

Egypt pushes ahead with water infrastructure

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Cairo has set out initial proposals for \$20bn of projects through to 2037 under the country's national plan

Egypt is undertaking a number of major projects to expand the supply of potable water and boost the country's wastewater treatment infrastructure to cope with rapidly growing demand.

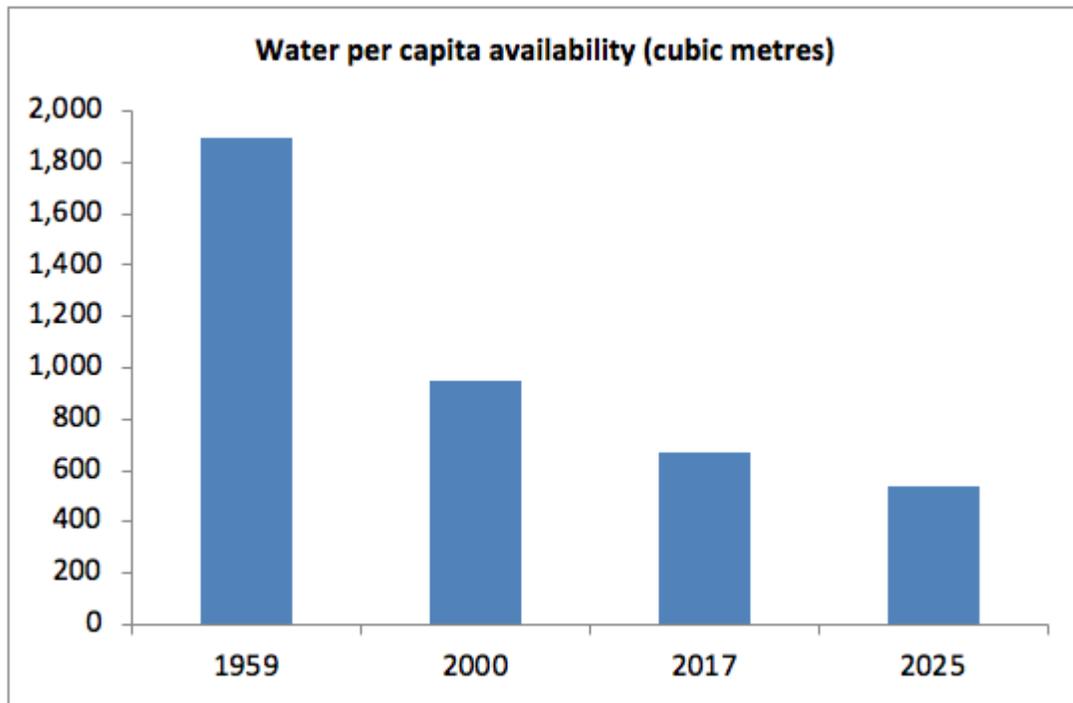
According to MEED Projects data, \$1.1bn-worth of contracts have been awarded for water projects since January 2017. This is 55 per cent greater than the \$640m-worth of water deals awarded in 2015 and 2016.

Investment in the North African country's water sector is expected to increase further over the coming two decades, with the launch of a national plan for water resources in 2017 setting out initial proposals for \$20bn of projects up until 2037.

According to MEED Projects, there is currently \$1.5bn-worth of water and wastewater projects at various stages of the design and tender phases. About \$1.3bn of these are for desalination and water treatment plants.

Nile dependence

The move to develop new desalination and treatment plants has been spurred by efforts to reduce dependence on the Nile for water reserves. Egypt relies on the Nile for more than 90 per cent of its water consumption, with the remainder coming mainly from limited groundwater resources and agricultural re-use.



In addition to increasing demand from a population that is growing at a rate of more than 2 per cent a year, the country's water supplies are also threatened by the Millenium Dam project being constructed in neighbouring Ethiopia. While President Abdul Fattah Al-Sisi has made obtaining assurances from Ethiopia and other African states over the supply of Nile water a priority since he was first elected in 2014, Cairo is keen to diversify the country's water sector and ensure that future supplies are secured.

Desalination projects

In April, Egypt's Housing Minister Mostafa Madbouli announced plans to develop 19 desalination plants, with six of these due to be in service by the end of 2018. The first six plants are expected to supply an additional 1.6 million cubic metres a day (cm/d) of water. This will mark a significant step-up in the country's desalination capacity, which at the end of 2017 was only 700,000 cm/d.

Previously, desalination projects in Egypt were small-scale facilities on the Red Sea coast that catered for tourist resorts or new developments. However, Cairo is now pushing ahead with much larger plants to satisfy the growing demand.

Private shortfall

While Egypt is moving ahead with important desalination and water treatment projects, less progress has been made with procuring the private sector to deliver them. Following the approval of the public-private partnership (PPP) law in April 2010, Egypt's PPP Central Unit began conducting feasibility studies into developing desalination plants as a way to boost water supplies.

After several studies, in early 2015, the PPP Central Unit revealed it was planning to tender three desalination projects with a combined total capacity of 140,000 cm/d in the third quarter of 2015. The PPP unit announced later that year that a further two or three desalination plants were due to be tendered in the second or third quarter of 2016, following the tendering and award of the initial projects.

However, after a number of problems in the design stage, none of the projects proceeded under the independent power project (IPP) model and they were transferred to engineering, procurement and construction (EPC) contracts.

The failure of the government to proceed with the long-awaited Abu Rawash wastewater project as a PPP scheme was a major blow for the private developers delivering Egypt's growing pipeline of planned PPP desalination and water treatment projects in the short-term. The PPP Central Unit had selected the winning consortium for the Abu Rawash project in August 2015. However, in early 2017 the project was dropped from the country's PPP programme and was awarded as a conventional EPC contract.

Kuwait funding

As a result of the cancellation of the planned PPP desalination projects, Cairo has sought to attract funding from regional and international development agencies to assist with the expansion of its water sector.

In June 2016, the Kuwait Fund for Arab Economic Development (KFAED) agreed to provide a \$98.6m loan to assist with five desalination plants. The plants, which will desalinate water from the Red Sea, are intended to meet demand for potable water in towns in the South Sinai.

In December 2016, KFAED announced it was providing a second loan for the development of desalination facilities in Egypt, this time for a much larger capacity plant in Port Said. KFAED agreed to provide a loan of \$115.5m to finance the construction of a 150,000 cm/d seawater reverse osmosis (RO) desalination plant at Eastern Port Said.

As with the loan for the first five desalination projects, the Port Said loan will be for a tenor period of 25 years with a five-year grace period and annual interest of 1.5 per cent a year. The plant is also due to be completed in 2019. The UAE's Metito is executing the project. Metito is also currently executing a 150,000 cm/d desalination plant in El-Galalah.

Suez canal

The Port Said desalination plant will play an important role in providing adequate desalination capacity for the Suez Canal Zone project (SCZone). The development of SCZone will generate significant demand for potable and industrial water supplies. Nine new projects have been identified to meet these needs. These include four new water treatment plants, with capacities ranging from 50,000 cm/d to 120,000 cm/d, and two desalination facilities co-located with power plants at Ain Sokna and East Port Said.

SCZone potable and municipal water supplies (cm/d)							
Development area	2017	2020	2025	2030	Total by 2030	Total by 2050	Raw water source
East Port Said	25,000	25,000	25,000	75,000	150,000	450,000	Seawater
NW Gulf		50,000	75,000	100,000	225,000	725,000	Seawater
Ismaila City				50,000	50,000	100,000	Ismaila Canal
Suez City				50,000	50,000	150,000	Suez sweetwater canal
Qantara			25,000		25,000	50,000	Ismaila Canal
Rural Port Said		50,000		25,000	75,000	875,000	Ismaila Canal
East Ismaila	25,000	25,000			50,000	250,000	Ismaila Canal
Rural Ismaila		40,000	40,000	40,000	120,000	370,000	Ismaila Canal
Rural Suez		40,000	40,000	40,000	120,000	870,000	Suez sweetwater canal
Total	50,000	230,000	205,000	380,000	865,000	3,840,000	
Source: SCA							

In April 2016, Singapore-based Hyflux was awarded a contract to build the Ain Sokhna integrated desalination and power project. Hyflux received a formal letter of award from the General Authority for the Suez Canal Economic Zone for a \$500m EPC contract to build the plant, which will have a capacity to treat 150,000 cm/d of water.

However, in January 2017, Hyflux announced that the SCZone had requested Hyflux to develop the Ain Sokhna project under a build-operate-transfer (BOT) or build-own-operate (BOO) contract rather than the initially awarded EPC contract. In May this year, Hyflux revealed it was still in negotiations with the client about delivering the project under a BOT model.

Wastewater treatment

Egypt is also set to invest heavily in its wastewater sector in the coming years to meet growing demand for treating and transporting sewage. In May, the local Hassan Allam was awarded a contract to build a 250,000 cm/d wastewater plant in the New Capital development just outside Cairo.

In the same week, Hassan Allam was awarded a contract to develop another wastewater plant in partnership with France's Veolia. The joint venture will build a 33,000 cm/d wastewater treatment plant and 85km collection network in the Sharqia governorate. The project will receive financing support from the World Bank.

With almost 80 per cent of Egypt's water used in agriculture, a key challenge for the government will be to use the resource much more effectively in the farming sector. The government made a step towards meeting this challenge earlier this year when it awarded Hassan Allam and Metito a deal to build a 1,000,000 cm/d agricultural runoff treatment project.