



Reducing NRW by Half

New Providence, The Bahamas

Results in the first four years:

- Helped reduce WSC's EBITDA loss by over 50 percent (\$10 million), because revenues increased by \$4 million
- Contributed to reducing operating subsidies from the Government
- Saved 17 million liters per day (MLD) of water, or 30 percent of total water production
- Replaced 20 pressure-reducing valves (PRVs), controllers, and strainers, and installed 12 others.
- Reduced service connection leaks by 80 percent, from about 70 leaks per 1,000 connections in 2011 to about 14 leaks per 1,000 connections in 2016
- Reestablished 89 district metering areas (DMAs), and added new boundary control devices, new pressure tappings, and data loggers

The most populous island in The Bahamas, which faces water scarcity, has cut non-revenue water losses in half in the first four years of a non-revenue water performance-based contract (NRW-PBC)

New Providence is the most populous island in the Bahamas, an archipelagic nation located 300km southeast of Miami, in the Atlantic Ocean. The island is home to about 270,000 people, or 70 percent of the national population.

The national water utility, the Water and Sewerage Corporation (WSC), has had an operating deficit in New Providence since 2005. Revenues from water sales do not cover operating costs, so WSC relies on operating subsidies from the government. Key contributors to this situation are the high cost of desalinated water (\$2 per m³ of water produced) and high NRW at about 60 percent. WSC's average total cost per m³ sold is over \$5. In 2012, to reduce costs and increase revenue, WSC hired Miya under a PBC for NRW reduction. The Inter-American Development Bank (IDB) is funding part of the contract and providing institutional support to WSC.

Contract Structure

The NRW-PBC between WSC and Miya was signed in 2012 and will end in 2022. In the first year of the contract, Miya conducted a baseline survey (to understand the volumes, values, and causes of each NRW component) and finalized its NRW reduction strategy. NRW targets are set for each year. The contract ends with a maintenance phase, during which the final target (9.1 MLD) should be achieved.

Risks are shared between the private and public sectors. About 70 percent of the program cost (\$59 million of \$83 million) is paid to the contractor as a fixed fee, set to cover the baseline survey, most of the works done and program management. The remaining 30 percent of compensation is performance-based, with the contractor earning \$2.40 per 1,000 imperial gallons of NRW reduction (\$0.53 per m³).



Source: Alan Wyatt. "Performance based contract for non-revenue water reduction and control: New Providence, Bahamas." Water and Sanitation Division, Technical Note N° IDB-TN-813. January 2018. The Inter-American Development Bank: Washington DC.

Lessons Learned

Contract and Commercial

Incentives

Incentives are strong because a portion of the payment to the contractor is performance-based, linked to actual water saved.

Cost-effectiveness

The total program cost per unit saved (including the fixed compensation) is about \$1.40 per m³. This is lower than WSC's variable cost per unit of water purchased (about \$2 per m³). This contract shows that high unit payments can be worthwhile in areas where bulk water is expensive. Also, utility management may be more supportive of an NRW-PBC if the utility pays for bulk water.

Performance measurement

The contract includes a simple performance indicator (imperial gallons saved). There are adjustments to volume saved based on variation from planned pressure, and adjustments to the price per volume saved based on the Bahamas consumer price index.

Technical

Establishing the baseline

The contractor, not an independent consultant, conducted the baseline survey, at the start of the contract. The survey allowed WSC and the contractor to agree on the approach to NRW reduction. For instance, the survey identified early on that the main source of real losses was leaks at the service connections. Based on these findings, the contractor changed its NRW reduction strategy and reallocated resources to focus on replacing service connections and disconnecting inactive accounts.

Takeaways

- An NRW-PBC saved 17 MLD of water (30 percent of total production) on New Providence Island in four years.
- The NRW-PBC is financially attractive. It helped reduce financial EBITDA loss by \$10 million per year. It has an expected IRR of 46 percent.
- A thorough baseline survey was done by the contractor at the start, so it could optimize its NRW reduction strategy.