

How Gaza's Blockade Impacts on Water and Sanitation

"States ... should refrain at all times from imposing embargoes or similar measures, that prevent the supply of water, as well as goods and services essential for securing the right to water. Water should never be used as an instrument of political and economic pressure."

UN Committee on Economic, Social and Cultural Rights, General Comment 15: The right to water (2002)



Sewage flowing into the Mediterranean Sea

In June 2007, Israel imposed restrictions on the movement of people and goods at Gaza's border crossings. In September of that same year, it further reduced supplies of fuel and electricity to the Gaza Strip. Israel announced an 'easing' of the Gaza blockade in June 2010 publishing guidelines that would make the process of approval for materials entry more transparent.¹ According to the guidelines, the vast majority of materials for construction and rehabilitation of water and sanitation infrastructure awaiting entry should be allowed in. However, more than half a year later, only one quarter to one third had been approved by Israel.²

The result has been a breakdown of water and sanitation services, placing public health and the environment at risk in both Gaza and Israel.

Gaza's blockade causes delays in essential humanitarian work. Unrepaired water and sanitation pipelines are gradually becoming decrepit.

Strategic sewage treatment projects are being delayed or cancelled for lack of equipment and supplies, causing deterioration of Gaza's main aquifer. Only 5 -10 per cent of the aquifer now meets drinking water quality standards. Fifty to eighty million litres of untreated or partially treated sewage is released into the Mediterranean Sea every day, drifting north into Israeli waters.

The public health implications are significant. Due to an intermittent water supply, Gaza residents use an average of 91 litres of water per day (compared to 280 litres used by Israeli residents for domestic consumption). The World Health Organization (WHO) says that 100-150 litres of water are required per capita per day to make sure all health needs are met. Lack of adequate quantities of water also places public health at risk and hygiene is sometimes compromised.

Between the shortage of materials and spare parts, conflict damage, and gradual deterioration of infrastructure, there was a rise in the rate of water lost from the water network from 30 per cent in 2004 to 47 per cent in 2009.³

¹ Israeli Ministry of Foreign Affairs, Gaza: Lists of Controlled Entry Items, (July 2010) Available from: http://www.mfa.gov.il/MFA/HumanitarianAid/Palestinians/Lists_Controlled_Entry_Items_4-Jul-2010.htm.

² WASH Cluster, Monthly Situation Report, (Jan 2011).

³ CMWU, Effect of Material Delay report, (Nov 2008).

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Mohammed Khader lives with his wife and nine members of his family in Al Salam in Jabalya. Al Salam is a tented camp, home to some of those displaced due to the Israeli offensive on Gaza in 2009. Residents of this area previously used water supplied from Namar Well, which was also destroyed by the Israeli military.

A project was begun to dig a new well and connect residents to the water network, which was also destroyed. But the lack in building materials has brought that project to a standstill.

Mohammed buys water from an agricultural well owned by a neighbour. He currently pays 40 NIS (about \$US 10) per 1,000 litres, which puts a strain on the tight family budget. And still he worries about the quality of this water; his children recently became ill from diarrhoea.

Operation Cast Lead

Twenty-two days of Israeli military attack on Gaza (27 December 2008-18 January 2009) brought the already deteriorated water and sanitation sector to the brink of collapse:

- ◆ Gaza's Coastal Municipalities Water Undertaking (CMWU) estimates the cost of damage to major water and sanitation infrastructure during Operation Cast Lead at approximately US\$ 6 million.⁴
- ◆ Over 30 kilometres of water networks were damaged or destroyed by the Israeli military in addition to 11 wells operated by the water authorities in Gaza. Over 6,000 roof tanks and 840 household water connections were damaged.⁵
- ◆ On 10 January, the Gaza City waste water treatment plant in Sheik Ijleen suffered a direct hit and waste water flooded up to a kilometre from the plant.
- ◆ Eight months after the Israeli offensive on Gaza, some 10,000 people in the Gaza Strip remained without access to the water network.

Damage to infrastructure from the offensive has been repaired. Due to the restrictions on materials coming from Israel, the authorities have had to rely also on goods smuggled through underground tunnels from Egypt to repair infrastructure. This practice is dangerous, due to unsafe work practices and frequent bombings in the area, and unsustainable due to irregularity of supply.

Water Quality

Water used in the Gaza Strip is pumped from the groundwater aquifer via wells owned by CMWU.

The World Bank reports that only 5-10 per cent of the aquifer in the Gaza Strip yields drinkable water.⁶ Because no building materials are available to develop alternative sources of water, such as desalination plants, the aquifer is being over-pumped by 100 million cubic metres per year (almost double what is safe to abstract), leading to a fall in the groundwater level and increasing salinisation.

90 per cent of the samples collected from Gaza contain nitrate concentration between two and eight times higher than the WHO accepted guideline of 50 mg/liter.⁷ In Khan Younis in 2008, average nitrate levels in wells were over three times the WHO guidelines.

The consumption of water with high levels of nitrate can cause *methemoglobinaemia* or *blue-baby syndrome* in infants.

⁴ CMWU, Damage Assessment Report: Water and Waste Water Infrastructure and Facilities, (January 2009).

⁵ Palestinian Hydrology Group, Rapid Community Based Water and Sanitation Needs Assessment from the Impact of the Israeli Offensive in Gaza between 27Dec. 2008 and 17Jan. 2009, (February 2009).

⁶ World Bank, *Assessment of Restrictions on Palestinian Water Sector Development*, (2009).

⁷ Science Daily, Drinking Water In Gaza Strip Contaminated With High Levels Of Nitrate, (2008). Available from: <http://www.sciencedaily.com/releases/2008/08/080814091214.htm>.

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High concentration of chloride (which indicates the water's salinity) has also been found in Gaza's water. Tests of 180 water wells in 2009 found that the chloride level was 1,000 to 2,000 mg/litre, four to eight times higher than the 250 mg/litre recommended by the WHO.⁸

Restrictions on electricity limit the operations of existing desalination plants. The blockade has at times prevented the entry of essential chemicals and chlorine necessary to operate desalination plants and disinfect drinking water, placing people's health at risk.

The United Nations Relief and Works Agency reports the diseases most affecting refugees in the Gaza Strip are those directly related to inadequate supplies of safe water and poor sanitation: watery diarrhoea, acute bloody diarrhoea and viral hepatitis.⁹

Water Shortages

Reductions in the supply of fuel and electricity in Gaza mean that water is unable to be pumped to buildings and taps run dry. Access to adequate quantities of safe water for drinking and domestic use has been severely restricted for many.

As of January 2011, 45 per cent of Gaza residents receive water for 6-8 hours once every two days, with 10 per cent receiving water for 6-8 hours once every four days.¹⁰ Irregularity of supply is more severe during the summer months.

Restrictions on the amount of diesel that Israel allows to enter the Gaza Strip has led to the shutdown of wells that are not connected to the electrical grid and that depend on generators or diesel powered pumps.¹¹

Children (who represent over 50 per cent of the population of Gaza), the elderly and the sick are left particularly vulnerable without access to adequate supplies of safe water.



Amina Naser lives with her husband and family members in Al Shouka, a new suburb of Rafah. The area is not connected to the sewage network because pipes and cement could not be imported.

Most families in Al Shouka build their own septic tanks, costing around 1,000 NIS (\$250), using second-hand materials. These homemade cesspits have limited capacity, and often flood to the street. Some families can't afford to build a cesspit and empty their sewage directly into the street.

"Our neighbourhood is disgusting," Amina says. "Sewage is flooding our roads and even comes inside my house. I use strong acid cleaners because I'm afraid for my children's health. There are too many insects here, some as big as my finger, which live on the sewage."

Sanitation Crisis

Sanitation services and facilities also remain in a state of disrepair, further placing public health at risk. Gaza's four wastewater treatment plants are operating at over capacity:

- ♦ Beit Lahiya wastewater treatment plant is designed to process 8-10 million litres per day (MLD), but now operates at 17-20 MLD.
- ♦ Gaza City wastewater treatment plant is designed to process 32 MLD but now operates at 50 to 60 MLD. There are plans to expand the plant, but until then, sewage is partially treated and discharged to the sea.
- ♦ Rafah and Khan Younis wastewater treatment plants are emergency plants that were constructed - for lack of cement - by using concrete sections of the old Rafah security wall to line the lagoons.
- ♦ Wastewater treatment plant lagoons are also prone to overflowing during the winter rainy season. On 27 March 2009, the Beit Lahiya waste water treatment lagoon flooded the area with 50,000 cubic metres of sewage.

⁸ B'Tselem, *Water Supplies in Gaza Unfit for Drinking*, (2010).

⁹ UNRWA, *Epidemiological Bulletin for Gaza Strip*, Volume 1, Issue 11, (August 2009).

¹⁰ WASH Cluster, *Monthly situation Report*, (January 2011).

¹¹ COHRE, *Hostage to Politics*, (2008).

Environmental Hazards

In sum, up to 80 million litres of untreated- and partially-treated sewage are being discharged into the sea daily. This has potentially grave consequences for public health and the environment both in Gaza and southern Israel, and could cause further contamination of Gaza's aquifer.

- ◆ In April 2008, officials at the Ashkelon Desalination Plant in Israel, only 4.8 km north of Gaza, confirmed that seawater processed by the plant was contaminated with sewage.¹²
- ◆ In July 2009, the World Health Organization reported that water samples taken from seven separate beach areas in the Gaza Strip were contaminated with Faecal Coliforms and Faecal Streptococcus.¹³



Wadi Gaza, a natural wetland in the middle of the Gaza Strip, is heavily polluted with chemical waste, rubbish and sewage

Recommendations

- ◆ Israeli authorities should immediately open the border crossings to Gaza in line with the 2005 Agreement on Movement and Access and internationally recognised human rights and humanitarian law standards to facilitate the entry of construction materials and aid necessary to respond to the water and sanitation crisis that exists in the Gaza Strip.
- ◆ Donor agencies must commit to fund reconstruction and development efforts and put pressure on their governments and Israel to allow the entry of needed materials.

This fact sheet was produced by the WASH Advocacy Task Force: a sub-committee of the EWASH group, in collaboration with the WASH Cluster in OPT. EWASH represents over 30 organisations working in water, sanitation and hygiene in the Occupied Palestinian Territory and its members include local and international NGOs and UN Agencies.

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¹² OCHA, Gaza Humanitarian Situation Report: Impact of fuel shortages on Gaza sanitation-Polluting the Sea, (April 2008).

¹³ WHO, Sea Water biological situation in Gaza Strip, (July 2009).