

**Terms of Reference****BH-T1109****Support for Corporate Business Plan for the Water and Sewerage****Corporation of the Bahamas****Individual Consultant – Conduct Preparatory Studies to Reduce NRW****in the Family Islands****Bahamas****INE/WSA****Background**

The IDB Group is a community of diverse, versatile, and passionate people who come together on a journey to improve lives in Latin America and the Caribbean. Our people find purpose and do what they love in an inclusive, collaborative, agile, and rewarding environment.

The Bahamas Water and Sewerage Corporation (WSC) is a wholly owned Government organization under the jurisdiction of the Minister of Works & Urban Development entrusted with managing, maintaining, distributing and developing the water resources of The Bahamas. Unlike New Providence, the Family Islands<sup>1</sup> do not have in place a formal program to reduce NRW. Since 2019 NRW has increased. In 2022, NRW totaled 2.7<sup>2</sup> (million imperial gallons per day (migd) up from 1.7 migd in 2019. This is equivalent to 55% of water supplied. The volume of water supplied with Reverse Osmosis (RO) has been increasing. In 2022, the volume of RO supplied was 2.3 migd, up from 1.4 migd in 2016.

In addition, in 2022, RO represented 47% of total water supplied. The cost of RO water is considerably higher than the cost of water supplied from wells. Therefore, increasing the percent of water supplied from RO leads to higher OPEX. Increased volumes of RO, high NRW, and low tariffs combine to produce highly negative Earnings Before Interest Taxes Depreciation and Amortization (EBITDA) margins for the Family Islands. In 2022, EBITDA for the Family Islands was negative B\$18.7 million (equivalent to an EBITDA margin of negative 306%, which is considerably worse than the negative 28% EBITDA margin registered that year for New Providence). As WSC increases the supply of water to customers in the Family Islands (and the increase is primarily through RO), without reducing NRW, the EBITDA margin for the Family

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<sup>1</sup> These include the North, Central & South Andros, Eleuthera, Abaco, Acklins, Bimini & The Berry Islands Inagua Long Island, Mayaguana, Exuma, San Salvador and Rum Cay.

<sup>2</sup> Corporate Business Plan, Water and Sewerage Corporation (WSC), The Bahamas, 2023.

Islands will worsen considerably. Therefore, it is important for WSC to reduce NRW in the Family Islands.

This assignment will be financed through a Technical Cooperation BH-T1109 which has the objective to support the preparation of studies and tender documents required for the implementation of a Non-Revenue Water (NRW) Reduction Program for the Family Islands as set forth in the Water and Sewerage Corporation (WSC) Corporate Business Plan (CBP). WSC proposes to contract a highly experienced NRW expert to support with the development of an NRW program for the Family Islands.

**Objective:**

The objective of this consultancy is to provide expert guidance in the formulation of a comprehensive NRW management program for the Family Islands.

**What you'll do:**

The specialized consultant's scope of services will encompass carrying out a baseline assessment, identifying high priority actions WSC can take on its own as soon as possible, and helping prepare an international competitive process to hire a specialized firm that would be responsible for reducing NRW in the Family Islands.

Subject to the results of the baseline assessment, WSC considers this contract with the specialized firm would be for a period of about five years. Regarding NRW in Family Islands, on a preliminary basis and, based on information available, there's a wide variance of NRW levels (and, most likely, composition) across the Family Islands. Given the number of islands and variance in NRW, for the purposes of the contract with the specialized firm, WSC proposes grouping the islands into three tiers as follows:

- Tier 1: Islands with NRW levels that have greatest impact on WSC's financial performance (these are larger islands with higher levels of NRW and a greater percent of RO supply).
- Tier 2: Islands with higher volumes of addressable NRW (NRW that can be reduced economically).
- Tier 3: Develop sound understanding of NRW levels, composition, impact on financial performance on rest of the islands (the smallest islands with relatively small volumes of supply and NRW).

When appropriate, the studies carried out must include the gender approach in their analysis processes. This must be taken into account when designing them and defining the type of data to be collected.

The key tasks for this consultancy are as follows:

**Task 1: Conduct an independent baseline assessment of the values and composition of NRW for all the Family Islands**

- a) Gather available data on water supply, distribution infrastructure, metering infrastructure, and customer billing records for the Family Islands.
- b) At minimum visit identified islands of Abaco, Exuma, and Eleuthera to physically inspect the distribution network, especially in areas deemed to be at higher risk for leaks or theft.
- c) Install temporary flow meters at strategic points in the distribution system to monitor and measure water flow, helping to identify potential leak points and unauthorized consumption.
- d) Conduct pressure tests in different segments of the distribution system to identify areas of potential leakage.
- e) Check the accuracy and functionality of a sample of consumer meters to determine the extent of commercial losses due to metering inaccuracies.
- f) Engage in stakeholder consultations with local community leaders and WSC staff for anecdotal evidence of water loss, theft, or other NRW contributing factors.
- g) Analyze collected data to categorize NRW into physical losses (leakages) and commercial losses (metering inaccuracies, unauthorized consumption). This will help determine the composition of NRW and prepare an initial water balance.
- h) Confirm or adjust the proposed tier categorizations for the Family Islands. For Tier 1 islands, estimate potential NRW reduction targets over the duration of the contract.
- i) Develop a preliminary estimate of the expected cost for implementing an NRW reduction contract based on identified issues, required interventions, and best practices along with a recommended duration of the NRW contract.
- j) Compile findings, data, and recommendations into a comprehensive baseline assessment report for WSC's review and feedback.

**Task 2: Identify specific and urgent actions WSC can take to reduce NRW in the Family Islands on its own**

- a) Based on the baseline assessment, identify and prioritize areas that require immediate intervention due to the magnitude of physical and commercial losses.
- b) Advise on immediate actions for physical leak detection, utilizing techniques such as acoustic leak detection, correlators, or ground-penetrating radar.
- c) Based on the metering audit from Task 1, provide recommendations on calibration, replacement, or upgrade of malfunctioning meters.
- d) Propose strategies for engaging local communities in reporting leaks, illegal connections, or other issues contributing to NRW.
- e) Recommend setting up temporary or mobile monitoring systems to keep track of NRW levels after initial interventions are made, covering both physical and commercial losses.
- f) Suggest training modules for WSC staff on best practices for monitoring, managing, and reducing both physical and commercial NRW components.
- g) Recommend allocation of available resources (financial, human, equipment) to achieve maximum NRW reduction in the shortest possible time.
- h) Summarize the recommendations in a comprehensive report, detailing out the rationale, expected outcomes, and estimated cost implications for each recommended action.

**Task 3: Document the systems, processes, and staffing in place in New Providence for reducing NRW**

- a) Interview key personnel responsible for NRW management in New Providence.
- b) Document the current technologies and tools used for NRW reduction.
- c) Assess the capacity and capabilities of the current staff and their roles in NRW management.
- d) Review and document the existing standard operating procedures for leak detection, repair, and meter management.
- e) Compare New Providence's approach with best practices globally to identify gaps and strengths and prepare report. This document will help ensure that the proposed contract for Family Islands is consistent with the ongoing NRW contract in New Providence.

**Task 4: Assess the reasons for the rise in NRW in New Providence from 2019 to 2022**

- a) Analyze historical NRW data to identify trends and potential causes.
- b) Consult with WSC staff to understand operational changes during the period 2019 to 2022.
- c) Review any changes in the distribution infrastructure, consumer base, and other influencing factors.
- d) Evaluate external factors, such as natural disasters, that might have impacted the infrastructure.
- e) Document findings and provide actionable insights to avoid similar pitfalls in the Family Islands NRW program.

**Task 5: Support the development of the tender document package to contract a specialized firm to reduce NRW in the Family Islands with due consideration for the use of innovative solutions.**

- a) Review similar tender documents from other jurisdictions for best practices.
- b) Define clear deliverables, timelines, and performance indicators for the specialized firm.
- c) Incorporate innovative solutions such as advanced technologies and data analytics in the tender document.
- d) Draft the technical and financial evaluation criteria for the selection of the firm.
- e) Development of the tender documents to contract a specialized firm to reduce NRW in the Family Islands.
- f) Provide support to WSC with the preparation of the Request for Proposal.

**Deliverables and Payments Timeline:**

Deliverables	Payment (% of total cost of consultancy)	Planned Date to Submit
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1. 1. Submission and acceptance of the work plan for the assignment outlining the sequence of the activities to be conducted	10%	1 week after contract signature
2. Submission and acceptance of the baseline assessment report outlined in Task 1	20%	16 weeks after contract signature
3. Submission and acceptance of report with the specific and urgent actions to reduce NRW in the Family Islands as outlined in Task 2	20%	26 weeks after contract signature
4. Submission and acceptance of report documenting the systems, processes, and staffing in place in New Providence to reduce NRW as outlined in Task 3	15%	32 weeks after contract signature
5. Submission and acceptance of assessment report on the reasons for the rise in NRW in New Providence from 2019 to 2023 as outlined in Task 4	15%	38 weeks after contract signature
6. Submission and acceptance of the tender document package to contract a specialized firm to reduce NRW in the Family Islands as outlined in Task 5	20%	45 weeks after contract signature

Products must be presented in English. All reports will be presented as follows: (i) relevant electronic files in MS Word, Excel, or other application acceptable to the IDB (they must include all annexes and appendices); (ii) an electronic PDF file for each full report. These reports and electronic files must be submitted within the time frames mentioned above.

The consultant must provide verified work copies of all executable files, templates, databases, and other files created during the consultation.

### **What you'll need**

- **Education:** The consultant must have a Master degree (or equivalent advanced degree) in Water Resources Management, Environmental Engineering or other fields relevant to the responsibilities of the role. Professional certification from recognized institutions such as AWWA or IWA in water supply and distribution; or NRW Specialist certification is highly desirable

- **Experience:** The consultant is required to possess a minimum of 10 years of professional experience in water supply and distribution with a dedicated focus on NRW management for at least 7 of those years. Specific experience includes a proven track record in designing and implementing NRW reduction strategies, expertise in the IWA Water Balance methodology, and familiarity with advanced technologies for leak detection and DMA establishment. Experience in the Caribbean Region will be considered an asset and experience in capacity building for utility staff on NRW best practices will be a significant advantage
- **Languages:** Proficiency in English

**Key skills:**

- Learn continuously
- Collaborate and share knowledge
- Focus on clients
- Communicate and influence
- Innovate and try new things

**Requirements:**

- **Citizenship:** You are a citizen of one of our 48-member countries.
- **Consanguinity:** You have no family members (up to the fourth degree of consanguinity and second degree of affinity, including spouse) working at the IDB, IDB Invest, or IDB Lab.
- **COVID-19 considerations:** the health and safety of our employees are our number one priority. As a condition of employment, IDB/IDB Invest requires all new hires to be fully vaccinated against COVID-19.

**Type of contract and duration:**

- **Type of contract:** Products and External Services Consultant (PEC), Lump Sum
- **Length of contract:** 150 days (discontinuous days) within a period of 12 months

**What we offer**

The IDB group provides benefits that respond to the different needs and moments of an employee's life. These benefits include:

- A **competitive compensation** package.
- A flexible way of working. You will be evaluated by deliverable.

**Our culture**

At the IDB Group we work so everyone brings their best and authentic selves to work, willing to try new approaches without fear, and where they are accountable and rewarded for their actions.



## HRD Terms of Reference

## ANNEX A

Diversity, Equity, Inclusion and Belonging (DEIB) are at the center of our organization. We celebrate all dimensions of diversity and encourage women, LGBTQ+ people, persons with disabilities, Afro-descendants, and Indigenous people to apply.

We will ensure that individuals with disabilities are provided reasonable accommodation to participate in the job interview process. If you are a qualified candidate with a disability, please e-mail us at [diversity@iadb.org](mailto:diversity@iadb.org) to request reasonable accommodation to complete this application.

**Our Human Resources Team reviews carefully every application.**

### **About the IDB Group**

The IDB Group, composed of the Inter-American Development Bank (IDB), IDB Invest, and the IDB Lab offers flexible financing solutions to its member countries to finance economic and social development through lending and grants to public and private entities in Latin America and the Caribbean.

### **About IDB**

We work to improve lives in Latin America and the Caribbean. Through financial and technical support for countries working to reduce poverty and inequality, we help improve health and education and advance infrastructure. Our aim is to achieve development in a sustainable, climate-friendly way. With a history dating back to 1959, today we are the leading source of development financing for Latin America and the Caribbean. We provide loans, grants, and technical assistance; and we conduct extensive research. We maintain a strong commitment to achieving measurable results and the highest standards of integrity, transparency, and accountability.

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