سلطة المياه الفلسطينية
PALESTINIAN WATER AUTHORITY

Palestinian Water Authority

Gaza Strip: No Clean Drinking Water, No Enough Energy, and Threatened Future

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Fast Facts:

- 95% of Gaza's water supply is contaminated with unacceptable high levels of either nitrate (NO3) or chloride (Cl), posing significant health risks to Gaza's 1.8 million residents.
- Average consumption in the Gaza Strip of 90 liters per capita per day (l/p/c/d) falls below the standard of 100 l/p/c/d recommended by WHO, but with unacceptable water quality.
- With the absence of adequate wastewater treatment facilities, approximately (40 MCM per year) of untreated and partially treated sewage is dumped into the sea along Gaza's coast. A further 10 MCM per year of untreated sewage water infiltrate the underlying coastal aquifer. In addition to 14 MCM per year partially treated effluent that infiltrate to the aquifer.
- At its present rate of deterioration, the underlying portion of the coastal aquifer on which the Gaza Strip relies on for its water needs will be unusable by 2016, and irreversibly damaged by 2020 (UN report August, 2012).
- Gaza's water and sanitation crisis will worsen, with its population expected to increase to 2.1 million by 2020, in conjunction with projected water demand to grow to 260 MCM/y by 2020.
- Installed power supply to operate water and wastewater facilities estimated at 29 MW. Projected power supply demand for water and wastewater facilities is 81.5 MW by 2020. Blackouts of 12-16 hours a day are restricting the provision of basic services.

Combination of poor water quality and limited Energy supply under Gaza blockade:
Acute water and energy shortages, and inadequate water and sanitation infrastructure now threatens the health and welfare of Gaza's 1.8 million residents. The scale and severity of the water crisis facing the Gaza Strip are enormous, and unless immediate action is taken, the damage to Gaza's natural water resources will be irreversible.

The multiple water problems plaguing the Gaza Strip, as well as the many hardships its residents daily face, are in large part the effects of Israel's ongoing occupation. Today, access to Gaza is restricted under full Israeli military control. Israel also maintains a naval blockade along Gaza's entire coastline (at a distance of approximately 3 nautical miles).

In addition to essential items including food, fuel and basic medicines, Israel's blockade restricts the entry of materials needed to upgrade and repair Gaza's collapsing water and wastewater infrastructure. Fuel shortages continue to create rolling electricity blackouts that in turn affect water distribution and pumping to household reservoirs, while many water wells have stopped working, or are working at half capacity, due to a lack of spare parts. Crucially, this also prevents Palestinians from exploring other options in terms of accessing alternative water supplies, and has delayed the importation of additional water. An agreed upon additional water supply of 5 MCM/y has not been activated although infrastructure at both sides are completed. Gaza's population presently extracts **almost three times** the aquifer's sustainable yearly recharge.

Around 95 per cent of all water supplies in the Gaza Strip are contaminated with dangerously high levels of nitrate (NO3) and/or chlorine (Cl), **posing significant health risks**, especially for infants.

Waterborne diseases resulting from trace contaminants in the water are on the rise, including acute diarrhea, parasite infections, liver and kidney diseases, and methemoglobinemia ('blue baby syndrome). Implementation of even the short term plans of water and wastewater infrastructures is behind schedule due to the blockade and the shortage in energy supply.

What Solutions and what restrictions are in the pipeline?

In order to reverse the damage being done to the Coastal aquifer underlying the Gaza Strip, an immediate priority is to dramatically reduce current groundwater abstraction rates. This will allow the aquifer to gradually replenish itself predominantly through natural recharge. To reduce groundwater abstraction, an affordable alternative water supply must be found to meet the water needs of Gaza's residents. Limited in its options as a result of Israel's continuing blockade, the PWA has adopted a **Rolling Program of Interventions** specifically designed to tackle and reverse Gaza's acute water crisis. This program is structured around a series of staged interventions designed to collectively tackle the water and wastewater challenges facing Gaza, and that reflect both the scale and complexity of these challenges.

On the domestic water supply side:

- Three Short Term Low Volume (STLV) Sea Water Desalination Plants of total capacity 13 MCM/y should have been in place late 2013. Only 6.3 MCM/y installed capacity is foreseen by the end of 2015 under optimistic scenarios.
- Agreed additional 5 MCM/y from the Israeli side should have been in place by 2012. Very recently the infrastructure has been completed while Israel is not ready to start pumping before a Joint Water Committee meeting, although Gaza does not fall under the JWC business.

- Central Gaza Sea Water Desalination Plant of 55 MCM/y capacity and its associated projects (a 450 MUSD program) planned originally for operation by 2016 still suffers a delay. A project implementation consultant (PIC) had been contracted by EIB in January, 2014 for 24 months to fill some additional studies and surveys (including energy options) in addition to the preparation of Design-Build tender documents. Another PIC will be recruited through the World Bank support on the associated projects side including the North South main water carrier, the reduction of Non-Revenue Water and the Energy Supply.

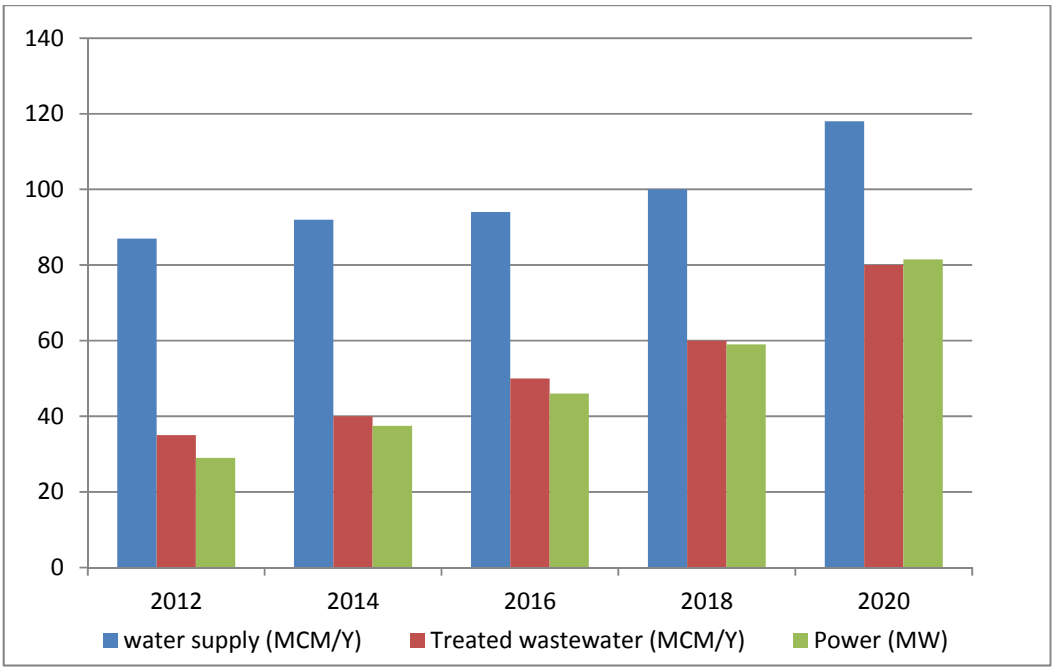
- Fund raising process is continuing to bridge the gap of more than 45% of costs. Energy supply is a main concern of donors and the PWA. Additional power supply of 35 MW will be needed.

On the Waste water provision side:

- North Gaza Wastewater Treatment Facility (36,200 m3/d) should have been put in operation by end of 2012. Restrictions on delivery of equipment and materials, access to site and the provision of a 3 MW power supply are shifting operating the project to late 2014 under optimistic scenarios. Its reuse and recovery scheme, which is an important component of PWA's Water Resources Management Plan, is also delayed due to funding, land acquisition of small parts (affected by the internal division) and environmental concerns. Additional 7 MW power supply is needed as well.

- Gaza and Middle area Wastewater Treatment Facility (120,000 m3/d) has been delayed since 2003 due to "security concerns". Recently Engineering works are resumed to revise designs and can be put in operation by 2018 under optimistic scenarios. Additional Power supply of 6.5 MW will be needed.

- Khan Younis Wastewater Treatment Plant (26,000 m3/d) has been delayed since early 2000. Recently an agreement to bridge the fund deficit is furnished between IsDB and UNDP to complement an available fund from Japan. It's anticipated that the project can be functional by 2017. Additional 1.8 MW of energy is needed. Reusing the treated effluent still lacks funding.



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