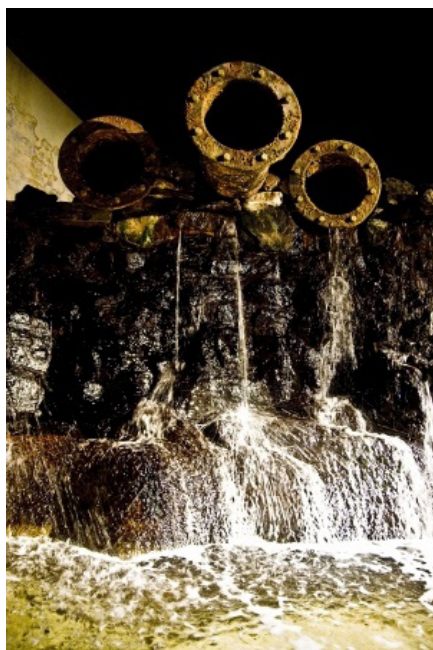




INCREASING WASTEWATER AND SANITATION CAPACITY IN EGYPT'S RURAL AREAS

The Egyptian Government plans to achieve this critical objective primarily through the implementation of two national schemes: the National Rural Sanitation Program and the Improved Water and Wastewater Services Program II.



Egypt's population boom and the resurgent health of its economy have secured a wide range of socio-political benefits for the country as it looks towards the achievement of even greater levels of progress. One of the critical factors that will make Egypt's growth sustainable is the attainment of sufficient clean water supplies through the development of the country's sanitation and wastewater treatment capacity.

The Egyptian Government plans to achieve this critical objective primarily through the implementation of two national schemes: the National Rural Sanitation Program and the Improved Water and Wastewater Services Program II. These initiatives are being spearheaded by the Ministry of Housing and Utilities and involve an expansive variety of international stakeholders including wastewater technology service providers, construction firms and funding organisations such as the World Bank.

Already the planned investments for the implementation of these two schemes amount to more than \$880 million for this fiscal year (\$550 for the NRSP and \$330 million for the IWSP II). Ultimately, these initiatives represent billions more in continued investments as their implementation will carry into the 2020s and will require the adoption of their latest wastewater and sanitation technologies and best practices.

Current Issues caused by Underdeveloped Wastewater and Sanitation Capacity

In recent years, Egypt's government has made great strides in improving the population's access to clean water supplies through the extension of piping coverage to approximately 90% of the country's rural areas with near total urban coverage. This has translated into a massive improvement in providing direct access to safe piped drinking water at the household level (from 39% pre-2000 to 93% today).¹

However, sewage and sanitation treatment services still lag behind. Basic sanitation services through access to traditional septic tanks has risen markedly (from 52% to 93%)², but socio-economic disparities means that Egyptians in rural areas are still much less likely to have to have access to entirely safe drinking water supplies due to the lack of advanced sewage and sanitation service coverage.

This underdevelopment of wastewater and sanitation treatment is causing significant problems for Egypt at the economic, environmental and individual levels:

¹ World Bank, *Delta Rural Sanitation Program – Program for results information document (PID) concept stage, 08/01/2015*

Public Health Threat: An estimated 89% of households in urban areas are covered by a public sewer system compared to only 37% in rural areas. In rural households, children are 8.7 times more likely to drink from unsafe sources of water that are open or stagnant. Only 6% of Egyptian villages have wastewater treatment services, leaving 42 million people in Egypt who are currently underserved sanitation-wise and have to frequently face the prospect of overflowing sewage in public areas as well as from overfilled septic tanks.³

These conditions are leading to a raft of persistent public health issues including the prevalence of water-related diseases and acute diarrhoea which is the cause of 9.1% of the mortality of children under-five years of age.⁴

Continued Cost to Public:

Approximately 85% of rural areas in Egypt do not have public sanitation networks as sewerage connection rates are massively lower than in the country's major cities and urban areas. This lack of conventional sewer access has led to an inefficient and expensive situation where the average rural Egyptian household must pay a monthly fee of between 30-200 Egyptian Pounds (\$4-\$25) in order to have their septic tank emptied. In many cases, this represents a significant financial burden that households are unable or unwilling to absorb.

Poor Access to Water: 6% of Egypt's women and girls spend significant time each day making

multiple trips to collect water. In some cases, this translates into five or six hours a day of water collection.⁵

Agricultural and Environmental Impact: Wastewater and Septic-emptying services in rural areas are largely informal and unregulated. These privately owned service operators frequently empty waste directly into public drains or even into irrigation water canals. These practices are polluting fresh water sources – particularly in the Nile Valley where 90% of the country's supply comes from – which has severe implications for the population's health but also for the future of Egypt's agricultural operations.⁶

Current Wastewater Projects Being Developed in Egypt

Tackling these issues caused by a lack of rural sewerage and sanitation network coverage is of vital importance and the NRSP and IWWSP2 comprise of several large-scale projects that will address the severe urban/rural imbalance by providing better services for the entire population. Ultimately, the

These conditions are leading to a raft of persistent public health issues including the prevalence of water-related diseases and acute diarrhoea which is the cause of 9.1% of the mortality of children under-five years of age.



² Egypt Network for Integrated Development: Rural Sanitation in Egypt, Policy Brief 010

³ Egypt Network for Integrated Development: Rural Sanitation in Egypt, Policy Brief 010

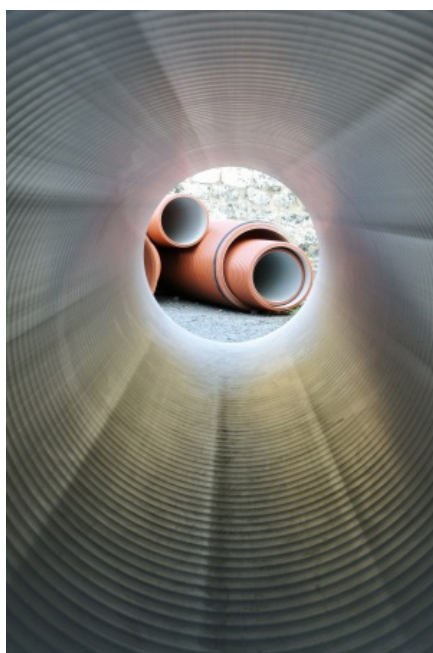
⁴ World Bank, Delta Rural Sanitation Program – Program for results information document (PID) concept stage, 08/01/2015

⁵ Ibid

⁶ World Bank, World Bank Supports Improved Sanitation Services in Rural Egypt, 07/02/2013

“One of our strategic areas for supporting Egypt is improving service delivery especially for the poor. The program will improve the well-being of rural Egyptians who suffer from poor access to sanitation services and face serious environmental and health threats.”

Asad Alam, Country Director for Egypt, Yemen and Djibouti, World Bank



stakeholders involved in these projects aim to achieve a 100% national sanitation network coverage through the investment of more than \$14 billion over the next decade.⁷

Delta Rural Sanitation Program (DRSP)

“One of our strategic areas for supporting Egypt is improving service delivery especially for the poor. The program will improve the well-being of rural Egyptians who suffer from poor access to sanitation services and face serious environmental and health threats.” – Asad Alam, Country Director for Egypt, Yemen and Djibouti, World Bank

Key stakeholders: Ministry of International Cooperation, Ministry of Housing, Utilities and Urban Communities, World Bank

Investment level: \$550 million for phase 1, Estimated \$2.8 billion overall

Project initiated: June 2015

Estimated project completion: 2022

Project details: The DRSP is the first phase of the Government’s ambitious national plan (NRSP) to provide more than 4,000 villages in both Upper and Lower Egypt with sewage networks and wastewater treatment. It aims to empower local service delivery and connect the rural poor to working sanitation systems in the Delta governorates of Daqahliya, Sharqiya, and Beheira in Lower Egypt.⁸

The Government is focusing on the Nile Valley first for several reasons: it is home to 50% of the population,

it has an extremely high population density (more than 1,000 inhabitants per square kilometer), a very high water table (up to 1 meter below ground level) and it features a tight, intricate web of interconnected canals and drains. Poor waste removal practices and low sanitation coverage have led to particularly acute health and environmental issues in the region. By concentrating this region first it is hoped that the vital tributaries of the Nile – which represents the lifeblood of the country’s fresh water supply – will be markedly cleaner and more protected, making further nationwide improvements easier to deliver.

Current investments have focused almost exclusively on sanitation infrastructure – the development of sewerage network connection infrastructure and multiple wastewater treatment plants. However, the program also envisages the delivery of greater levels of technical support to existing subsidiary water and sanitation companies through the parent company – the Holding Company for Water and Wastewater (HCWW). This technical support will take the form of utilising emerging sanitation engineering technologies such as the installation of SCADA systems, GIS training and the development of improved water quality testing facilities.⁹

⁷ World Bank, Delta Rural Sanitation Program – Program for results information document (PID) concept stage, 08/01/2015

⁸ World Bank, Egypt: Improving Access to Sanitation Services for More than 800,000 Poor Egyptians in Rural Areas, 28/07/2015

⁹ World Bank, Delta Rural Sanitation Program – Program for results information document (PID) concept stage, 08/01/2015

Abu Rawash Wastewater Plant

Key stakeholders: FCC Aqualia, Orascom Construction Industries, Ministry of Urban Planning, Central Bank of Egypt, World Bank

Investment level: \$558 million

Project initiated: August 2015

Estimated project completion: 2018

Project details: The Egyptian Ministry of Urban Planning recently announced that they have awarded an international consortium led by water treatment company FCC Aqualia with a tender for the construction and operation of a new state-of-the-art wastewater treatment plant in El Cairo. The Abu Rawash plant will be able to treat 1.6 million cubic metres of wastewater every day and it will help provide sanitation services to more than 5.5 million people.¹⁰

The investment level of this build-operate-transfer project is more than \$558 million but the expected revenue of the 20 year operation tender is estimated at approximately \$2.68 billion before the Abu Rawash plant is transferred to the Egyptian Government. This demonstrates the value of large-scale infrastructure projects to both the contracted international companies but also to the long-term future of Egypt as it continues to attract the investment and expertise of renowned service providers. FCC Aqualia operates 320 facilities in 22 different countries and their investment in the Abu Rawash plant is solidly backed by the Central Bank of Egypt as well as the World Bank.¹¹

Aqualia was also the company that was awarded the design, construction and operation tender of the treatment plant in New Cairo in 2010. The same cutting edge technological solutions

approach will be employed in the design of the new plant, including the implementation of automatic screening equipment designed to separate coarse and fine solids, horizontal centrifugal pumps fitted with frequency converters and micro-screening textile mesh filters.¹²

Gabal El Asfar Facility Upgrade

Key stakeholders: DHCU, ARCOM, ICAT

Investment level: \$100 million

Project initiated: February 2015

Estimated project completion: 2017

Project details: A consortium of Egyptian companies: DHCU, ARCOM and ICAT, have won a four-year contract to renovate and maintain two wastewater treatment plants at Gabal El Asfar in Cairo. The facilities represent the largest current wastewater processing capacity on the eastern side of the Nile as they can treat 1.4 million cubic metres per day.

The planned upgrade includes the improvement of the Gabal El Asfar cogeneration plant which is fuelled by anaerobic sludge digestion. This technology has been designed as a viable way to reduce energy usage and control associated costs in many waste and wastewater treatment applications. In the case of Gabal El Asfar anaerobic sludge digestion produces up to 65% of the power needed to run the facility.¹³

¹⁰ Zawya, *FCC Aqualia Secures 2.4 Billion Euro Contract On Egypt's Abu Rawash Treatment System Plant*, 31/08/2015

¹¹ Almal News, *Two bidders attempt to seize Abu Rawash wastewater project*, 28/01/2015

¹² Water Technology, *New Cairo Wastewater Treatment Plant, Egypt*, 06/08/2013

¹³ Water World, *Sludge powered wastewater treatment plant in Egypt to get €84m upgrade*, 11/02/2015



“These programs are supporting the Egyptian Government’s efforts to increase access to rural sanitation by shifting to a decentralised model that empowers the governorate level water and sanitation companies and makes them accountable to their citizens and stakeholders.”

Gustavo Saltiel, Program Team Leader, World Bank.

Achieving National Sanitation and Wastewater Treatment Coverage

“These programs are supporting the Egyptian Government’s efforts to increase access to rural sanitation by shifting to a decentralised model that empowers the governorate level water and sanitation companies and makes them accountable to their citizens and stakeholders.” – Gustavo Saltiel, Program Team Leader, World Bank.

Ultimately, the Egyptian Government hopes to achieve a 100% coverage rate across the nation where its entire population – both urban and rural – has access to proper sewerage networks and wastewater treatment services.

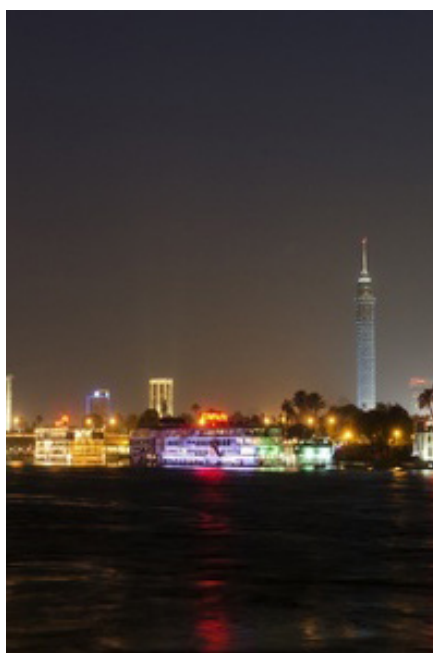
To achieve this, the government is moving towards a decentralised strategy where the local government authorities are able to more effectively take charge of their sanitation service responsibilities and ensure results. As investments increase, they will be able to better direct the implementation of wastewater solutions by securing the most appropriate and effective providers utilising the latest technologies and best practices.

The investments needs of the overarching national rural sanitation program have been estimated at

\$14 billion. The DRSP – currently underway in the Nile Delta region – will likely map out the path for improving sanitation coverage across the rest of the country as its progress is assessed and emulated. Over the course of the next decade, the program will help Egypt’s sanitation and wastewater treatment coverage levels reach 45 million people across 4000 villages and 27 subsidiaries while discontinuing the unsustainable practices of dumping untreated sewage into drains and canals¹⁴

This represents a vital nationwide effort to improve Egypt’s environmental and public health levels, while concurrently securing a host of other socio-economic benefits through public infrastructure investments.

¹³ Zawya, World Bank approves \$550 million Program to improve Egypt’s Sanitation Services, 31/07/2015



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WASTEWATER EGYPT

To find out more about Egypt's wastewater projects, don't miss the Wastewater Egypt conference (29-30 August 2016, Cairo, Egypt) developed with input from Giza Water & Wastewater Company, Arab Water Council, Orascom Aqualia, Beheira Water & Wastewater Company, International Water Technology Association, Beni Suef Wastewater Company, Ministry of Finance, Egyptian Green Building Council and National Organisation for Potable Water & Sanitary Drainage.

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