



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, Climate Change and Technology  
Green Building, Handhuvaree Hingun, Maafannu, Male'-20392  
Republic of Maldives

## **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, Climate Change and Technology 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 MECCT 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

	Deliverable	Scope	% of payment	Duration
1	<u>A screening study</u>	<p>1. An initial <b>screening study</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	<u>An air quality monitoring programme (AQMP)</u>	<p>2. Based on the results of the screening study develop an <b>air quality monitoring programme (AQMP)</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	<u>A procurement package</u>	<p>Prepare a <b>procurement package</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.

- Copy of Business (company/partnerships/institutions/sole proprietorship) registration certificate.
- Copy of notification of Tax registration
- Copy GST registration (if applicable)
- **FORM -1: PROPOSAL SUBMISSION FORM (signed by the owner of the entity)**
- Completed **Form 2: FINANCIAL BREAKDOWN FORM** – Financial proposal should include GST (if applicable), rate per training session and total price for work
- Completed **Form 3: LETTER OF COMMITMENT (signed by the proposed key person)**
- CV of the proposed key person
- Copy of national identity card of the key person
- Attested copies of educational qualifications of the proposed key person
- Summary on similar works (experiences) performed in the past – Please provide links, Reference letters (emails from respective clients are also acceptable) or copies of the samples of relevant works.

**Note 01: All bidders should clearly identify Key person carrying out the task. For bids submitted by Company/Institution/Organization, the Key person signed in Form 3 will be considered for the evaluation process.**

**Note 02: If a Sole proprietorship is interested in submitting proposal for this assignment the proposed Key person should be the owner of the Sole proprietorship.**

**Note 03: If proponent failed to submit any of the above listed document, their proposal may not be considered for further evaluation.**

## 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>		

**Financial Proposal**

The Financial Proposal will be evaluated by applying the following formula

$S_f = 40 \times F_q / F$ , in which  $S_f$  is the financial score,  $F_q$  is the Lowest Financial Quote received and  $F$  is the price of the proposal under consideration.)

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

*Note: After evaluation, highest scoring party will be notified to submit the tax clearance report. Tender will be awarded upon submission of the tax clearance report*

**SCHEDULE FOR THE ASSIGNMENT**

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

**Duty Station:**

Home-based