

## UNICEF Lebanon Terms of reference (TOR)

### PROJECT/ASSIGNMENT TITLE:

#### Water Quality Management System (WQMS) in Water Establishments

### I. Objectives:

The overall objective of this project is to improve safe access to an efficient and sustainable water supply through enhanced water quality plan, to better prevent and respond to all forms of hazards and threats putting quality in danger. This will be attained through an automated water quality management system, reducing human error and adopting new technologies to locate, track and treat pollution, and consequently enhancing water quality in water establishments.

To ensure compliance with national domestic water standards is monitored at all times and set basis for similar / multiple implementations across the country.

To ensure BMLWE management and technical teams are well informed of the water quality in order to interfere and rectify things on as and when needed basis (As a pilot project area)

### II. Introduction:

The water sector in Lebanon is currently impeded by both external and internal obstacles, hindering the provision of high-quality services to customers. Beside the increasing threat of pollution on water, the sector is facing considerable financial, technical and administrative constraints. Consequently, public water services have been operating with annual deficits and low recovery costs. In parallel, water consumers' trust in public services has substantially decreased over the years. A large majority of Lebanese population have access to water for a few hours per day. The little water received from public infrastructure is generally perceived to be of poor quality.

In addition, Water Establishments are using inconsistent and imprecise data. Inconsistent data is not only the result of the lack of water sampling & testing, but also of the overall data storage and organization that is being used in WE.

Hence, the need for water quality management system is highly recommended, by helping public organizations ensure that their services can run at any scale by monitoring all quality data of the water resources in real time. and allowing public sector organizations to run their operations efficiently with the ability to synchronize quickly, to resolve issues in real time without carrying out labor-intensive household water-quality testing and ensuring all water delivered to consumers is tested in compliance with international standards.

### III. Purpose of Assignment, Scope of work and End Products/deliverables:

#### Purpose of assignment:

The water quality management system helps water establishments ensure that their services can run at any scale by monitoring all quality data of the water resources in real time. It allows water and sanitation utilities to run their operations efficiently with the ability to synchronize quickly to resolve issues in real time without carrying out labor-intensive household water-quality testing.

The water quality management system provides comprehensive dashboards, combines quality data and helps public sector organizations monitor every step of the water chain by digital transformation so they can deliver a better experience for the communities they serve and improve the speed and reliability of their services while remaining in compliance with the water quality standards and norms.

#### Scope of Work:

- Design activities in order to produce and deliver the technical documentation for WQMS.
- Conducting on-site surveys on water systems and collection of data of sampling sites by certified water quality engineer fully dedicated during the project period of 1 year.
- Creation & Distribution of QR codes on sampling taps.
- Development & Customization, supply and installation of WQMS (full solution for all levels: applications, database

- and related software licenses according to technical requirements).
- Configuration of the WQMS applications and database for laboratories where needed.
- Integration between ERPs in-use and WQMS for good and harmonized synchronization of data.
- Integration with GIS maps to enhance tracking and location features of the system.
- Accurate Reporting / dashboards / analysis tools to improve decision-making and enhance data visualization.
- Development of a training module on WQMS.
- 24 months Support & Maintenance.

#### End Products/deliverables:

#### Design, development & Integration of the **WQMS** (50 % of bid price)

##### 1. Design of the WQMS (Price weight: 10 %)

Task 1.1: Defining data sets from current systems needed for the implementation of electronic data exchange.

Task 1.2: Preparation of the detailed plan for software development and implementation of the System including flowcharts and SOPs.

Task 1.3: Preparation of the final set of priority functional requirements that will be developed and configured for the use of the System.

##### 2. Development of WQMS (Price weight: 20 %)

Task 2.1: Establishment of the configuration/development and test environments

Task 2.2: Development/Configuration of the System's priority functionalities according to the detailed requirements.

Task 2.3: Configuring the priority functionalities and workflows in the System

Task 2.4: Integration with other Systems where need, according to the specification.

Task 2.5: Configuration of the WQMS applications and database for the laboratories, where needed.

##### 3. GIS Integration (Price weight: 10 %)

Task 3.1: View and locate water quality information on GIS maps.

Task 3.2: Design and develop dynamic dashboards and data analysis tools according to specified requirements.

Task 3.3: Locate and track exceedances

##### 4. WQMS Training module (Price weight: 5 %)

Task 4.1: Development of the training material and other documentation.

Task 4.2: Training of laboratories' users, where needed.

##### 5. Support & Maintenance (Price weight: 5 %)

Task 5.1: Technical support to correct any shortcomings related to the System functionalities or the system software configuration for a period of 24 months after the acceptance of the final version (warranty period hereinafter).

Task 5.2: Troubleshooting of problems related to the development/configuration of the System functionalities not identified during testing and acceptance phases in a warranty period.

Task 5.3: Additional knowledge transfer if it is deemed necessary by the client staff in the warranty period.

Task 5.4: Post-implementation support according to the requirements.

#### Design, development & implementation of **WQMS database** (50 % of bid price)

##### 6. Sampling points survey

Create & Build reliable, comparable and accurate database according to standards and norms. (pricing by sampling point). Tasks for each point are as follows:

Task 6.1: Conducting on-site surveys on water systems and collection of data of sampling sites. (price weight:20%)

Task 6.2: Coding of sampling points. (price weight:7.5 %)

Task 6.3: Compiling and importing related data to GIS. (price weight:7.5 %)

Task 6.4: Creation, distribution and tagging of QR codes on sampling taps by certified water quality engineer. (price weight:15%)

#### IV. Evaluation process and method

##### Technical Evaluation Criteria:

*Service Providers are encouraged to ensure they meet the below requested evaluation and qualification criteria*

*Technical evaluation is composed of 60 points*

*Minimum successful score for the technical evaluation is 42 points*

*The Technical Proposal should address all aspects and criteria outlined in the Request for Proposal. UNICEF welcomes new ideas and innovative approaches. Technical Proposals must be completed and provided with all relevant support documentation to enable the RFP Evaluation Team to adequately assess and evaluate the Proposal. The grading guideline is as follows:*

##### Technical Proposal – 60 Marks

- Detailed project implementation program / proposed timeline. The work activities should be further broken down to sufficient level of detail, identifying critical path(s) and appropriate schedule should be proposed - 30 points.
- 1. **Multi Standards / Multi Applications:** Testing process with respect to all international standards and norms included in the software's library (e.g.: LIBNOR 191:2016) for drinking water, sewage and irrigation water. 2 Points
  - Set allowable limits and ranges for specific parameters as per used standards.
  - Risk Assessment & Analysis: Highlight exceedances and show their direct impact on health and safety while mentioning the degree of harm that each tested parameter could cause.
- 2. **Schedule events automatically:** Remove the manual element of sampling programs, connect sampling schedules to chain of custody forms and labels, and ensure the organization retains knowledge even when staff changes. 3 Points
  - Generates Work Orders with details that guarantee the quality & integrity of the sampler on site.
  - Presets annual schedules that organize frequency of testing.
  - Notifies of missed events and automatically reschedules sampling events.
- 3. **Mobile Application:** Improve productivity and eliminate errors by entering data in the field directly from smart devices with multiple steps of location verifications (QR code / GPS) and GIS integration. 7 Points
  - GIS Integration
  - Sampler Guidance (Routing Organization)
  - Human Error minimization
  - Time Optimization
  - Location Verification
  - Accurate Data entry (built-in pre-set lists)
  - On site test results entry
- 4. **Laboratories' Management:** Link laboratories to one central database. Access to all data of many distributed locations, gain visibility into corporate level compliance, get high-level insights, drill down to more granular data and configure user access based on facility needs. 4 Points
  - Event queue organization & assignment distribution
  - Annual inventory pre-management & procurement
  - Pre-set sampling / testing design
  - Instantaneous result exposure & analysis with decision guidelines.
- 5. **Multi-Management Level report customization / support:** Water usage and environmental impact is one of the most important sustainability program factors, and water management system reporting process should be fully integrated with ability to export thousands of historical records, forecast statistical patterns and get automated reports serving as a data analysis and decision support tool. 4 Points
  - Flexible reporting structure based on customizable KPIs.
  - Use of KPIs to track laboratories and samplers' performances.
  - Reliability and validity: Scientific statistical analysis including curves, patterns...
  - Dynamic dashboards and data analysis tools.

**6. Simplicity of Deployment & Integration:** Enables to manage particular business processes without hassle, avoiding unnecessary productivity drops and operational bottlenecks, while ensuring minimum number of staff manipulates the software with no pre-requisite / extensive training required. 5 points

- Optimizes efficiency of required team members & staff
- Optimizes tasks allocations and increases efficiency
- Minimizes human error and Increases data confidence level
- Guarantees in-house sustainability & continuity ability
- Ensures data privacy/organization/storage

**7. Track & Locate exceedances:** Receive alerts when the system recognizes an exceedance, drill down into the data and metadata to easily view and locate relevant information in one location (GIS maps), and make better decisions to remediate events as they happen. 5 points

- Locates and tracks pollution instantaneously in Water systems.
- Early event prediction
- Marks pollution / exceedances on GIS maps.
- Analysis by location / parameter / season / date.
- Auditing ability

- Ready/Pre-tested application: product ready to be delivered/launched and does not require additional time to be developed and/or critical path(s) for implementation within a maximum of 6 calendar month– 10 points.
- References from 3 similar completed projects within the past five years (preferably with water establishments) including minimum 1 previous project related to Water Quality – 10 points **(3.3 points each)**

The following compulsory details for each project must be included:

- Project details such as what was the project, which elements of works and services were performed by the Bidder
- Project value, at contract signature and at the project completion
- Time for completion, mentioning any delays from contract completion date
- Completion certificate for the 3 completed projects
- Name and valid contact details of Client
- Reference letters to be provided.

- Resources

Technical Company Profile: Organogram showing organization of proposed site and back-office staff – 10 points.

Detailed CVs of each individual including Project Manager, Site engineers In-charge, Developers and GIS experts.

CVs of the team members meeting the below requirements:

- Project Manager with minimum 15 years of experience including minimum 2 years working with public sector. Master's degree is a plus. 2 points
- Site Engineer with 5 years of experience, including 2 years' experience in Water Quality (Certificates of trainings/workshops in Water Quality from relevant sources are a MUST) 2 points
- Two Software Developers 4 points
- GIS Expert 2 Points

#### **Financial Proposal – 40 Points**

#### *Methodology for response*

- A request for proposal will be processed, requiring a technical proposal and financial proposal per project package.
- Bidders are requested to submit the following:
- 3 electronic copies (CD's) of the technical proposal.
- 1 signed and stamped print out of the financial offer and 1 electronic copy (CD) containing a scan of the

signed and stamped print out of the financial offer and 1 excel copy of the financial offer; handwritten offers will be disqualified.

- Bidders must **not** submit any material except for the above mentioned.
- The technical proposal must follow the same sequence detailed under point 10. Technical Evaluation of the proposals; that is Points 1, 2, till the end.
- Failure to abide by any of the above requirements will **render the offer as disqualified**.

#### **Terms of Payment**

Partial payment will be made based on the below schedule:

- 25% upon exceeding 30% of works
- 50% upon exceeding 55% of works
- 75% upon exceeding 80% of works
- 100% upon completion of works.

#### **Timing/Duration of Contract**

- Please note that UNICEF is not obligated to order any minimum number of services from the Supplier pursuant to the result of this RFP.
- Contractual implementation durations must not exceed 18 months.

#### **Special Conditions:**

- The offered price must be guaranteed for 12 months to allow up to 3 repeat orders to cover the other 2 water establishments BWE, SLWE and NLWE.
- The contractor shall provide upon execution of the works/work completion and acceptance by local authorities/signed minutes of handover, an unconditional Defects Liability bank guarantee equal to 10% of the contract value for a period of 12 months and 28 days. This bank guarantee will be released back to the contractor upon final Acceptance/Handover.