



**BID SPECIFICATION**

|  |  |
| --- | --- |
| **RFB Ref. No:** | **RFB 2767-2023** |
| **RFB DESCRIPTION:** | **Procurement Of The Assessment And Design Of A National Digitized Integrated Water And Sanitation Monitoring System For The Department Of Water And Sanitation (DWS), For A Period Of 12 Months.** |
| **PUBLICATION DATE:** | **15 June 2023** |
| **VENDOR BRIEFING SESSION** | **Compulsory Virtual Briefing Session will be held as follows:**  **Date: 23 June 2023**  **Time: 11:00 am (South African Time)**  **Venue:** Microsoft Teams meeting  [Click here to join the meeting](https://teams.microsoft.com/l/meetup-join/19%3ameeting_MmE3NDQ5MDctOGVlMi00MTZjLWFhMDMtMDY4YjgwMzc3OGFm%40thread.v2/0?context=%7b%22Tid%22%3a%2248cd5724-88c7-48c3-a665-945436edd7fc%22%2c%22Oid%22%3a%22b549ce49-d653-46df-b9f9-9126902715f7%22%7d) (or right click and select open hyperlink to join the meeting) |
| **CLOSING DATE FOR QUESTIONS / QUERIES** | **30 June 2023 at 16:30 PM** |
| **CLOSING DATE:** | **Date: 10 July 2023**  **Time: 11:00 am (South African Time)**  **PLACE: TENDER OFFICE, PONGOLA IN APOLLO, 459 TSITSA STREET, ERASMUSKLOOF, PRETORIA (HEAD OFFICE)** |
| **BID VALIDITY PERIOD** | **200 Days from the Closing Date** |

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# Introduction

## 1.1. PURPOSE

The purpose of this RFB is to invite Suppliers (hereinafter referred to as “bidders”) to submit bids for “The assessment and design of a national digitized integrated water and sanitation monitoring system for the Department of Water and Sanitation (DWS), for a period of 12 months”.

## 1.2. BACKGROUND

South Africa requires effective water management to keep up with the demand for energy and food and to ensure access to safe water and adequate sanitation. Informed water management decisions need systematic and innovative ways to measure and monitor changes in water quality and avail­ability across the entire water value chain. The landscape of water and sanitation monitoring is continually evolving and thus the practice, processes and tools are inevitably subject to the influence of prevailing and emerging digital technologies such as Internet of Things (IoT) and “big data” analytics. These innovations can be applied to provide solutions for complex water assessment and management challenges such as those associated with increasing demand against a finite supply, wastage, and inequitable access. To align itself with Government’s policy on the ushering of the fourth industrial revolution (4IR), the Department of Water and sanitation (DWS) must position itself to take advantage of these innovations to improve operations across its water management value chain.

The DWS has thus initiated a National Digitized Integrated Water and Sanitation Monitoring Systems Project in the Chief Directorate of Water Information Management within the Water Resource Management Branch. The aim of this Project is to develop a sector-wide digitized integrated water and sanitation monitoring system consisting of innovative water quantity and quality status measurement, data, and information management (acquisition, real-time transmission, reception, processing, dissemination, archiving etc) and communication modules linking various components in the water and sanitation information management value chain. The National Digitized Integrated Water and Sanitation Monitoring Systems Project supports objectives of Chapter 13, Section 13.1 of the National Water Resources Strategy 2 by ensuring adequate, accurate and current data is collected and processed for better decision-making. It also supports the 2016 Sanitation Policy Position 32, that an Integrated National Sanitation Information System will be implemented and managed to monitor, report, evaluate and regulate the entire water and sanitation sector in the country. The system will be aligned with information management systems of DWS, National Treasury, CoGTA and other government agencies.

The aim of this Request for Bid (RFB) is to solicit proposals for the assessment and detailed design of the national digitised integrated water and sanitation monitoring system. The national digitised water and sanitation monitoring system is complex and integrated with diverse sub-systems covering the entire water monitoring value chain, each of which includes the processes of acquisition, transmission, reception, processing, archiving and dissemination of data. Building or implementation of the designed water and sanitation monitoring system is out of scope of this RFB. The DWS has developed a Framework for The National Digitized Integrated Water & Sanitation Monitoring System to provide a high-level overview of the status of monitoring systems, technologies, and digitisation business requirements. The framework covers a description of the following components: Existing modules of observation networks, observation instruments and infrastructure, information management and supporting IT infrastructure. Existing technological applications. Existing data and information management systems, their operation and maintenance. Gaps and digitisation business requirements. This Annexure must always be read in conjunction with the main bid document (Invitation to Bid) and the completed Bid Specification MUST be submitted together with the main bid document.

# Scope of Bid

## Scope of Work

The project will deliver a detailed design of a national integrated digital water and sanitation monitoring system. The scope of work is as follows:

1. To assess the existing technology applications and gaps across the entire water and sanitation information value chain from observation and measurement to data and information dissemination.
2. To assess water & sanitation monitoring and information management practitioners’ tools and system’s needs; Evaluate, validate, and develop user requirements and user journeys.
3. To conduct a market study and due diligence on national water monitoring and information management digital solutions and/or platforms, including a shortlist of solution in order of affordability, cost analysis, scalability, best practice and international footprint, ease of integration and security.
4. To build, document and optimize the business processes for water resource monitoring and information management.
5. To develop a governance framework for the use and management of the system to ensure optimal use and information sharing.
6. To design a comprehensive national integrated digitized water and sanitation monitoring system.
7. To provide capacity building and training, skills, and technology transfer to nominated officials under different focus area.
8. To describe in detail a process to successfully build/assemble/acquire the system.
9. To develop a detailed proposed implementation plan for the designed National Digitized Integrated Water and Sanitation Monitoring System.

## Delivery address

|  |
| --- |
| Department of Water and Sanitation  Sedibeng Building  185 Francis Baard Street  Pretoria  Gauteng  0002 |

## Customer Infrastructure and environment requirements

* Refer to Annexure A, re, National Digitized Integrated Water and Sanitation Monitoring Systems design architecture.

# Requirements

## Product / Service / Solution Requirements

### The envisaged national digitized integrated water and sanitation monitoring system (also referred to as the solution) must comply with the following general requirements:

1. The solution should include a digitised integrated system which will cover all components of water and sanitation monitoring from collection of data to dissemination across the water and sanitation monitoring value chain.
2. The solution should comply with various applicable guidelines and standards of monitoring (instrumentation) as well as DWS and State Information Technology Agency (SITA) ICT applicable standards. All water quality data must adhere to the existing South African National Accreditation System (SANAS) water quality accreditation requirements.
3. The solution should integrate a hybrid approach of split ownership between DWS and Service Provider to spread the risk attributed to total ownership by DWS. While installation, operation and maintenance are expected to be split, the solution must, however, reflect total data ownership by DWS.

## Special Requirements

The envisaged national digitized integrated water and sanitation monitoring system must comply with the following special requirements per focus area:

### Water Resources

(a) The solution must be capable of using wireless sensor networks as well as in-situ terrestrial sensor network systems

(b) The solution must have capability to use unmanned aerial vehicles (drones)

(c) The solution must have Geographical Information Systems (GIS) integration capabilities

(d) The solution must have South African based water quality observation systems and other space-based sensor systems capabilities

(e) The solution must have online and offline data capturing mobile application (APP) systems

(f) The solution must have cloud and on-site based monitoring systems capabilities

(g) The solution must have online mobile application systems linked to functional databases for data storage and further quality checks

(h) The solution must be capable of linking to secure database systems for processing and reporting

(i) The solution must have incident water quality management protocol for early warning on determinants of concern

(j) The solution must have rain/storm water monitoring capabilities

(k) The solution must have flood management early warning capabilities

(l) The solution must have drought status early warning capabilities

(m) The solution must be capable of near-real time monitoring of managed aquifer recharge and water quality.

(n) The solution must be capable of integrating crowd sourcing/citizen science water monitoring approaches.

### 3.3.2. Water Resources Infrastructure Assets

(a) The solution must have online monitoring capabilities

(b) The solution must have supervisory control and data acquisition (SCADA) capabilities

(c) The solution must be capable of utilising analytics tools for process of optimization

(d) The solution must have inter-process automation or control capabilities

(e) The solution must integrate with internal resources and platforms developed for working with digital infrastructure

(f) The solution must enable digital technologies to be incorporated across business and operations processes

(g) The solution must have advanced analytics for decision making capabilities

(h) The solution must have identification and electronic tagging of hidden assets (e.g., underground pipes) capabilities

(i) The solution must have smart pipeline system capabilities

(j) The solution must be capable of enabling remote operations

(k) The solution must have valve automation capabilities

(l) The solution must be capable of real time Bulk Pipe Monitoring

(m) The solution must have flow metering and reporting capabilities

(n) The solution must have specialized business information system capabilities (Knowledge Management, Artificial Intelligence, Expert Systems such as decision-making features and virtual reality if needed)

(o) The solution must have predictive modelling features

(p) The solution must have stakeholder engagement facilities

(q) The solution must be capable of incident recording (cause-and effect analyses)

(r) The solution must have Recording of Remaining Economic Lifespan of Assets (recording and management) capabilities

(s) The solution must be capable of doing verification of strategic asset (reservoirs, pipelines, dams etc) using mobile applications (APPs)

(t) The solution must be capable of integrating smart metering to measure volumes correctly and improve consistency of meter readings

(u) The solution must have dam safety surveillance system capabilities

(v) The solution must provide for real time monitoring on the flow of water of conveyance systems (canals, pipes, reservoirs, and pump stations).

### 3.3.3. Water Sector Regulation

(a) The solution must be capable of remotely assessing complaints to improve response time

(b) For Wastewater Treatment Works, the solution must have capability to monitor the discharging water quality points and interface with the existing systems under regulation

(c) Solution must have capability to monitor high risk water users in terms of water quality and quantity on annual basis

(d) The solution must have capability to monitor all water users issued with licenses

(e) The solution must monitor the volume of water that has been used without an authorisation in a particular property

(f) The solution must monitor the flow from pump stations versus the dam capacity of the wastewater treatment works

(g) The solution must monitor the reuse of water in terms of water quality, and the volumes of water that are going for reuse which are supposed to be going into the system.

(h) The solution must monitor industrial water use that goes into our wastewater treatment works. This will assist in monitoring on how much is going to the wastewater treatment work and what quality

(i) The solution must monitor drinking water quality (blue drop) and wastewater quality (green drop). This will be more regular than the current audit monitoring that being done once a year

(j) The solution must have capabilities to monitor abstraction by local municipalities according to what is in the license condition and interface with existing systems.

(k) The solution must be able to link with available systems, such as Hydronet, WAS, IRIS, WARMS etc.

(l) The solution must have an upload functionality for documents to be uploaded and to be available in field/ on site

(m) The solution must have an early warning system for compliance, e.g., for entities, licences etc.

(n) The solution must incorporate an automation of water use volumes reporting (metering data) for all water use sectors.

### 3.3.4. Revenue Management

(a) The solution must have capability to monitor meter readings remotely using smart meters. Revenue Management currently depends on infrastructure management to collect meter readings manually.

(b) The solution must have capability to authenticate customer data to improve veracity of data collected by customers

(c) The solution must be capable of rationalizing and integrating database systems used in Revenue Management that have similar objectives to streamline access to information and minimize duplication and proliferation of data sources.

(d) The solution must improve the document management system used in Revenue Management by automating the process of storing/archiving of documents to minimize human intervention.

### 3.3.5. Sanitation Services

(a) The solution must have capability to monitor status of sanitation in the country in terms of access to sanitation. Since this data is with institutions such as COGTA and Human Settlements, the solution must be capable of integrating with the external source systems to enable the department to monitor how many households have been served by each municipality or how many sanitation facilities have been delivered or projected.

(b) The solution must have capability to monitor groundwater quality parameters that are relevant to sanitation services. The ability to monitor the impact of on-site sanitation facilities on groundwater quality will assist with safe sanitation management.

(c) The solution must automate a sanitation technology assessment tool already developed for assessment of new sanitation technologies

(d) The solution must provide for monitoring and detection of pits that need emptying and activities that are taking place regarding emptying as well as quantity of sludge emptied

(e) The solution should provide means of collection of data on how faecal waste is safely disposed or reused

(f) The solution must have capability to monitor river and groundwater water levels as well as water quality where the discharging is taking place

(g) The solution must provide for means on how sanitation hygiene and hand washing facilities access data is collected.

### 3.3.6. Water Services

(a) The solution must have capability to monitor wastewater discharge quantity and quality by municipalities

(b) The solution must be capable of monitoring wastewater quality and capacity of treatment plants

(c) The solution be capable of monitoring drinking water quality

(d) The solution must be able to monitor all grant funding allocations and expenditure including MIG, WSIG and RBIG funding

(e) The solution must be able to monitor status of water and sanitation services reliability in all Municipalities including households without access to infrastructure

(f) The solution must be able to link with GIS to capture infrastructure information (new and old) and assist with development of Asset Management Plans

(g) With regards to groundwater, the solution should be able to provide information on aquifers, measure or provide information on how much groundwater resources are depleted or recharged at any given time, have measuring devices on certain aquifers to always provide real time data on status of aquifers/groundwater

(h) The solution must monitor any illegal connections on any bulk or normal supply or reticulation system

(i) The solution must be able to measure pipe pressure at any given time, to avoid pipe breaks

(j) The solution must be able to monitor if any bulk or ordinary meter is faulty

(k) The solution must have capability to accommodate Bulk, zone, and customer meters for measuring the actual water use and water loss.

(l) The solution must be capable of detecting major leaks or pipe burst in real time

(m) The solution must interface with other Water Use Efficiency potential systems such as Water Administration system, Irri-drop for agriculture sector, No drop system, International Water Association Water Balance (IWA) for Local Government

(n) The solution must integrate with operational schematics of all water supply distribution network systems (major irrigation schemes, Water Supply municipality systems,) including meters (smart meters) captured on GIS maps and photos, to provide a layout map of the infrastructure.

# Bid Evaluation Stages

The bid evaluation process consists of five stages, according to the nature of the bid. A bidder must qualify for each stage to be eligible to proceed to the next stage of the evaluation. The stages are:

Table 1: Bid Evaluation Stages

|  |  |  |
| --- | --- | --- |
| **Stage** | **Description** | **Applicable for this bid YES/NO** |
| Stage 1 | Administrative responsiveness | YES |
| Stage 2 | Technical Mandatory responsiveness | YES |
| Stage 3 | Technical Functional Requirements | YES |
| Stage 4 | Special Conditions of Contract verification | YES |
| Stage 5 | Cost / Preference points | YES |

## Administrative responsiveness (Stage 1)

### Attendance of briefing session

1. A Compulsory virtual briefing session will be held. The bidder must sign the briefing session attendance register using the same information (bidder company name, bidder representative person name and contact details) as submitted in the bidder’s response document. Any bidder who fails to attend the compulsory briefing session will be disqualified.

#### Registered Supplier

1. Only responses from bidders who are registered as a Supplier on National Treasury’s Central Supplier Database (CSD) in terms of National Treasury’s Instruction Note 4A of 2016/17 will be considered for award on this RFB.
2. In the case of joint ventures or consortiums the bidder must demonstrate that at least one of the parties to the bid response attended the briefing session.

## Technical returnable documents

### Instruction and evaluation criteria

1. The bidder must comply with ALL the requirements as per the Technical Mandatory Requirements below by providing substantiating evidence in the form of documentation or information, failing which it will be regarded as “NOT COMPLY”.
2. The bidder must provide a unique reference number (e.g., binder/folio, chapter, section, page) to locate substantiating evidence in the bid response.
3. The bidder must comply with ALL the TECHNICAL MANDATORY REQUIREMENTS for the bid response to proceed to the next stage of the evaluation.

### Technical mandatory requirements (Stage 2)

Table 2: Technical Mandatory Requirements

| **Mandatory Requirements** | **Substantiating evidence of compliance (used to evaluate bid)** | **Evidence reference (to be completed by bidder)** |
| --- | --- | --- |
| **1. Bidder Certification/ Affiliation Requirements** | | |
| 1. **BIDDER EXPERIENCE AND CAPABILITY REQUIREMENTS**   The bidder must have provided the assessment and design of a digitized integrated system project including, Integration and implementation of systems, Business analysis. System analysis, System design, Market Study and due diligence for large projects and Testing and Maintenance to one (1) customer in the last five (5) years covering the following aspect: | Provide in Annex A references details from at least one (1) customer to whom the assessment and design of a digitized integrated system project including, Integration and implementation of systems, Business analysis. System analysis, System design, Market Study and due diligence for large projects and Testing and Maintenance were delivered in the last five (5) years.  **NB:** SITA reserves the right to verify information provided | <provide unique reference to locate substantiating evidence in the bid response – see Annex A, section 5.1, table 5> |
| **2. Functional Product Requirements** | | |
| The bidder must confirm compliance to the Product / Service Functional requirements for the Design of a National Digitized Integrated Water & Sanitation Monitoring System | The bidder must confirm that they comply with the Product / Service Functional Requirements by completing Annex B: Addendum 1.  **Note (2):** Failure to complete Table 5 fully as indicated above will result in disqualification. | <provide unique reference to locate substantiating evidence in the bid response – see Annex A, par 5.2, Annex B: Addendum 1. |

### Technical Functionality evaluation Requirements (Stage 3)

1. The bidder must complete in full all the TECHNICAL FUNCTIONALITY requirements.
2. The bidder **must provide a unique reference number** (e.g., binder/folio, chapter, section, page) to locate substantiating evidence in the bid response. During evaluation, SITA reserves the right to treat substantiation evidence that cannot be in the bid response, as “NOT COMPLY”.
3. The evaluation (scoring) of bidders’ responses to the requirements will be determined by the completeness, relevance, and accuracy of substantiating evidence.
4. Functionality will be evaluated by conducting the following consecutive independent stage in the tender processes:
   1. Desk Top Evaluation of TECHNICAL FUNCTIONALITY REQUIREMENTS (Stage 3)
5. Weighting of requirements: The score for the desktop evaluation of TECHNICAL FUNCTIONALITY REQUIREMENTS will be calculated as follows:
6. Each Bidder will be evaluated on each individual requirement as indicated in table 3 / 4 below. The value scored for each requirement will be multiplied with the specified weighting for the relevant requirement to obtain the percentage achieved for each requirement.
7. SITA reserves the right to verify information / evidence provided by the Bidder.

Table 3: Technical Functionality Requirements

| **No.** | **Technical Functionality Requirements** | **Weighting** |
| --- | --- | --- |
| 1. | Methodology | **40%** |
| 2. | Team Leader Experience | **30%** |
| 3. | Team Capability | **30%** |
|  |  |  |
| **TOTAL** | | **100 %** |

1. Minimum threshold. The individual scores will be converted to a cumulative percentage and only those bidders that achieve or exceed the minimum threshold score of 60 % will be eligible to proceed to the next stage.

**Note: The Bidder needs to obtain a minimum of 60% per line item, failing which the Bidder will be disqualified.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No.** | **Technical Functionality Requirements (per environment)** | **Weighting** | **Minimum threshold per Functional environment** | **Proof of Evidence required** |
| 1. | **Methodology:**  Bidder to provide detailed proposal covering the following elements:   * Reflects the scope of work in Compliance to the Terms of Reference (ToR) **(CORE FUNCTION),** * Level of detail of the methodology and methods statements in the proposal for special requirements per focus area (**CORE FUNCTION),** * Comprehensive process mapping to illustrate project design and personnel task allocations **(CORE FUNCTION),** * Attention to project management and resource allocation **(CORE FUNCTION),** * Inclusion of Organogram **(NON-CORE FUNCTION)** * Innovative approaches and ideas **(NON-CORE FUNCTION).**  |  |  | | --- | --- | | **Scoring criteria** | **Points values** | | All 6 items addressed | 5 | | 4 items addressed | 3 | | < 4 items addressed | 1 | | No information provided | 0 | | 40% | 24% | **Evidence:**  Provide Detailed Proposal which contains a methodology chapter  **Evaluation*:***  **0= No information provided**  **1= Does not meet minimum requirement:**  Less than 4 core methodology functions.  **3= Meets minimum requirements:**  4 core Methodology functions.  **5= Exceeds minimum requirements**:  4 core methodology functions and at least 2 non-core functions. |
| 2. | **TEAM LEADER EXPERIENCE**  Considers the technical expertise and professional skills of the team leader, regional knowledge, and proven conceptual abilities.  The team leader should have experience of at least 10 years in:  • Systems integration **(CORE REQUIREMENT)**  • Business analysis **(CORE REQUIREMENT)**  • System analysis **(CORE REQUIREMENT)**  • System design **(CORE REQUIREMENT)**  • Market study and due diligence for large projects **(CORE REQUIREMENT)**  • Implementation and coding **(NON-CORE REQUIREMENT)**  • Testing and maintenance **(NON-CORE REQUIREMENT)**   |  |  | | --- | --- | | **Scoring criteria** | **Points values** | | ≥10 years on any 7 items | 5 | | 10 years on any 5 items | 3 | | Less than 10 years on any 4 items ~~plus~~ | 1 | | No experience | 0 | | 30% | 18% | **Evidence**  Attach as Annexure CV not longer than three pages, of all team leaders for each specific focus area.  CV must clearly state years of experience in each field, professional skills, accomplishments in relation to projects and their duration, and contactable references)  **Evaluation*:***  **0= No information provided**  **1= Does not meet minimum requirement:**  Less than 5 core requirements.  **3= Meets minimum requirements:**  5 core requirements.  **5= Exceeds minimum requirements**:  5 core requirements and at least 2 non-core requirements. |
| 3. | **Team Capability:**  Considers the technical and professional skills of the key team members, regional knowledge relevant and proven conceptual abilities.  Key team members should have at least 3 years of experience in the following:   * Water & sanitation systems Integration **(CORE REQUIREMENT)** * Business analysis; System design **(CORE REQUIREMENT)** * System analysis **(CORE REQUIREMENT)** * Water & sanitation monitoring systems Implementation **(CORE REQUIREMENT)** * Testing and maintenance **(NON-CORE REQUIREMENT),** * Market study and due diligence for large projects **(CORE REQUIREMENT)**  |  |  | | --- | --- | | **Scoring criteria** | **Points values** | | More than 3 years’ experience of the key team members on all 6 items. The combination of skills should cover all items | 5 | | 3 years’ experience of the key team members on any 5 items  The combination of skills should cover 5 core items | 3 | | Less than 3 years’ experience of the key team members on any 4 items  The combination of skills should cover 4 items | 1 | | No relevant experience | 0 | | 30% | 18% | Attach as an Annexure an organogram/project team mapping and allocation of key team members per focus area.  Attach as Annexure CV of team members not longer than three pages, of all team leaders for each specific focus area.  **Evidence**  CV must clearly state years of experience in each field, professional skills, accomplishments in relation to projects and their duration, and contactable references)  **Evaluation*:***  **0= No information provided**  **1= Does not meet minimum requirement:**  Less than 5 core requirements.  **3= Meets minimum requirements:**  5 core requirements.  **5= Exceeds minimum requirements**:  5 core requirements and at least 1 non-core requirements. |
|  |  |  |  |  |
| **TOTAL** | | **100 %** | **60%** |  |

Note:

1. **Minimum threshold**. To be eligible to proceed to the next stage of the evaluation the bid must achieve a minimum threshold score of **60%**.

**Note: The Bidder needs to obtain a minimum of 60% per line item, failing which the Bidder will be disqualified.**

1. **Minimum threshold per functional environment.** To be eligible to proceed to the next stage of the evaluation must achieve the minimum threshold per functional environment as indicated in the table above.
2. SITA reserves the right to verify information / evidence provided by the Bidder.

## Special Conditions of Contract Verification (Stage 5)

1. The successful supplier will be bound by Government Procurement: General Conditions of Contract (GCC) as well as this Special Conditions of Contract (SCC), which will form part of the signed contract with the successful Supplier. However, SITA reserves the right to include or waive the condition in the signed contract.
2. SITA reserves the right to:
   1. Negotiate the conditions; or
   2. Automatically disqualify a bidder for not accepting these conditions; or
   3. Award to multiple bidders
3. If the bidder qualifies the proposal with own conditions and does not specifically withdraw such own conditions when called upon to do so, SITA will invoke the rights reserved in accordance with subsection 4.3. (b) above.

### Special Conditions of Contract

#### Contracting Conditions

1. Formal Contract. The Supplier must enter a formal written Contract (Agreement) with the Department of Water and Sanitation
2. Right of Award. DWS reserves the right to award the contract for required goods or services to multiple Suppliers.
3. Right to Audit. SITA/DWS reserves the right, before entering into a contract, to conduct or commission an external service provider to conduct a financial audit or probity to ascertain whether a qualifying bidder has the financial wherewithal or technical capability to provide the goods and services as required by this tender.
4. Capacity Building and Training. The Supplier must ensure that there is a clear plan and methods on capacity building, training and skills transfer of DWS officials in all technical aspects to be undertaken as part of this project.

#### Delivery Address

1. The supplier must deliver the required products or services at the DWS office as indicated in Section 2.2, Delivery Address

**4.3.1.3 Delivery Schedule**

(a) The scope of work (Section 2.1) and Section 3 (Requirements) must be completed within 12 months after the contract has been awarded to the offices of DWS as indicated in Section 2.2

(b) The Supplier is responsible to perform the work as outlined in the following Breakdown Structure (WBS):

| **WBS** | **Statement of Work** | **Delivery Timeframe** |
| --- | --- | --- |
|  | | |
|  | Comprehensive Assessment Report | 1 month (Month 1) |
|  | A User Requirements Specification/ Report documenting the needs and user journeys of water and sanitation monitoring personnel and information managers in respect of water and sanitation monitoring systems | 1 month (Month 2) |
|  | Market study and Due Diligence Report on national water monitoring and information management digital solutions and/or platforms, including a shortlist of solution in order of affordability, cost analysis, scalability, best practice and international footprint, ease of integration and security. | 1 month (Month 3) |
|  | Business process optimization report including business process architectures and maps. | 1 month (Month 4) |
|  | Governance framework report detailing governance of the use, data sharing, information sharing and management of data and the systems | 1 month (Month 5) |
|  | Detailed Design and solution architecture of a National Digitized Integrated Water and Sanitation Monitoring System | 3 months (Month 6 to 8) |
|  | Detailed description of the build/assemble/acquire process of the National Digitized Integrated Water & Sanitation Monitoring System | 2 months (Month 9 to 10) |
|  | Provide a detailed proposed implementation plan for the designed National Digitized Integrated Water and Sanitation Monitoring System | 2 months (Month 11 to 12) |

### Supplier Performance Reporting

1. The Supplier will report on a monthly basis initially to DWS based on the timeframes of the WBS.
2. The Supplier is required to generate regular reports as outputs.

### Certification, Expertise and Qualification

1. The bidder certifies that:
   1. it has the necessary expertise, skill, qualifications, and ability to undertake the work required in terms of the Statement of Work or Service Definition
   2. it is committed to provide the Services,
   3. perform all obligations detailed herein without any interruption to the Customer, and
   4. it has been certified for the Services required.

### Logistical Conditions

1. **Hours of Work**
   1. Office hours are defined as business working hours of the customer and is Mondays to Fridays between 07:30 and 16:00
   2. After hours of the customer during weekdays are from16:00 to 07:30
2. **Client environment**
   1. If DWS grants the supplier permission to access its facilities, the supplier must adhere to DWS relevant policies and procedure (available to supplier upon request) or in the absence of policies and procedures in terms of, best industry practice.
3. **Tools of Trade**
   1. The bidder is expected to use its own resources (cell phone, laptops etc) to communicate with its own offices or outside of the DWS buildings, including all tools and equipment to render the services effectively.

#### Confidentiality and non -disclosure conditions

1. The Supplier, including its management and staff, must before commencement of the Contract, sign a non-disclosure agreement regarding Confidential Information
2. Confidential Information means any information or data, irrespective of the form or medium in which it may be stored, which is not in the public domain and which becomes available or accessible to a Party as a consequence of this Contract, including information or data which is prohibited from disclosure by virtue of:
   1. the Promotion of Access to Information Act, 2000 (Act no. 2 of 2000);
   2. being clearly marked "Confidential" and which is provided by one Party to another Party in terms of this Contract;
   3. being information or data, which one Party provides to another Party or to which a Party has access because of Services provided in terms of this Contract and in which a Party would have a reasonable expectation of confidentiality;
   4. being information provided by one Party to another Party in the course of contractual or other negotiations, which could reasonably be expected to prejudice the right of the non-disclosing Party;
   5. being information, the disclosure of which could reasonably be expected to endanger a life or physical security of a person.
   6. being technical, scientific, commercial, financial, and market-related information, know-how and trade secrets of a Party.
   7. being financial, commercial, scientific, or technical information, other than trade secrets, of a Party, the disclosure of which would be likely to cause harm to the commercial or financial interests of a non-disclosing Party; and
   8. being information supplied by a Party in confidence, the disclosure of which could reasonably be expected either to put the Party at a disadvantage in contractual or other negotiations or to prejudice the Party in commercial competition; or
   9. information the disclosure of which would be likely to prejudice or impair the safety and security of a building, structure or system, including, but not limited to, a computer or communication system; a means of transport; or any other property; or a person; methods, systems, plans or procedures for the protection of an individual in accordance with a witness protection scheme; the safety of the public or any part of the public; or the security of property; information the disclosure of which could reasonably be expected to cause prejudice to the defence of the Republic; security of the Republic; or international relations of the Republic; or plans, designs, drawings, functional and technical requirements and specifications of a Party, but must not include information which has been made automatically available, in terms of the Promotion of Access to Information Act, 2000; and information which a Party has a statutory or common law duty to disclose or in respect of which there is no reasonable expectation of privacy or confidentiality;
3. Notwithstanding the provisions of this Contract, no Party is entitled to disclose Confidential Information, except where required to do so in terms of a law, without the prior written consent of any other Party having an interest in the disclosure.
4. Where a Party discloses Confidential Information which materially damages or could materially damage another Party, the disclosing Party must submit all facts related to the disclosure in writing to the other Party, who must submit information related to such actual or potential material damage to be resolved as a dispute.
5. Parties may not, except to the extent that a Party is legally required to make a public statement, make any public statement or issue a press release which could affect another Party, without first submitting a written copy of the proposed public statement or press release to the other Party and obtaining the other Party's prior written approval for such public statement or press release, which consent must not unreasonably be withheld.

#### Intellectual Property Rights

1. DWS retains all Intellectual Property Rights in and to DWSs Intellectual Property. As of the Effective Date, the Supplier is granted a non-exclusive license, for the continued duration of this Contract, to perform any lawful act including the right to use, copy, maintain, modify, enhance and create derivative works of DWS 's Intellectual Property for the sole purpose of providing the Products or Services to DWS pursuant to this Contract; provided that the Supplier must not be permitted to use DWS 's Intellectual Property for the benefit of any entities other than DWS without the written consent of DWS , which consent may be withheld in DWS 's sole and absolute discretion. Except as otherwise requested or approved by DWS, which approval is in DWS 's sole and absolute discretion, the Supplier must cease all use of DWS 's Intellectual Property, at of the earliest of:
   1. termination or expiration date of this Contract.
   2. the date of completion of the Services; and
   3. the date of rendering of the last of the Deliverables
2. If so required by DWS, the Supplier must certify in writing to DWS that it has either returned all SITA Intellectual Property to DWS or destroyed or deleted all other DWS Intellectual Property in its possession or under its control
3. DWS, always, owns all Intellectual Property Rights in and to all Bespoke Intellectual Property.
4. Save for the license granted in terms of this Contract, the Supplier retains all Intellectual Property Rights in and to the Supplier’s pre-existing Intellectual Property that is used or supplied in connection with the Products or Services
5. Provide DWS with the compliant Occupational Health and Safety File (required on site for period of installation and proof of compliance).

#### General

1. The supplier will be bound by Government Procurement: General Conditions of Contract.
2. (GCC) as well as this Special Conditions of Contract (SCC), which will form part of the signed contract with the Supplier. However, DWS reserves the right to include or waive the condition in the signed contract.
3. DWS reserves the right to:
   1. Negotiate the conditions, or
   2. Automatically disqualify a bidder for not accepting these conditions, or
   3. Before entering a contract, conduct or commission an external service provider to audit or conduct probity to ascertain whether a qualifying bidder has the technical capability to provide the goods and services as required by this tender.

#### Counter Conditions

1. Bidders’ attention is drawn to the fact that amendments to any of the Bid Conditions or setting of counter conditions by bidders may result in the invalidation of such bids.

#### Fronting

1. The DWS supports the spirit of Broad Based Black Economic Empowerment and recognizes that real empowerment can only be achieved through individuals and businesses conducting themselves in accordance with the Constitution and in an honest, fair, equitable, transparent and legally compliant manner. Against this background the DWS will not condone any form of fronting.
2. The DWS, in ensuring that bidders conduct themselves in an honest manner will, as part of the bid evaluation processes, conduct, or initiate the necessary enquiries/investigations to determine the accuracy of the representation made in bid documents. Should any of the fronting indicators as contained in the Guidelines on Complex Structures and Transactions and Fronting, issued by the Department of Trade and Industry, be established during such enquiry/investigation, the onus will be on the bidder / contractor to prove that fronting does not exist. Failure to do so within a period of 14 days from date of notification may invalidate the bid / contract and may also result in the restriction of the bidder/contractor to conduct business with the public sector for a period not exceeding ten (10) years, in addition to any other remedies DWS may have against the bidder/contractor concerned.

#### Business Continuity and Disaster Recovery Plans

1. The bidder confirms that they have written business continuity and disaster recovery plans that define the roles, responsibilities, and procedures necessary to ensure that the required services under this bid specification is in place and will be maintained continuously in the event of a disruption to the bidder’s operations, regardless of the cause of the disruption.

#### Supplier Due Diligence

DWS reserves the right to conduct supplier due diligence prior to final award or at any time during the Contract period and this may include pre-announced / non-announced site visits. During the due diligence process the information submitted by the bidder will be verified and any misrepresentation thereof may disqualify the bid or Contract in whole or parts thereof.

#### Preference Goal Requirements conditions

1. The Bidder’s commitment for the Preference Goal Requirements in this tender will be legally binding and the Bidder needs to perform against their commitment for the duration of the contract which will form part of the Contractual Agreement.
2. The Bidder must sustain or improve the company’s BBBEE Level for the duration of the contact which will form part of the Contractual Agreement.
3. Performance of Preference Goal Requirements will be determined annually. Bidders must submit their Preference status report indicating progress against the Bidder’s Preferential commitments within 30 days of the yearly anniversary of the contract.
4. Bidders need to keep auditable substantive records / evidence and upon request by SITA/Department must be made available for audit and, or due diligence purposes.
5. SITA reserves the right to require from a Bidder, either before a bid is adjudicated or at any time subsequently, to substantiate any claim with regards to preferences, in any manner required by SITA.
6. SITA reserves the right to verify information / evidence provided by the Bidder.
7. SITA/Department reserves the right to introduce a **penalty of 1%** of the overall annual year spent by SITA/Department for the prior year if the Bidder fails to comply to **paragraphs (a), (b) and (c) above**.

### Declaration of compliance and acceptance SCC

I (we), the bidder hereby declare that I (we) accept ALL the Special Conditions of Contract as specified in par 4.3.2 above and shall comply with all stated obligations:

Name of Bidder:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Price and Preference Points Evaluation (Stage 5)

### Bid Pricing Schedule

1. Bidders must complete the bid pricing schedule in the Excel spreadsheet format provided and include this as part their submission.

### Costing and Pricing Conditions

1. **South African Pricing** - The total price must be VAT inclusive and be quoted in South African Rand (ZAR).
2. **Total Price**
   1. All quoted prices are the total price for the entire scope of required services and deliverables to be provided by the bidder.
   2. All additional costs as well as cost of delivery, labour, S&T, overtime, etc. must be included in this bid.
   3. All services, accessories, upgrades and options required by the solution or specified by the client must be included in the quoted price. If not included, suppliers will be required to supply these accessories at no cost to the client.
   4. SITA client reserves the right to negotiate pricing with the successful bidder prior to the award as well as envisaged quantities.
3. **Time and Material**
   1. Time and Material Quotations will not form part of the total bid price. It will be based on an ad-hoc basis as and when required by the client.
4. These conditions will form part of the Contract between SITA and the bidder. However, SITA reserves the right to include or waive the condition in the Contract.
5. The bidder must complete the declaration of acceptance as per **par 4.5** below by marking with an “X” either “ACCEPT ALL”, or “DO NOT ACCEPT ALL”, failing which the declaration will be regarded as “DO NOT ACCEPT ALL” and the bid will be disqualified.

### Bid Pricing Schedule

* 1. Bidders **must** complete the bid pricing schedule in the Excel spreadsheet format provided and upload this as part of their submission.

## Declaration of Acceptance

|  | **ACCEPT ALL** | **DO NOT ACCEPT ALL** |
| --- | --- | --- |
| 1. The bidder declares to ACCEPT ALL the Costing and Pricing conditions as specified in **par 4.4.2** above by indicating with an “X” in the “ACCEPT ALL” column, or 2. The bidder declares to NOT ACCEPT ALL the Costing and Pricing Conditions as specified in **par 4.4.2** above by -    1. Indicating with an “X” in the “DO NOT ACCEPT ALL” column, and.    2. Provide reason and proposal for each of the condition not accepted. |  |  |
| **Comments by bidder:**  Provide the condition reference, the reasons for not accepting the condition. | | |

## Preference Requirements

1. The bidder must complete in full all the PREFERENCE requirements.
2. Allocation of points per requirements:The points allocation of bidders’ responses to the requirements will be determined by the completeness, relevance, and accuracy of substantiating evidence.
3. Points will be allocated for each **PREFERENCE requirement** as per the criteria set in each section in the **table** below.
4. **The bidder must provide a unique reference number** (e.g., binder/folio, chapter, section, page) to locate substantiating evidence in the bid response. During evaluation, SITA reserves the right to treat substantiation evidence that cannot be in the bid response, as “NOT COMPLY”. The evidence needs to be attached to **ANNEX A**.
5. **Preference Goal Requirements**
   1. The applicable Preference Point system for this tender and points claimed is 80/20.
   2. The specific Preferential Goal Requirements for this tender is indicated in **Annexure A** **table 9** below.
   3. Failure on the part of a bidder to **complete 80/20** preference point systems and submit proof or documentation required in terms of this tender to claim preference points for the **Preference Goal Requirements**, will be interpreted to mean that preference points for specific goals are not claimed.
   4. The Bidder **must** indicate how they claim points **for each of the preference points** by signing at par 4.5 in the Invitation to Bid document.
   5. Failure on the part of a bidder to submit proof or documentation required in terms of this tender to claim preference points for the **Preference Goal Requirements** for this tender, will be interpreted to mean that preference points are not claimed.
   6. The Bidder’s **commitment** for the **Preference Goal Requirements** in this tender will be **legally binding** and the Bidder needs to **perform against their commitment** for the duration of the contract which will form part of the Contractual Agreement.
   7. The Bidder **must sustain or improve** the company’s BBBEE Level for the duration of the contact which will form part of the Contractual Agreement.
   8. **Performance of Preference Goal Requirements will be determined annually**. Bidders must submit their Preference status report indicating progress against the Bidder’s Preferential commitments within 30 days of the yearly anniversary of the contract.
   9. Bidders need to keep auditable substantive records / evidence and upon request by **SITA/DWS** must be made available for audit and, or due diligence purposes.
   10. **SITA/DWS reserves the right** **to** require from a Bidder, either before a bid is adjudicated or at any time subsequently, to substantiate any claim with regards to preferences, in any manner required by SITA.
   11. **SITA reserves the right to** verify information / evidence provided by the Bidder.
   12. **SITA/DWS reserves the right to** introduce a **penalty of 1%** of the overall annual year spent by **SITA** for the prior year if the Bidder fails to comply to paragraphs (g), (h) and (i) above.

**Table 9: Preference Goal Requirements**

| **Preference Goal Requirement #** | **Preferential Goal Requirements** | **Preferential Goal Requirements for (80/20) system** | | |
| --- | --- | --- | --- | --- |
|  | **Preferential Goal Requirements allocated for this tender** | **Number of points allocated (80/20) system (To be completed by the organ of state)** | **Substantiating evidence and evidence reference to be completed by bidder.  Evaluation per requirement: Each requirement indicated in the table below must be completed and points will be allocated based on the evidence required below for the (80/20) system** | **Evidence reference for the  (80/20) system** |
|  | **B-BBEE Requirements** |  |  | |
| 1) | **B-BBEE Requirements:**  Promotion of Transformational Objectives. | **20** | **Evidence:** The Bidder must provide a copy of relevant evidence for the Preferential Goal points which the Bidder qualifies for.  **Points allocation:** Points will be allocated for bidders that meets the requirements as indicated in **table 10 in section 4.6**. | <provide unique reference to locate **(80/20) system** substantiating evidence in the bid response – **Annex A, section 5.4**> |
|  | **Total Point Allocation:** | **20,0** |  | |

**Table 10: B-BBEE Points as part of the Preference Goal requirements.**

| **B-BBEE Status Level of Contributor** | **Number of points**  **(80/20 system)** |
| --- | --- |
| **Max # Points allocated for BBBEE as part of Total Points allocated** | **20** |
| 1 | 20 |
| 2 | 18 |
| 3 | 14 |
| 4 | 12 |
| 5 | 8 |
| 6 | 6 |
| 7 | 4 |
| 8 | 2 |
| Non-compliant contributor | 0 |

1. Bidder substantiating evidence.

# Technical Mandatory Requirement Evidence

## Bidder Experience and Capability Requirements

1. Complete table below, noting that:
   1. Provide reference details of one (1) customer to whom the assessment and design of a digitized integrated system project including, Integration and implementation of systems, Business analysis. System analysis, System design, Market Study and due diligence for large projects and Testing and Maintenance were delivered.
   2. References may include multiple customers.
   3. Project end-date must be current or not older than five (5) years from date this bid is advertised.
   4. Scope of work must be related.

Table 5: References

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Company Name** | **Reference person name, contact details** | **Project Scope of Work** | **Project start and end date** |
| 1 | <Company name> | <Person Name>  <Tel>  <email> | < Provide scope details of a project from a customer to whom the assessment and design of a digitized integrated system project including, Integration and implementation of systems, Business analysis. System analysis, System design, Market Study and due diligence for large projects and Testing and Maintenance were delivered> | Start Date:  End Date: |

**NOTE (1):**

**DWS reserves the right to verify information provided.**

**Note (2):**

**Failure to complete Table 5 fully as indicated above will result in disqualification.**

## Functional Product Requirements

**The Bidder must confirm that they comply with the Technical Solution Requirements by completing ANNEX C: Addendum 1 and attach it here.**

**NOTE (1):**

**SITA reserves the right to verify information provided.**

**NOTE (2):**

**Failing to comply with all the aspect of this section will result in disqualification.**

**Yes = Comply**

**No = not comply (Thus, disqualified)**

## Technical Functionality Requirements

The Bidder needs to **attach** the required Evidence for the Technical Functional Requirements as indicted in section 4.2.3 **here**.

* 1. **Preference Points Preferential Goals Evidence**

The Bidder **must**:

* 1. **PREFERENTIAL GOAL REQUIREMENTS**

Bidder must complete the **80/20** preference point system and submit proof or documentation required in terms of this tender to claim preference points for the **Preference Goal Requirements** and attach it here:

* + 1. **Preference Goal Requirements: (80/20 system)**
* Bidder to select the section for points they wish to claim (Mark as Y=Yes) in the **table 2 in section 4.6;**

**and**

* The Bidder must provide a copy of relevant evidence for the Preferential Goal points which the Bidder qualifies for as set out in **table 1** **in** **section 4.6** and **attach it here**.

**and**

* 1. Indicate their **commitment** to claim points for each of the preference points **by signing at par 4.5 in the Invitation to Bid document.**

**NOTE (1):**

**Failure on the part of a bidder to comply to paragraphs (a) and (b) above, will be interpreted to mean that preference points are not claimed.**

1. ADDENDUM 1

**NB: The bidder must confirm that they comply with the following Technical Solution Requirements as indicated below as this will be legal contractual binding:**

| **No** | **Category** | **Requirements** | **Comply=**  **Yes** | **Not Comply = No** |
| --- | --- | --- | --- | --- |
| 1 | **The envisaged national digitized integrated water and sanitation monitoring system** | 1. The solution should include a digitised integrated system which will cover all components of water and sanitation monitoring from collection of data to dissemination across the water and sanitation monitoring value chain. 2. The solution should comply with various applicable guidelines and standards of monitoring (instrumentation) as well as DWS and State Information Technology Agency (SITA) ICT applicable standards. All water quality data must adhere to the existing South African National Accreditation System (SANAS) water quality accreditation requirements. 3. The solution should integrate a hybrid approach of split ownership between DWS and Service Provider to spread the risk attributed to total ownership by DWS. While installation, operation and maintenance are expected to be split, the solution must, however, reflect total data ownership by DWS. |  |  |
| 2. | **Water Resources** | (a) The solution must be capable of using wireless sensor networks as well as in-situ terrestrial sensor network systems  (b) The solution must have capability to use unmanned aerial vehicles (drones)  (c) The solution must have Geographical Information Systems (GIS) integration capabilities  (d) The solution must have South African based water quality observation systems and other space-based sensor systems capabilities  (e) The solution must have online and offline data capturing mobile application (APP) systems  (f) The solution must have cloud and on-site based monitoring systems capabilities  (g) The solution must have online mobile application systems linked to functional databases for data storage and further quality checks  (h) The solution must be capable of linking to secure database systems for processing and reporting  (i) The solution must have incident water quality management protocol for early warning on determinants of concern  (j) The solution must have rain/storm water monitoring capabilities  (k) The solution must have flood management early warning capabilities  (l) The solution must have drought status early warning capabilities  (m) The solution must be capable of near-real time monitoring of managed aquifer recharge and water quality.  (n) The solution must be capable of integrating crowd sourcing/citizen science water monitoring approaches. |  |  |
| 3 | **Water Resources Infrastructure Assets** | (a) The solution must have online monitoring capabilities  (b) The solution must have supervisory control and data acquisition (SCADA) capabilities  (c) The solution must be capable of utilising analytics tools for process of optimization  (d) The solution must have inter-process automation or control capabilities  (e) The solution must integrate with internal resources and platforms developed for working with digital infrastructure  (f) The solution must enable digital technologies to be incorporated across business and operations processes  (g) The solution must have advanced analytics for decision making capabilities  (h) The solution must have identification and electronic tagging of hidden assets (e.g., underground pipes) capabilities  (i) The solution must have smart pipeline system capabilities  (j) The solution must be capable of enabling remote operations  (k) The solution must have valve automation capabilities  (l) The solution must be capable of real time Bulk Pipe Monitoring  (m) The solution must have flow metering and reporting capabilities  (n) The solution must have specialized business information system capabilities (Knowledge Management, Artificial Intelligence, Expert Systems such as decision-making features and virtual reality if needed)  (o) The solution must have predictive modelling features  (p) The solution must have stakeholder engagement facilities  (q) The solution must be capable of incident recording (cause-and effect analyses)  (r) The solution must have Recording of Remaining Economic Lifespan of Assets (recording and management) capabilities  (s) The solution must be capable of doing verification of strategic asset (reservoirs, pipelines, dams etc) using mobile applications (APPs)  (t) The solution must be capable of integrating smart metering to measure volumes correctly and improve consistency of meter readings  (u) The solution must have dam safety surveillance system capabilities  (v) The solution must provide for real time monitoring on the flow of water of conveyance systems (canals, pipes, reservoirs, and pump stations). |  |  |
| 4 | **Water Sector Regulation** | (a) The solution must be capable of remotely assessing complaints to improve response time  (b) For Wastewater Treatment Works, the solution must have capability to monitor the discharging water quality points and interface with the existing systems under regulation  (c) Solution must have capability to monitor high risk water users in terms of water quality and quantity on annual basis  (d) The solution must have capability to monitor all water users issued with licenses  (e) The solution must monitor the volume of water that has been used without an authorisation in a particular property  (f) The solution must monitor the flow from pump stations versus the dam capacity of the wastewater treatment works  (g) The solution must monitor the reuse of water in terms of water quality, and the volumes of water that are going for reuse which are supposed to be going into the system.  (h) The solution must monitor industrial water use that goes into our wastewater treatment works. This will assist in monitoring on how much is going to the wastewater treatment work and what quality  (i) The solution must monitor drinking water quality (blue drop) and wastewater quality (green drop). This will be more regular than the current audit monitoring that being done once a year  (j) The solution must have capabilities to monitor abstraction by local municipalities according to what is in the license condition and interface with existing systems.  (k) The solution must be able to link with available systems, such as Hydronet, WAS, IRIS, WARMS etc.  (l) The solution must have an upload functionality for documents to be uploaded and to be available in field/ on site  (m) The solution must have an early warning system for compliance, e.g., for entities, licences etc.  (n) The solution must incorporate an automation of water use volumes reporting (metering data) for all water use sectors. |  |  |
| 5 | **Revenue Management** | (a) The solution must have capability to monitor meter readings remotely using smart meters. Revenue Management currently depends on infrastructure management to collect meter readings manually.  (b) The solution must have capability to authenticate customer data to improve veracity of data collected by customers  (c) The solution must be capable of rationalizing and integrating database systems used in Revenue Management that have similar objectives to streamline access to information and minimize duplication and proliferation of data sources.  (d) The solution must improve the document management system used in Revenue Management by automating the process of storing/archiving of documents to minimize human intervention. |  |  |
| 6 | **Sanitation Services** | (a) The solution must have capability to monitor status of sanitation in the country in terms of access to sanitation. Since this data is with institutions such as COGTA and Human Settlements, the solution must be capable of integrating with the external source systems to enable the department to monitor how many households have been served by each municipality or how many sanitation facilities have been delivered or projected.  (b) The solution must have capability to monitor groundwater quality parameters that are relevant to sanitation services. The ability to monitor the impact of on-site sanitation facilities on groundwater quality will assist with safe sanitation management.  (c) The solution must automate a sanitation technology assessment tool already developed for assessment of new sanitation technologies  (d) The solution must provide for monitoring and detection of pits that need emptying and activities that are taking place regarding emptying as well as quantity of sludge emptied  (e) The solution should provide means of collection of data on how faecal waste is safely disposed or reused  (f) The solution must have capability to monitor river and groundwater water levels as well as water quality where the discharging is taking place  (g) The solution must provide for means on how sanitation hygiene and hand washing facilities access data is collected. |  |  |
| 7 | **Water Services** | (a) The solution must have capability to monitor wastewater discharge quantity and quality by municipalities  (b) The solution must be capable of monitoring wastewater quality and capacity of treatment plants  (c) The solution be capable of monitoring drinking water quality  (d) The solution must be able to monitor all grant funding allocations and expenditure including MIG, WSIG and RBIG funding  (e) The solution must be able to monitor status of water and sanitation services reliability in all Municipalities including households without access to infrastructure  (f) The solution must be able to link with GIS to capture infrastructure information (new and old) and assist with development of Asset Management Plans  (g) With regards to groundwater, the solution should be able to provide information on aquifers, measure or provide information on how much groundwater resources are depleted or recharged at any given time, have measuring devices on certain aquifers to always provide real time data on status of aquifers/groundwater  (h) The solution must monitor any illegal connections on any bulk or normal supply or reticulation system  (i) The solution must be able to measure pipe pressure at any given time, to avoid pipe breaks  (j) The solution must be able to monitor if any bulk or ordinary meter is faulty  (k) The solution must have capability to accommodate Bulk, zone, and customer meters for measuring the actual water use and water loss.  (l) The solution must be capable of detecting major leaks or pipe burst in real time  (m) The solution must interface with other Water Use Efficiency potential systems such as Water Administration system, Irri-drop for agriculture sector, No drop system, International Water Association Water Balance (IWA) for Local Government  (n) The solution must integrate with operational schematics of all water supply distribution network systems (major irrigation schemes, Water Supply municipality systems,) including meters (smart meters) captured on GIS maps and photos, to provide a layout map of the infrastructure. |  |  |