

Tortola Water and Sewage Improvement Scheme

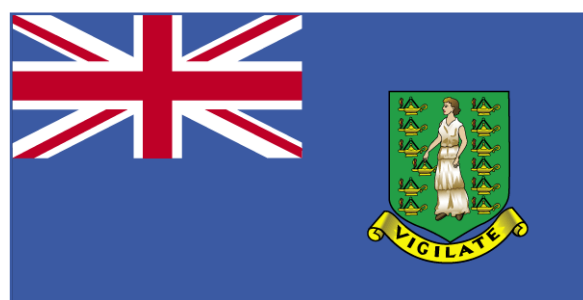
Tortola, British Virgin Islands



View of the port from the capital, Road Town



View of the capital, Road Town, from the two storage reservoirs on Sabbath Hill



Project overview

Client:	Government of the Virgin Islands
Scope:	Build, Operate, Own, Transfer (BOOT) contract covering the design, construction, and operation and maintenance of a desalination plant and two wastewater treatment facilities
Key technologies:	Seawater reverse osmosis (SWRO)
SWRO membrane treatment capacity:	10,450 m ³ /day 10.4 million litres per day 2.7 million US gallons per day
Total wastewater treatment capacity:	4,000 m ³ /day 4 million litres per day 1 million US gallons per day
Population served:	Over 24,000 residents on the island of Tortola, tourists and cruise ships
Development phase:	Complete (August 2015)
Award:	Highly Commended Desalination Deal of the Year Global Water Award 2014

“ Inspired financing for an inspired contract

Background

Previously residents received their water from existing SWRO plants that operated on the island, however they were not sufficient to provide year-round supply and some were reaching the end of their working lives. With the influx of cruise ships to the island during 'high season', it was necessary at times for water supplies to be rationed or cut off during peak demand.

To increase Tortola's water treatment capacity and support the Government's long-term water and sewage master plan, Biwater implemented an island-wide improvement scheme.

Works for the 10,450 m³/day desalination facility were completed in 2014. The new facility now provides a 24/7 potable water supply to Tortola and gives the Government the

capacity to supply water to cruise ships whilst in dock without any detriment to local users.

The water supply tariff savings provided by the new SWRO plant provided the finance to design and construct two new package wastewater treatment plants with a total of 4,000 m³/day treatment capacity to serve the whole island. The wastewater treatment plants and associated pumping stations were completed in mid-2015 in Road Town and Paraquita Bay.

As a result of these works, the diverse marine environment has benefited hugely, including but not limited to, coral reefs and the 400+ reef associated fish that call the corals home. In addition, improvements in sanitation were welcomed by the local population and visitors.

Technical summary

SWRO plant:

Upon completion, the 10,450 m³/day SWRO facility included a two pass system, running at 45% recovery. It incorporated four first pass trains and two second pass trains.

Pre-treatment consisted of two stage media filtration, followed by five micron cartridge filtration, to protect the system from foulants.

Biwater incorporated Energy Recovery pressure exchangers, providing a reduction in high pressure pumping energy by as much as 45%.

Storage facilities:

As a part of this project, Biwater constructed a new 2,270m³ storage reservoir, supporting retaining wall works, and also carried out repair works on an existing tank at Sabbath Hill, one of the highest points on the island.

Pipes and pumping stations:

Treated water mains total 3,330 metres, along steep terrain, with a total rise of 393 metres, including two treated water pumping stations.

Wastewater treatment facilities:

Two package wastewater treatment plants ('BiCOMs') were constructed following commissioning of the SWRO plant, serving Road Town and the East End communities.



RO hall



RO hall



Burt Point package wastewater treatment plant under construction

Finance

In November 2013, Biwater successfully completed a USD 43 million project financing deal with Barclays, which benefited from a 100% guarantee from ECGD, the UK Export Credit Agency.