



Ministry of National Planning and Infrastructure

Male', Republic of Maldives.

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TERMS OF REFERENCE

Project Management Consultancy for Water Supply and Sewerage Facilities Projects, Maldives

1. INTRODUCTION

The Ministry of Finance, on behalf of the Ministry of National Planning and Infrastructure (MNPI) (hereinafter called “the Client”) is seeking the assistance of a qualified and competent consulting firm and intends to apply part of the proceeds from the Government PSIP Budget for the following services: **Project Management Consultancy for Water Supply and Sewerage Facilities Projects - Package 1 to 6, Maldives**

2. BACKGROUND

The Maldives consist of 1190 low-lying coral islands spread over an area of 90,000km² in the Indian Ocean. Nearly 200 islands are inhabited, around 90 islands are resorts, and the rest are uninhabited. There are 26 geographical atolls which are grouped into 20 administrative atolls.

A large part of the population in the Republic of Maldives lacks the access to safe drinking water and improved sanitation facilities. Rainwater is the main source of potable water in the inhabited islands but it is available only during rainy months of the year. This causes the island population to rely on groundwater for drinking and cooking during dry period, mainly through domestic wells.

Wastewater disposal systems in most of the islands are developed within the plot known as onsite disposal systems (septic tank and soak pits), with rare cases of offsite disposals (near shore outfalls). In densely populated island environments, the construction, operation and maintenance of these systems is complex, mainly due to the short distance between domestic wells and septic tanks/soak pits, and often suffer from poor performance due to various reasons which include the absence of or limited desludging. Some small bore sewer systems (SBSS) have been introduced, but they often malfunction, and usually convey raw sewage directly into the near shore lagoon.

Sanitation facilities are poorly designed and constructed, which results in the contamination of groundwater and lagoon with the sewage effluent.

The island communities have therefore been facing the problem of groundwater contamination due to improper sanitation and over-extraction of groundwater. For a number of years, population and development pressures have led to increasing groundwater extraction, resulting in the depletion of the freshwater lens in many densely populated islands, which in turn has led saline intrusion into the groundwater aquifer. Groundwater resources have also been at risk of bacterial contamination caused by effluent leakage and pollution migration from poorly constructed and maintained septic tanks.

3. FOCUS ISLANDS

Package 1

1	Design and Build for Water Supply and Sewerage Facilities in N. Lhohi
2	Design and Build Basis for Water and Sewerage Facilities in N. Maalhendhoo
3	Design and Build for Water Supply and Sewerage Facilities in N. Kudafari
4	Design and Build for Water Supply and Sewerage Facilities in N. Kendhikulhudhoo
5	Design and Build for Water Supply in N. Holhudhoo
6	Design and Build for Water Supply and Sewerage Facilities in B. Hithaadhoo
7	Design and Build for Water Supply and Sewerage Facilities in B. Goidhoo

Package 2

1	Design and Build for Water Supply and Sewerage Facilities in R. Inguraidhoo
2	Design and Build for Water Supply and Sewerage Facilities in R. Rasgatheem
3	Design and Build for Water Supply and Sewerage Facilities in R. Vaadhoo
4	Design and Build for Water Supply and Sewerage Facilities in R. Agolhitheemu
5	Design and Build for Water Supply in R. Alifushi
6	Design and Build for Water Supply and Sewerage Facilities in R. Kinolhas

Package 3

1	Design and Build for Water Supply and Sewerage Facilities in Hdh. Finey
2	Design and Build for Water Supply and Sewerage Facilities in Hdh. Kurinbi
3	Design and Build for Water Supply in Hdh. Naivaadhoo
4	Design and Build for Water Supply in Hdh. Nolvivaram
5	Design and Build for Water Supply and Sewerage Facilities in Ha. Uligamu
6	Design and Build for Water Supply and Sewerage Facilities in Ha. Filladhoo

Package 4

1	Design and Build for Water Supply and Sewerage Facilities in Sh. Komandoo
2	Design and Build for Water Supply and Sewerage Facilities in Sh. Maroshi
3	Design and Build for Water Supply and Sewerage Facilities in Sh. Narudhoo
4	Design and Build for Water Supply and Sewerage Facilities in Sh. Maaungoodhoo
5	Design and Build for Water Supply in Sh. Kanditheemu
6	Design and Build for Sewerage Facilities in Sh. Foakaidhoo
7	Design and Build for Sewerage Facilities in Sh. Funadhoo newly developed area

Package 5

1	Design and Build for Water Supply and Sewerage Facilities in Th. Vandhoo
2	Design and Build for Water Supply and Sewerage Facilities in Th. Kinbidhoo
3	Design and Build for Water Supply and Sewerage Facilities in Th. Gaadhiffushi
4	Design and Build for Water Supply and Sewerage Facilities in Ga. Kanduhulhudoo
5	Design and Build for Water Supply in L. Maavah

Package 6

1	Design and Build for Water Supply and Sewerage Facilities in Th. Kandoodhoo
2	Design and Build for Water Supply and Sewerage Facilities in F. Magoodhoo
3	Design and Build for Water Supply and Sewerage Facilities in K. Gulhi
4	Design and Build for Water Supply in Adh. Hanyaameedhoo

(Total 35 Islands)

4. SCOPE OF WORKS

The consultant shall undertake full administration of the Contract(s) and supervise the works, assuming the role of the “Engineer” as defined in the FIDIC Conditions of Contract for Plant and Design-Build Contract First Edition (1999 Yellow Book) for Design and Build Contracts and FIDIC Conditions of Contract for Construction (1999 Red Book) for Construction Contracts. This shall include supervision of Contractors works for compliance with specifications and detailed design, review and approval of Contractor’s submittals, tracking actual progress against the required progress, certification of Contractor’s payments among the others.

Part I: Review of Detailed Designs

The Consultant will review the detail designs made by the Design Consultants to ensure that it provides the product required and to verify that correct engineering practices were used in the design and ensure that the design meet the needs and the standards of the Client. The time duration to review the design is 01 Month from the day of submission.

Part II: Review and Approval of construction drawings

The consultant will review and approve shop drawings from contractor before start of the work. The consultant will also check if all approvals are obtained for electrical design.

Part III Construction Supervision

- a. **Material Approval:** Approval of all the materials required for the works shall be checked, compared with specifications given in the proposals and design requirements and approved in a predefined clear process and records must be maintained in proper manner and share with the Client. Material forms must be signed by the client before sharing them with contractor. Approvals shall be organized in a way not causing any delays to Contractors works.

- b. Day to Day supervision:** The consultant shall monitor day to day work progress of Contractor and keep a log of activities done on each day. During supervision, if the consultant finds any defective work, or work that does not conform to contract drawings and specification, the work shall be rectified immediately. **The consultant should check if all the necessary approvals and permits to carry out the works are obtained and kept updated by the contractor.**
- c. Coordination of works:** the Consultant will organize and direct execution of the works, by defining compliance with programmes and relations between stakeholders (MNPI/PMU, Contractors, Suppliers and third parties). Coordination will be ensured mainly by holding regular site meetings and general monthly meetings, with managers of the Contractors and Manufacturers, the MNPI/PMU.
- d. Daily records:** The Consultant shall keep daily records of weather, Contractor's staff on site, equipment available on site, material available on site and material brought to site.
- e. Supervision of field surveys:** the Consultants will supervise the Contractors who should carry out field surveys such as topographic, hydro-geological and geological surveys. The Consultants will prepare technical reports on all measurements made by the Contractor and will submit them to the MNPI/PMU.
- f. Identifying Special Studies:** in case the Consultants during progress of work come to the conclusion that special studies would be required to assist the Project Management Unit (PMU) in specific problems unforeseeable before conclusion of consulting contract, he will inform the MNPI/PMU immediately and early enough to allow the Employer to arrange for such expertise.
- g. A Quality Control and Quality Assurance Plan** will be developed by the Consultants to ensure that the structures are built and equipment installed in conformity with the Contractual Specifications, approved drawings, standards, good engineering practice and State-of-the-Art.
- h.** A safety and security management plan should be prepared by the contractor and approved by the consultant. The consultant shall ensure that the plan is established and maintained by the contractor. Any safety and security incident occurs at site shall be reported to the client.
- i. A Plan for Project Cost Control** will be developed on the basis of the field survey control and quantity survey required for determination of actual quantities of work accomplished by the Contractor(s) and Supplier(s) under direct guidance of the MNPI/PMU, the Consultant will approve or reject the quantities of materials delivered, equipment erected, and works performed by the Contractor(s) and Manufacturer(s). The consultant shall ascertain the work measurements and payment claims by the Contractor and certify these to the Client as being correct and within the terms of contract.
- j. Plan for Project Progress Control:** using the same basic data as those established for project cost control, a progress chart will be maintained and updated in the Consultant(s)

office. The work progress will be followed by the Consultant especially during the weekly works meetings on sites. A monthly report of weekly meetings will be established by the Consultant.

- k. **Representing the MNPI/PMU:** the Consultants shall be the MNPI/PMU's representative on site and shall perform all duties delegated by the MNPI/PMU in writing in accordance with FIDIC. The Project Coordinator (PC) for the project will be appointed by the MNPI/PMU in writing.
- l. **General Reporting to Government.** The Consultants will assist the MNPI/PMU in supplying information related to the design and works progress to Government.

Works commissioning

The Consultants will implement Works commissioning including:

- m. Supervising the acceptance tests and preparing the **Taking over Certificate**.
- n. Preparing the **Completion Report** which will be based on the record maintained during work supervision phases. It will include the environmental completion report which will be submitted to MNPI/PMU for compliance with initial recommendations.
- o. **Implement Shop Inspection of Electromechanical Equipment:** the Consultants will check the manufacturing of equipment and will attend tests of main items for acceptance as and when necessary. These tests concern mechanical tests and chemical analyses, routing tests and standard tests, dimensional checks and Non-destructive tests.
- p. **Review the 'As-Built Drawings'.** The Consultants will review the 'As-Built Drawings' during construction of works prepared by the Contractor.
- q. **Review Operation and Maintenance Manual:** The consultant will review the operation and maintenance manual when prepared by the contractor.

Outputs of Part II:

- Contractors are properly supervised and coordinated as per MNPI/PMU instructions.
- Quality Control and Quality Assurance Plans are issued.
- Various authorizations and instructions to the Contractor(s) and/or Manufacturer(s) being issued regularly.
- Plan for Project Cost Control update delivered monthly as per MNPI/PMU instructions.
- Plan for Project Progress Control update delivered monthly as per MNPI/PMU instructions.
- Works are temporarily commissioned, 'As Built Drawings' delivered and Operation & Maintenance Manuals issued.
- Weekly, monthly, and final report.

Part III: Capacity Building and Performance Control over Defect Liability Period

Capacity Building

The Consultant will provide on-the job training to the counterpart staff on all aspects of the work carried out. Selected counterpart staff from each island will be attached to the Consultant's team for on-the-job-training in construction supervision. During construction stage the contractor will provide on-the-job training to the selected counterpart staff from the beginning of construction works. The consultant shall work with contractor to formulate a training curriculum and obtain approval from the client. The records of trainees should be kept and reported to the client.

After commissioning, the Consultant will organize a formal two weeks training for the operation and maintenance of the works rehabilitated or newly installed, followed by two weeks of practical exercises on sites.

Defect Liability of Contractors

The Consultant will carry out quarterly inspections during the one year defects liability period and instruct accordingly the contractors with regard to outstanding works and defects. After this period and satisfactory inspections, the Performance Certificate will be issued.

Outputs of Part III:

- Key MNPI/PMU staff are trained on the job and formerly;
- Quarterly site inspection during defects liability period Final Project Completion Report (PCR) to be submitted

5. PROJECT TEAM

The following staff shall be employed in team as detailed below;

#	Post	Total No	Remarks
1	Project Manager (Team leader)	1 for each Package	Required for the entire duration of the project
2	Sewerage/Water engineer	1 for each Package	Required for the entire duration of the project
3	Electro-Mechanical Engineer	1 for each Package	Required during the testing and commissioning period and for review of submittals pertaining to electro-mechanical components of the project
4	Resident Engineer	1 for each Island	Required during the construction stage

A separate person should be proposed for the position of Resident Engineer in each of the island specified in the TOR. However, same personnel can be assigned for the position of Project Manager, Sewerage / Water / Civil engineer and Electro-Mechanical Engineer and Quantity Surveyor in all the islands.

The Project Manager should be based in Male' but should be willing to travel to project site as needed, even without the guidance of Client. Sewerage Engineer and Electro – Mechanical Engineer should travel to project at planned intervals. The consultant shall set-up their office in capital city, Male' region.

6. EVALUATION AND QUALIFICATION CRITERIA

If the Consultancy firm is a foreign entity, the firm shall have an association with a local partner to facilitate all local requirements and logistics. The details of this party shall be provided with the proposal and association agreement.

The PMC consultant should not be involved as a lead partner or sub-consultant in the design consultancy of the specified projects in the packages. If such a case arise, it would lead to disqualification of the consultant from this consultancy.

The Client reserves the right not to award more than two packages to a single Consultant.

7. SIMILAR ASSIGNMENTS

To be eligible for this assignment, the consultancy firm must demonstrate past experience in performing the services (description of similar assignments, Value of such assignments). The Firm shall have carried out a minimum of Four (4) similar assignments of 1,000,000 within last 5 years period.

8. REQUIRED QUALIFICATION OF PROJECT TEAM

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

	PROJECT MANAGER		Sub- Category		Total Score	Sub-Score
Education & Qualification	Bachelor's degree in Project Management or Environmental Management/Science or in a related field				9.0	
General Experience	Experience in the field of Project Management or equivalent position	(a)	Experience of 07 Years		15.0	15.0
		(b)	Experience of 05 Years			10.7
		(c)	Experience of 03 Years			6.4
Specific Experience	Experience in managing civil works project including water supply, sewerage facilities, waste management, energy etc. projects	(a)	Experience of 05 Years		20.0	20.0
		(b)	Experience of 04 Years			15.0
		(c)	Experience of 03 Years			10.0
	SEWERAGE/ WATER ENGINEER		Sub- Category		Total Score	Sub-Score
Education & Qualification	Bachelor's degree in Civil/ Environmental Engineering				6.0	
General Experience	Experience in Design Works.	(a)	Experience of 05 Years		10.0	10.0
		(b)	Experience of 04 Years			6.0
		(c)	Experience of 03 Years			2.0
Specific Experience	Experience in designing water supply and sewerage works systems, etc. In addition should be able to monitor and check of materials and equipment as per approval or acceptable specifications and standards.	(a)	Experience of 05 Years		4.0	4.0
		(b)	Experience of 04 Years			3.2
		(c)	Experience of 03 Years			2.4
	ELECTRO-MECHANICAL ENGINEER		Sub- Category		Total Score	Sub-Score
Education & Qualification	Bachelor's Degree in Electrical/Mechanical Engineering				3.0	
General Experience	Experience in designing of electrical / mechanical components.	(a)	Experience of 05 Years		5.0	5.0
		(b)	Experience of 04 Years			3.0
		(c)	Experience of 03 Years			1.0
Specific Experience	Experience in designing electrical / mechanical components in resorts, buildings, water supply and sewerage projects. In addition should be familiar with pumps and its operations under different applications.	(a)	Experience of 05 Years		2.0	2.0
		(b)	Experience of 04 Years			1.6
		(c)	Experience of 03 Years			1.2

	RESIDENT ENGINEER		Sub- Category		Total Score	Sub-Score
Education & Qualification	Bachelor's degree in Civil Engineering.				3.0	
General Experience	Experience in Construction Site Management.	(a)	Experience of 05 Years	5	5.0	5.0
		(b)	Experience of 04 Years	4		4.0
		(c)	Experience of 03 Years	3		3.0
Specific Experience	Experience working as a Site Engineer in Water Supply/Sewerage projects. In addition should also have demonstrated experience in the use of dewatering techniques for construction in areas with high water tables and an understanding of the difficulties limitations and mitigation methods required to minimize the impacts of dewatering.	(a)	Experience of 04 Years	4	2.0	2.0
		(b)	Experience of 03 Years	3		1.5
		(c)	Experience of 02 Years	2		1.0

9. EQUIPMENT, LOGISTICS AND FACILITIES

The Consultants shall ensure that experts are adequately supported and equipped. In particular he/she shall ensure that there are sufficient administrative, computing and secretarial provision to enable experts to concentrate on their primary responsibilities. The Consultant shall meet the full costs for the supply of the teams including all travels, remuneration, insurance, emergency medical aid, facilities and all else necessary for the competent operation of their teams. The Consultants will provide their own office space for their Project team.

10. PAYMENT (Not required for EOI stage)

Payments will be in accordance with the schedule specified below;

DESCRIPTION	ALLOCATION	REQUIREMENT
Part I & Part II Monthly payment	As per invoice	Submission of Monthly Report
		Submission of Invoice and supporting documents (time sheets, receipts of reimbursable expenditures etc.) in the specified format
Part III Quarterly Payments	As per invoice	Upon submission of quarterly inspection report for defects notification during defects liability period.

11. DELIVERABLES

The consultants shall complete the following deliverables and submit the following reports;

Part I

Deliverable	Submission deadline
Design review report	1 Month after the design is submitted
Weekly progress reports	At the end of every week, after the contractor is mobilized on site
Monthly Progress reports	10 th of the following Month
Quarterly inspection Report	At the end of each quarter of the defects liability period
Final Project Completion report	At the end of defects liability period

12. TECHNOLOGY TRANSFER

The Consultant shall consider the technology transfer as an important aspect of this project. The Consultant shall provide the opportunity to the staffs of the client to be involved in the working team of Consultants during the work supervision stage of the project for their capacity development wherever possible.

13. DURATION OF THE ASSIGNMENT

The period of total engagement will be **24 months** upon the signing of the contract agreement with the selected Consultant for the Consultancy for Works Supervision.

Commencement of Consultancy work will start only when the Contractor mobilizes to the site.

If the works are stopped for any reasons, the Client has the right to terminate the Contract after notifying the Consultant and the Client will not be liable for any damages due to termination of the Contract.