

Consultancy Services for Designing, Installation, Operation and Maintenance of Reverse Osmosis (RO) Plants

Terms of References (ToRs) for Contractor / Vendor

GENERAL

This document contains Terms of Reference (TORs) for the Vendor / Contractor, to be engaged by WWF-Pakistan (hereinafter called the Employer), for the designing, installation, operation and maintenance of Reverse Osmosis (RO) Plants.

OBJECTIVES:

WWF-Pakistan is implementing a project with Reckitt Benckiser titled “Community Water Stewardship: Replenishing Water Resources in Karachi and Sindh” that aims to replenish 14,000 m³/annum water resources/reservoirs through different interventions coupled with the provision of clean drinking water to the communities of Karachi.

In order to provide clean drinking water to the communities, Freshwater Programme requires the services of a qualified contractor / vendor for the purpose of designing, installation, operation and maintenance of 3 units of Reverse Osmosis (RO) Plants in SITE area Karachi on BOT basis.

SCOPE OF SERVICES:

The scope of services includes the following:

1. Design and Construction

- Contractor shall separately design the RO plant for each of the three selected sites based on the feed water quality analysis reports provided by the employer.
- Contractor shall carryout all necessary general civil works (site specific) for the installation of RO plant at each site along with the construction of raised foundations for feed and product water storage tanks with brick masonry and cement plaster work.
- Each RO Plant shall deliver 140 US Gallons of product water per hour.
- Each RO Plant shall be mounted on a MS skid.
- Each unit of RO Plant must contain but not limited to the following components:
 - Feed water pump
 - Multimedia (sand and gravel) filter with FRP container.
 - Carbon filter
 - Cartridge filter
 - System for dosage of necessary chemicals such as anti-scalant, disinfectant and pH adjustment including storage containers, pipes and dosing pumps.

- Disinfection system
- System for dosing necessary nutrients / minerals as per requirement.
- Backwashing and Clean-In-Place (CIP) System for whole plant and associated piping.
- Pressure gauges for feed and reject lines
- TDS monitoring equipment

2. Procurement and delivery of components / materials

- Contractor shall procure 2 numbers of PE tanks (food grade – Master Tank / Pak Arab / Super Tuff) with a capacity of 2000 Litres for each unit of RO plant for the storage of feed and product water.
- Procurement of all required equipment, materials and components with delivery at site will be the responsibility of contractor.

3. Installation and Commissioning

- Contractor shall be responsible for completing in all respects the installation of RO plant at each site.
- Contractor shall make arrangements for the connection of existing bore with feed water storage tank and product water storage tank with the hydrant.
- Completion of all associated Mechanical, Electrical and Plumbing works shall be the liability of contractor.

4. Operation, Maintenance and Training of community

- Contractor shall operate each RO plant for a period of 2 weeks in the supervision of qualified technical staff.
- Contractor shall carry out maintenance of each RO plant on regular basis for a period of 3 months.
- Contractor shall rectify all faults that may occur within a period of 3 months in each RO plant on immediate basis through necessary repair / maintenance / replacement of components.
- Complete training regarding operation, maintenance and troubleshooting shall be provided by the consultant to the community.

DELIVERABLES

- Completing the installation and commissioning of 3 units of RO Plants under the supervision of qualified engineers within due time as specified by the employer.
- Delivery of 140 US Gallons of product water per hour by each RO plant.
- Procurement of all components / materials and delivery at sites.
- Construction of foundations and completion of all general civil works as per site and situation requirement.
- Completing all associated Mechanical, Electrical and Plumbing works.
- Provision of required skilled labour and other resources.
- Display of WWF and Reckitt Benckiser logo along with project title and water conservation awareness messages on Stainless Steel plates at each site (2 at each site).
- Provision of all services in accordance with the manufacturer's instructions and industry best practice, including all related tools and labour.
- Following of Health, Safety and Environmental (HSE) protocols.

- Operation of each of the 3 RO plants for 2 weeks.
- Regular maintenance and rectification of faults in each of the 3 RO plants for 3 months through necessary repair / maintenance / replacement of component.
- Provision of complete training regarding operation, maintenance and troubleshooting to the community.
- Monitoring and provision of technical assistance for a period of 1 year.
- Provision of product water quality analysis report from a reputed water testing laboratory for each site.
- Product water must contain all necessary minerals and nutrients up to standard levels.
- Compliance of product water quality with NEQS for drinking water.

REQUIRED QUALIFICATIONS/SKILLS OF CONSULTANT

1. Minimum (03 – 05 years) of experience in designing, operation and maintenance of RO plants.
2. Should have at least completed 3 - 5 water management related projects.
3. Be able to demonstrate working ability under any circumstances and completion of all the deliverable before the deadline.
4. Should be able to follow all the required Health, Safety and Environmental (HSE) protocols, as specified under the WWF-Pakistan HSE safeguard policy.
5. Should be able to comply with all the national and provincial construction standards and labour protocols.
6. Following documents are required and would be used for Technical/ Financial Evaluation:
 - a) Covering Letter;
 - b) Copy of Company Registration Certificate;
 - c) Copy of valid NTN Certificate;
 - d) Copy of valid Sales Tax Registration Certificate (if applicable);
 - e) Copies of certificate of professional / technical association;
 - f) Complete Profile / Introduction of Organization (including name of Chief Executive, Partners, Professionals, etc.);
 - g) Financial Soundness Proof (Bank Reference or Bank Statement or Audited Report / Accounts);
 - h) Copy of any international / local affiliation (if any);
 - i) Copy of ISO 9001 / 2000 Certificates / local and international standards (if any)

FEED WATER QUALITY OF SITES:

TDS of Site “A” : 9,000 – 10,000 mg/L

TDS of Site “B” : 5,000 – 6,000 mg/L

TDS of Site “C” : < 10,000 mg/L