note of the documents which will be evaluated for each criteria in the next table.

- ID card copies (or passport copies if international) of all individuals
- A tentative work plan (which breaks down the activities within the stipulated timeframes given in the table above. Expected commencement date of the consultancy is between 1-15 May 2021 and duration of the consultancy is 5 months from the commencement of the contract)
- Financial proposal with a validity of 90 days (proposed fee must include all travel expenses associated with the assignment and the consultancy fees)
- CVs of relevant individuals in team and/or company profile if a firm is applying.
- *\*In case an international bidder is applying:* submit a Letter of Association with the proposal. Contract may only be awarded to the successful applicant if a Joint Venture Agreement is submitted after selection.
- Copies of relevant higher degree certificate only and transcripts/ listing of modules of relevant degree
- Letters of experience
- Any other documents which supports the application for evaluation (as per the next table)

### ***\*Joint Venture***

In case a Bidder is not doing business within the Republic of Maldives, the international Bidder is obligated to undertake a joint venture with a registered local business. The contract can only be awarded if the Bidder is represented by a registered local business in the Maldives that is equipped and able to represent the Bidder and engage at a decision-making level.

**QUALIFICATIONS AND EXPERIENCE**

	Criteria and scale	Weightage (points)	Max points	Documents evaluated	
<b>1.Relevant academic qualification</b>	1	Minimum Bachelor's degree or an equivalent qualification related to Environmental Engineering, Atmospheric Science, Environmental Science or other related field with a focus on course modules or research related to air pollution monitoring	25	<b>30</b> based on relevancy of copies of the higher degree certificate and transcript OR listing of modules	
		Master's degree or an equivalent qualification related to Environmental Engineering, Atmospheric Science, Environmental Science or other related field with a focus on course modules or research related to air pollution monitoring	30		
<b>2.Relevant experience</b>	2.1	Demonstrated professional or educational practical exposure to air quality monitoring	25	<b>25</b> based on letters of experience and/or details of course modules in the transcript, or research paper etc.	
		No demonstrated professional or educational practical exposure to air quality monitoring	0		
	2.2	Knowledge of international technologies for air pollution control	10	<b>10</b> based on letters of experience and/or details of course modules in the transcript, or research paper, or submission of proposed technologies within the work plan, etc.	
		No demonstrated knowledge of international technologies for air pollution control	0		
	2.3	Work experience in areas relevant to air quality management or monitoring	5 pts for each year	<b>20</b>	based on letters of experience only (not CV)
	2.4	Any experience in working on air quality monitoring or AQ management in developing countries or Small Island Developing States	5 pts if condition is met	<b>5</b>	based on letters of experience only (not CV)
	2.5	A work plan is proposed	5	<b>10</b>	based on proposed work plan
		The proposed work plan has descriptions of all activities, actionable steps and methodologies of analyses.	10		
<b>Total</b>	<i>(Minimum technical score required to pass: 65/100)</i>		<b>100</b>		

Applicants achieving the highest combined weighted technical and financial score shall be selected

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$S_f = 100 \times F_m/F$ , in which

$S_f$  denotes the financial score of the proposal under consideration;

$F_m$  is the price of the lowest price proposal;

$F$  denotes the price of the proposal under consideration.

Proposals will be ranked according to their combined technical ( $S_t$ ) and financial ( $S_f$ ) scores using the weights

$T\%$  = the weight given to the Technical Proposal (60%)

$P\%$  = the weight given to the Financial Proposal; (40%)

$$S = T\% + P\%,$$

Where  $S$  denotes the total combined weighted technical and financial scores

**SCHEDULE FOR THE ASSIGNMENT**

Duration of the assignment is 5 months from the commencement of the works.

**Duty Station:**

Home-based

**Appendix 1A - Consultant's Information Form**

*[The Consultant shall fill in this Form in accordance with the instructions indicated below. No alterations to its format shall be permitted and no substitutions shall be accepted.]*

Date: *[insert date (as day, month and year) of Proposal Submission]*

Procurement Reference No.: *[insert reference number]*

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1. Bidder's Legal Name	<i>{insert Bidder's legal name}</i>
2. In case of JV, legal name of each party:	<i>{insert legal name of each party in JV}</i>
3. Bidder's actual or intended Country of Registration:	<i>{insert actual or intended Country of Registration}</i>
4. Bidder's Year of Registration:	<i>{insert Bidder's year of registration}</i>
5. Bidder's Legal Address in Country of Registration:	<i>{insert Bidder's legal address in country of registration}</i>
6. Bidder's Authorized Representative Information	
Name:	<i>{insert Authorized Representative's name}</i>
Address:	<i>{insert Authorized Representative's Address}</i>
Telephone/Fax numbers:	<i>{insert Authorized Representative's telephone/fax numbers}</i>
Email Address:	<i>{insert Authorized Representative's email address}</i>
7. Attached are copies of original documents of: {check the box(es) of the attached original documents}	
<ul style="list-style-type: none"> <li>- Articles of Incorporation or Registration of firm named in 1, above.</li> <li>- In the case of Bids submitted by an existing or intended JV, an undertaking signed by all parties (i) stating that all parties shall be jointly and severally liable, if so required, and (ii) nominating a Representative who shall have the authority to conduct all business for and on behalf of any and all the parties of the JV during the Bidding process and; in the event the JV is awarded: the Contract, during contract execution.</li> <li>- In case of government owned entity from the Republic of Maldives, documents establishing legal and financial autonomy and compliance with commercial law.</li> </ul>	

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**1B - Joint Venture Partner Information Form**

*[The Bidder shall fill in this Form in accordance with the instructions indicated below].*

Date: *[insert date (as day, month and year) of Bid Submission]*

Procurement Reference No.: *[insert reference]*

Page \_\_\_ of \_\_\_ pages

1. Bidder's Legal Name:	<i>{insert Bidder's legal name}</i>
2. JV's Party legal name:	<i>{insert JV's Party legal name}</i>
3. JV's Party Country of Registration:	<i>{insert JV's Party country of registration}</i>
4. JV's Party Year of Registration:	<i>{insert JV's Part year of registration}</i>
5. JV's Party Legal Address in Country of Registration:	<i>{insert JV's Party legal address in country of registration}</i>
6. JV's Party Authorized Representative Information	
Name:	<i>{insert name of JV's Party authorized representative}</i>
Address:	<i>{insert address of JV's Party authorized representative}</i>
Telephone/Fax numbers:	<i>{insert telephone/fax numbers of JV's Party authorized representative}</i>
Email Address:	<i>{insert email address of JV's Party authorized representative}</i>
7. Attached are copies of original documents of: <i>{check the box(es) of the attached original documents}</i>	
- Articles of Incorporation or Registration of firm named in 2, above.	
- In case of government owned entity from the Republic of Maldives, documents establishing legal and financial autonomy and compliance with commercial law.	