

The Water and Energy Crisis in Gaza: Snapshot 2017

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The Gaza Strip is currently facing a dire humanitarian crisis with potentially devastating implications. Lack of clean water for domestic use and unsafe sanitary conditions pose a serious public health threat to the two million people living in the Gaza Strip. By now, large amounts of untreated wastewater have already crossed Gaza's borders and created additional repercussions for several neighboring communities in Egypt and Israel, with Israel at one point forced to close two of its beaches.

The Israeli discourse on Gaza traditionally revolves around conventional security threats emanating from the Strip, such as the construction of tunnels connecting Gaza to Israel, or the periodic rocket launches and incursions by Hamas and other militant groups. However, a consensus is growing that the collapse of Gaza's civilian infrastructure and the impending humanitarian and environmental crisis could equally jeopardize Israel and the region's security.

According to a 2016 report by the Palestinian Water Authority (PWA),¹ the total water supply for domestic use in the Gaza Strip amounts to 95 mcm/y, of which 86 percent comes from municipal groundwater wells; 3 percent from UNRWA wells; 4 percent from desalination; and 7 percent from Mekorot, the Israel National Water company (figure 1). As of 2015, 96.4 percent of the natural water extracted from the coastal aquifer – the main source of water in the Strip – is unfit for human consumption by WHO standard (figure 2).

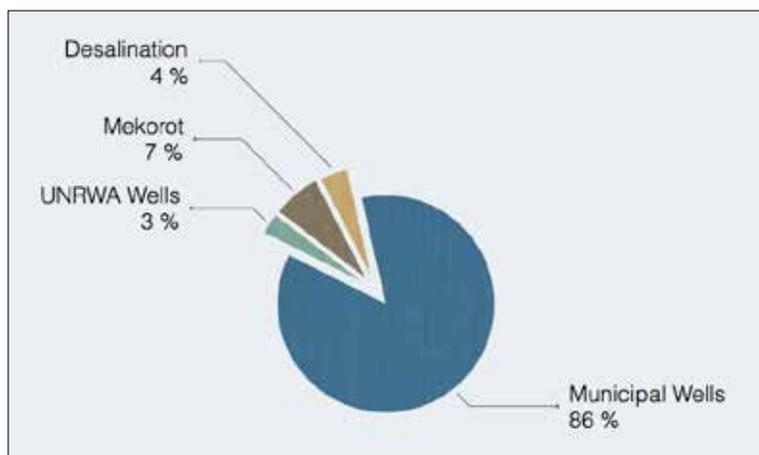


Figure 1. Sources of water supply in the Gaza Strip

Over-extraction from the aquifer has led to the infiltration of sea water, raising the levels of salinity far beyond WHO health regulations. Findings show that water extracted from more than 80 percent of the existing wells – namely 201 out of 249 – contains concentrations of chloride, Cl (indicator of salinity), higher than the WHO limit of 250 mg/l. High levels of salinity in the groundwater may decrease crop production and may also have a direct impact on human health, including increased blood pressure and frequent diarrhea. In addition, research indicates that the cholera pathogen shows higher resistance in saline water, thereby increasing the risk of cholera infections and possible epidemics.²

The discharge of untreated sewage generated by the population has caused alarming levels of nitrate (NO₃) in Gaza's aquifer. The PWA report reveals that large parts of the Gaza Strip exhibit nitrate levels ranging from 100-200 mg/l – up to four times higher than the 50 mg/l limit recommended by the WHO. The presence of nitrates can trigger water-borne diseases such as methemoglobinemia, a severe blood disease, as well as a related disease also known as the blue baby syndrome, which has already spread among Gaza's population.

A UN report³ deemed the issues of water and sanitation in Gaza as problems of primary concern, and concluded that by 2020 the Gaza Strip will be uninhabitable. This has dire implications not only for the Palestinian population of Gaza but also for the region as a whole, as echoed by Israeli

Prime Minister Benjamin Netanyahu in a June 2016 statement: “When there is not enough water in Gaza, and Gaza is in the process of gradually drying up, the aquifers become polluted, and when the aquifers become polluted, this is not limited to the Gaza side of the aquifer. Therefore, it is in Israel’s clear interest to deal with the water problem in the Gaza Strip. When there is not enough electricity, various problems arise, including those having to do with sanitation, and when there are outbreaks [of pandemic disease], the outbreaks do not stop at the fences. This is both a humanitarian interest and an outstanding Israeli interest.”²⁴



Figure 2. PWA Report on Gaza Water

The current humanitarian crisis in Gaza is a product of a number of interconnected factors, including failed governance of the Hamas leadership and its lack of cooperation with the Palestinian Authority (PA), the severe restrictions imposed by the Israeli blockade, and Gaza’s over-dependence on the donor community.

Israel and the PA agreed on the sale of 10 additional mcm of water to alleviate the situation – a deal that was struck as part of a revised version of the Red-Dead Canal project.⁵ Once the agreement comes into effect, Gaza will purchase a total amount of 20 mcm from Israel, which is said to double once combined with the water from the aquifer, ultimately providing the Strip with 40 mcm of potable water annually. Although this gives some ephemeral relief to the people of Gaza, it should be considered an emergency solution only, as the measures themselves do not provide adequate answers to the core problems of water scarcity and water contamination in the Gaza

Strip. Rather, to address Gaza's water problem at its roots, the PA and Israel must think about viable long term solutions. Plans for the construction of desalination and wastewater treatment plants are underway. The main obstacle for the implementation of these projects is currently the lack of electricity to power such facilities – including a desalination plant recently built with the support of EU and UNICEF, which relies on generators working with imported fuel; and the Northern Gaza Emergency Sewage Treatment (NGEST) plant, led by the World Bank, due to operate by the end of 2017. Although formerly agreed upon by Israeli and Palestinian officials, the proposed sale of additional electricity through the construction of a 161K power line, which will further connect Gaza's grid to Israel's electricity provider, seems to be held hostage to PA requests to reduce the existing sale of electricity to Gaza.

Israel's willingness to respond to the Gaza water and sanitation crisis followed the release of details obtained from a Freedom of Information request by EcoPeace Middle East, which attracted substantial media attention. During the first quarter of 2016, the Ashkelon Desalination Plant, which supplies 15-20 percent of Israel's drinking water, was forced to shut down twice due to sewage discharged into the Mediterranean Sea from Gaza. Moreover, the same period saw a complete collapse of Gaza's sewage system, which caused raw sewage from Beit Lahiya, about 200 meters from the border with Israel, to flow into the water reservoir of the Hof Ashkelon Regional Council.

The incident encouraged 14 members of the US Congress, Democrats and Republicans, to send a letter (July 13, 2016) to Israeli Minister of Defense Avigdor Liberman and Israeli Minister of National Infrastructure, Energy and Water Resources Yuval Steinitz urging them to take due measures to guarantee additional supply of electricity to the new Gaza waste water treatment plant. As a result, Israel approved the construction of either a new dedicated power line from Israel to NGEST specifically, or the larger 161K line to Gaza.

Despite such progress, at the time of this writing, negotiations related to the power line are still underway and seem to be impeded by the general electricity cuts. In April 2017, following a first letter in January 2017, the Coordinator of Government Activities in the Territories (COGAT) sent a second letter to international representatives in Israel, warning of the consequences

of the water and energy crisis in Gaza, and asking for immediate action to be taken by the donor community to alleviate the situation.

Electricity Shutdown

In April 2017, the Gaza Power Plant (GPP), which had been operating since 2002, shut down due to a lack of fuel, depriving Gaza's population of roughly 30 percent of the energy usually available. Prior to this cut, the available electricity in Gaza was already less than half of the estimated requirement. Against an estimated demand of 350 to 450 MW daily, Gaza's electrical grid normally provides 208 MW/d (figure 3), of which 120 MW are sold and supplied by Israel, 60 MW are produced by the GPP (with fuel imported through Israel), and 28 MW are sold by Egypt.⁶

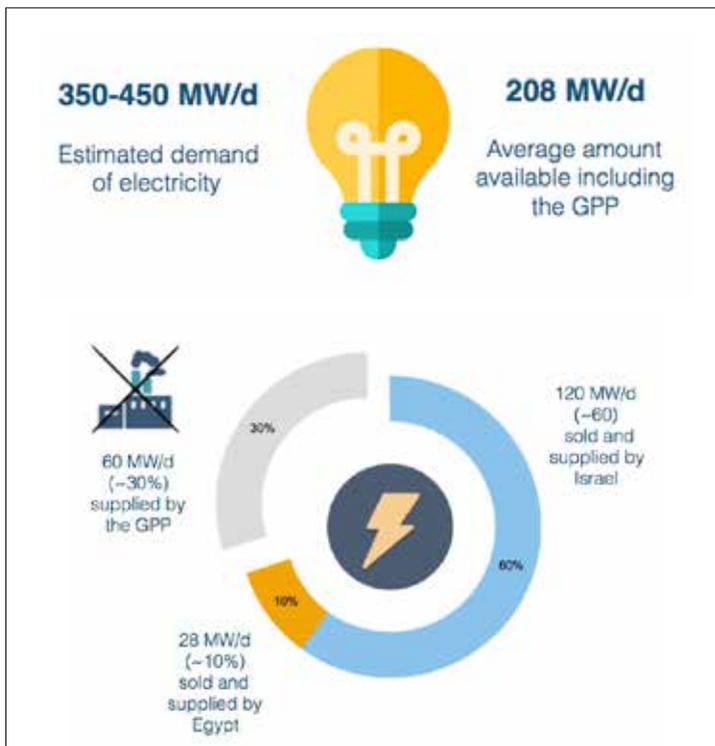


Figure 3. Electricity Supply and Demand in Gaza

In response to a previous energy crisis in January 2017, which prompted a wave of social unrest against Hamas, Turkey and Qatar intervened to

mitigate the crisis. Turkey offered 15,000 tons of diesel fuel to operate Gaza's power station, while Qatar transferred \$12 million to the Palestinian Energy Authority in Ramallah to purchase the large quantities of diesel fuel needed to run the Gaza power station. However, three months later, Gaza's funds allocated by Turkey and Qatar were already depleted, leaving the Strip in a critical situation. Gaza's humanitarian crisis became entangled with a political dispute between the PA and the de facto Hamas authorities over fuel taxation, which led the PA to announce that it will no longer pay the costs of Israel's electricity import unless Hamas returns the tax revenues collected from the Palestinians in the Gaza Strip.

To make matters worse, Egypt's contribution of electricity – around 10 percent of Gaza's total supply – was also temporarily compromised after all of Egypt's electricity lines feeding the southern Gaza Strip broke down in late April.

The humanitarian impact that followed continues to be extremely worrisome and has many effects on a wide range of sectors:

- a. Hospitals are running at minimal capacity with sterilization and cleaning services reduced, resulting in higher infection rates and an increasing number of patients referred to Israel.
- b. Wastewater plants are not fully operating, resulting in more than 100,000 cubic meters of raw or poorly treated sewage being discharged into the sea on a daily basis. In addition, numerous wastewater pumping stations are now at risk of flooding, overflow, and contamination.
- c. Small scale desalination plants are not operating at full capacity with the result that water supply has been reduced. This has increased Gaza's reliance on private and uncontrolled water suppliers with lower hygiene standards.

In order to maintain the operational reliability of critical health, water, and sanitation facilities, the main donors – UNRWA, OCHA, UNICEF, and WHO – are coordinating the entry and distribution of fuel with which to operate back-up generators.

However, even at full capacity, Israeli and Egyptian electricity supply, together with Gaza's only power plant, fails to cover the Strip's energy need. This underlines the need to look at long term solutions instead of emergency measures, and to undergo a complete revision of the strategies that have so far been adopted toward Gaza.

Recommendations

Israelis and Palestinians have committed to advance numerous practical solutions, such as the sale of additional water, the construction of a new high voltage line (line 161 supplying Gaza with an additional 100 MW within a few years), and the connection of the Gaza Strip to a natural gas infrastructure. The latter would allow for the production of cheap and efficient electricity within the Gaza Strip – a move that would ultimately strengthen Gaza’s civilian infrastructure.

However, the devil is always in the details: the payment for electricity remains an issue of dispute, and the PA-Hamas rivalry continues to pose an obstacle to any of the on-the-ground solutions. Without a full commitment of all parties under the auspices of the international community, devising a comprehensive agreement on water and energy to be implemented in a timely manner remains unlikely.

Therefore, there is an urgent need to appoint a third party to assist the round of stakeholders involved, so that the agreements on Gaza’s water and electricity can be reached as soon as possible. Only once an agreement is implemented, can the coordinated efforts among donors, Israelis, and Palestinians move forward.

Notes

- 1 Palestinian Water Authority (PWA), “2015 Water Resources Status Summary Report/Gaza Strip,” Water Resources Directorate, April 2016.
- 2 A. Khan, Ireson, et al. (2011) in *Turn Down the Heat: Climate Extremes, Regional Impacts, and the Case for Resilience*, World Bank, June 2013.
- 3 United Nations, “Gaza in 2020: A Liveable Place?” Office of the United Nations Special Coordinator for the Middle East Peace Process (UNSCO), Jerusalem, 2012.
- 4 Israel Ministry of Foreign Affairs, “PM Netanyahu’s Statement at his Press Conference in Rome,” June 27, 2016, <http://mfa.gov.il/MFA/PressRoom/2016/Pages/PM-Netanyahus-statement-in-Rome-27-June-2016.aspx>.
- 5 The 2013 Red-Dead Canal agreement includes reference to two bilateral water deals: a water swap between Israel and Jordan and a water sale between Israel and the PA. Accordingly, Israel committed to sell an additional amount of 33 mcm water to the PA, of which 23 will go to the West Bank and 10 to Gaza.
- 6 United Nations, “Humanitarian Impact of the Gaza Electricity Crisis,” May 2017, <https://reliefweb.int/report/occupied-palestinian-territory/humanitarian-impact-gaza-electricity-crisis-may-2017>.