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# General information

1. Brief information on the project

The project Climate-Resilient Water Sector in Grenada (G-CREWS), commissioned and financed by Germany’s Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) and the Green Climate Fund (GCF) with co-financing provided by the Government of Grenada, presents an opportunity to comprehensively mainstream and implement climate resilience throughout Grenada’s entire national water sector. The project’s holistic approach addresses two main climate risks and vulnerabilities of Grenada: freshwater availability and disaster preparedness. Other Caribbean communities share these vulnerabilities, rendering this project a model for regional application.

1. Context

The G-CREWS project improves the water and energy efficiency in NAWASA’s systems and thus unlocks additional contributions to the project’s objective. The project supports NAWASA in implementing measures to enhance their water loss reduction strategy (e.g. GIS-based infrastructure, zoning of District Metering Areas (DMAs) and water balance calculation, leak detection and selected replacements of leaking pipes).

So far, the water utility uses spatial data in its planning and engineering projects but has not yet set up a centralized database management information system that integrates water usage data as well as operation and maintenance data necessary to monitor and guide the operation and maintenance of an efficient water supply system including reduction of non-revenue water. The asset and data maintenance responsibilities of the company increases proportionally with construction of new transmission and distribution pipes, additional storage volume and upgraded monitoring of the water treatment plants as well asadditional waste-water network.

As part of the G-CREWS project NAWASA has decided to implement effective Asset Management (AM) practices with the main objective of improving its level of service and business performance through adopting an integrated approach to monitoring, operating, maintaining, repairing, upgrading, and disposing of assets cost-effectively.

The overall benefits expected are:

* Improved management in terms of technical and financial asset registers, maintenance and preventive maintenance, data and evidence-based management decisions, best practice standards, procedures and workflows.
* Better services in terms of improved customer services, service delivery (supply pressures, water quality, less breakdown time and continuos 24/7 supply).
* Financial benefit in terms of increased revenues, reduced wastage and leakage, reduced maintenance and rehabilitation costs.

Specifically, the project aims to provide a solution that can address the following:

* Installing a comprehensive software package to assist in the improvement of the asset management, operation and maintenance, non-revenue of water and customer services.
* Secure linkages to the existing billing software.
* Having a combined GIS/ Management Information System based on respective GIS software needs, with linkage to operation and maintenance, customer and financial databases.
* Ensure the adaptation of existing workflows to the proposed system.
* Integrate the GIS and digital tools into the workflows including work orders and asset management.
* Requisite task-oriented training on aspects of the proposed software solution and integration.

NAWASA is interested in a modern system architecture that promotes the exchange and extraction of information by utility staff. Therefore, NAWASA has started to procure external services for a complete restructuring of digital solutions which is planned to start by December 2023. Furthermore, as part of this initiative, GIZ collaborates with NAWASA to assist in the recruitment of a Database Administrator (DBA) Consultant. This DBA Consutlant will play a crucial role in preparing NAWASA for the successful implementation of the upcoming system enhancements..

The Database Administrator Consultant will be closely working with and coordinate the work of the external service provider firm that will solicit proposed solutions for software and services to meet NAWASA’s integrated digital solution for:

1. Improving the operations of the utility, with a main focus on its departments Transmis-sion and Distribution (T&D), Planning and Development (P&D), and Production and Quality (P&Q) toward a more digital and integrated IT- supported asset management.
2. Addressing significant aspects of the company’s NRW (Non-revenue water) concerns
3. Improving customer service delivery

The main objective of the Database Administrator as outlined within these Terms of References is to support NAWASA with the technical coordination of the IT Asset Management and its related restructuring process within the utility. The DBA Consultant thereby supports the management and optimization of the organization's IT database systems and he or she coordinates the effective asset management practices with the main objective of improving its level of service and business performance through adopting an integrated approach to monitoring, operating, maintaining, repairing, upgrading, and disposing of assets cost-effectively. The DBA consultant will play a critical role in ensuring the reliability, security, and performance of the water utility's database infrastructure.

1. GIZ shall hire the DBA consultant for the anticipated contract term over a period of 6 months, starting in January 2024 to June 2024.

# Tasks to be performed by the Consultant

The Consultant will provide services to NAWASA as the Database Administrator as follows:

The DBA will be responsible for the design, implementation, maintenance, and administration of the water utility's databases. Specific responsibilities of the DBA include program management, system administration oversight, Geographic Information Systems (GIS) database administration, back-up and recovery, application maintenance, hardware /software upgrades, and to provide oversight and assistance to staff; involving technical database issues. The DBA is also responsible for project management in regard to database projects.

The Database Administrator performs the following tasks and is responsible for the following deliverables:

|  |  |  |
| --- | --- | --- |
| Tasks | Deliverable  | Timeline |
| **Re-engineered Business Processes** |
| * Manage the re-engineered Business Processes in direct cooperation with NAWASA and the Consultant responsible for the establishment of Asset Management system.
* Define the scope, objectives, and key actions for the re-engineering of the existing business processes
* Define strategies for re-engineering the processes, which shall involve optimizing workflow, reducing bottlenecks, and improving overall efficiency.
* Establish clear timelines and milestones for each phase of the re-engineering.
* Determine and assign responsibilities within NAWASA team.
 | Structured and effective plan for managing the re-engineering of business processes in collaboration with NAWASA. | End of month 1 |
| **GIS / Asset Register/ Data Management** |
| * Review the existing data in QGIS.
* Prepare all existing data in the open-source software platform QGIS (input and conversion) for georeferencing:
* Water related infrastructure,
* Financial Assets,
* Technical Assets,
* DMA, Supply areas, other kinds of water related zones.
* Satellite Imagery, Cadastral information, topographical data (contours/ spot heights, landmarks, etc.), where available: street maps, infrastructure other than NAWASA
* Data collection and conversion of archives (where appropriate) in digital form and georeferenced of:
* maintenance & repair records,
* network changes,
* network extensions,
* meter replacements,
* new connections,
 | Structured and formatted existing data ready for integration into the new software | End of month 2 |
| **GIS and Digital Tools Integration Plan** |
| * Collaborate with the IT Asset Management Consultancy firm to gather detailed software requirements for the integration of GIS and the Data Management System.
* Analyse the compatibility of GIS data with operation and maintenance, customer, and financial databases. Map the data elements that need to be integrated.
* Develop a strategic plan for linking GIS data with the specified databases, ensuring data consistency and integrity throughout the process.
* Identify areas where the integration will enhance workflows, such as work orders and asset management.
 | Comprehensive Integration Plan for GIS and Data Management System, Including Enhanced Workflow Integration | End of month 3 |
| **Software Solution Training** |
| * Determine the skill gaps and training requirements of staff members.
* Implement a pilot training session within the specified period, involving at least 20 staff members.
 | Capacity Building and Training Program for NAWASA Staff on IT Tools and Software | End of month 4 |
| **Documentation and Reporting Framework** |
| * Create comprehensive documentation for data models, including schemas and relationships
* Document procedures for data entry, retrieval, backup, and recovery, ensuring clarity and step-by-step instructions
* Develop reports for maintenance activities, outlining database updates, patches, and optimizations performed.
* Create reports for security audits, documenting access logs, user activity, and security breaches or vulnerabilities.
 | Framework for maintaining accurate and up-to-date documentation of the database systems | End of month 5 |
| **General support to NAWASA** |
| * Liaise with the hired Consultancy provider and support the installation process of a comprehensive software package to assist on the improvement of the Asset Management, Operation and Maintenance, Non-Revenue Water and Customer Services.
* Secure linkages to the existing billing (CIS Application Northstar 6.6.0.)
* Monitor database performance, identify bottlenecks, and optimize database systems to enhance efficiency.
* Manage database security, including user access, roles, and permissions, to safeguard sensitive information.
* Troubleshoot database issues, investigate and resolve problems, and coordinate with relevant stakeholders, such as IT staff and software developers.
* Develop and enforce database standards, procedures, and guidelines to maintain data quality and consistency.
* Ensure compliance with data protection and privacy regulations, including but not limited to data retention, security, and access control.
* Develop and enforce database standards, procedures, and guidelines to maintain data quality and consistency.
 | Regular reports | Continuous End of month 6 |

# Tender requirements

## 1. Qualifications of proposed staff

**1.1 Expert 1:**

**1.1.1 General qualifications**

**Education:**

* Bachelor's degree in Computer Science, Information Technology, or a related field. Relevant certifications are a plus.

**1.1.2 Professional experience:**

* Proven experience as a Database Administrator, preferably in the water utility or a similar industry.
* Proficiency in database management systems, such as Oracle, MySQL, SQL Server, or PostgreSQL.
* Solid knowledge of Geographic Information systems (GIS)
* Solid understanding of database design, normalization, and performance optimization techniques.
* Familiarity with database security best practices and compliance requirements.
* Ideally, experiences with Supervisory Control and Data Acquisition (SCADA) systems.

**1.1.3 Experience in the region/knowledge of the country**

* Worked within the Caribbean region or knowledge of Grenada for at least 5 years

**1.1.4 Language Skills**

* Excellent communication skills (business level in English)

## 2. Specification of inputs

|  |  |  |  |
| --- | --- | --- | --- |
| **Fee days** | **Number of experts** | **Number of months per expert** | **Comments** |
| * Preparation/debriefing
 | 0 | 0 |  |
| * Implementation
 | 1 | 6 | The financial bid should be calculated on the basis of a full time monthly rate (35 hours per week). |
|  **Travel expenses** | **Number of experts** | **Number of days/nights per experts** | **Comments** |
| * Per-diem allowance in country of assignment
 | N/A | N/A |  |
| * Overnight allowance in country of assignment
 | N/A | N/A |  |
| * Travel costs (train, private vehicle)
 | N/A | N/A |  |
| **Flights**  | **Number of experts** | **Number of flights per experts** | **Comments** |
| * International flights
 | N/A | N/A |  |
| * Domestic flights
 | N/A | N/A |  |
| **Other costs** | **Number of experts** | **Amount per experts** | **Comments** |
| N/A | N/A | N/A | N/A |
|  |  |  |  |

*Calculate your financial bid*exactly *in line with the quantitative requirements of the specification of inputs above. There is no contractual right to use up the full days/travel or workshops or budgets. The number of days/travel/workshops and the budgets will be contractually agreed as* ***maximum amounts****. The regulations on pricing are contained in the price sheet.*

**Note**:

If restrictions are introduced to combat coronavirus/COVID-19 (restrictions on air travel and travel in general, entry restrictions, quarantine measures, etc.), GIZ and the consultant are obliged to make adjustments to their contractual services to reflect the changed circumstances on the basis of good faith; this may involve changes to the service delivery period, the services to be delivered and, if necessary, to the remuneration.

***3. The Payment Schedule***

The payment plan for the contract is linked to the above-mentioned deliverables and proposed as follows:

* First payment: 30% after 1 months, with delivery of a structured and effective plan for managing the re-engineering of business processes at NAWASA.
* Second payment: 20% after 3 months, with delivery of comprehensive integration plan for GIS and Data Management System, including enhanced workflow integration.
* Third Payment: 30 % after 5 months, with delivery of a framework for maintaining accurate and up-to-date documentation of the database systems.
* Final Payment: 20%, after completion of task and submission of final report.

***4. Other Provisions***

* The consultant commits to not disclose confidential information, neither before, nor during, nor after the delivering of the service;
* Publications and media contact will be agreed in advance with the project leader;
* All studies and documents elaborated within the contract will be made available to the project in digital form for discussion and approval;
* All results must be provided to the project leader in digital version (Microsoft office) and needs to follow the corporate design standards;
* Reasonable changes during the assignment will be agreed in writing in advance between the consultant and the responsible person within GIZ
* GIZ reserves the right to pay within 3-5 business days once the deliverables and receipt of original final invoice (signed and stamped) have been reviewed and approved. GIZ does not cover third-party’s bank fees charges.

The offer should include the following information:

* A signed financial offer covering all costs related to the assignment, including the number of expert days required for the assignment with the respective daily rates
* The financial offer should be in **USD only**
* An up-to-date version of expert’s CV in English language with a maximum of 3 pages
* A proposal explaining the concept to conduct the assessment
* A scanned copy of a valid ID e.g. Passport or Driver’s licence (both sides)
* All submissions must be made in PDF format
* GIZ cannot receive offers via Google Drive, Vimeo or any other file sharing platform. Technical and financial offers must be sent via email.
* Please address all questions/input regarding the tender to the e-mail address mentioned below. Do not contact any GIZ Staff directly. Offers send directly to GIZ staff have to be excluded.

**All submissions must be made electronically in PDF format to the e-mail address:**

DO\_Quotation@giz.de

**Please submit the proposal by December 17th, 2023.**

For further questions, please contact do\_inquiry@giz.de until **December 13th, 2023.**