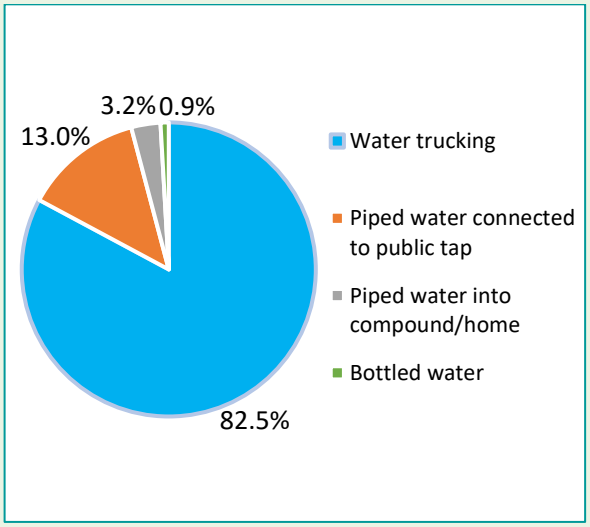
HEALTH CLUSTER
OCCUPIED PALESTINIAN TERRITORY

WASH Cluster
State of Palestine

The Heath Implications of The Limited Access to Safe Water In the Gaza Strip

Access to safe water in the Gaza Strip is considered one of the main challenges affecting the daily life of the population in Gaza. Although piped water services cover more than **98 percent** of the Gaza Strip, less than **5 per cent**of the households have access to safely managed drinking water[1]. Therefore, people in the Gaza Strip are adopting several coping mechanisms to satisfy their daily water consumption.

This limited access to safely managed water affects the Gaza households' capacities to maintain their primary livelihood and health status and they rely on alternative water supply services, such as desalinated trucked water from unregulated private vendors and bottled water.

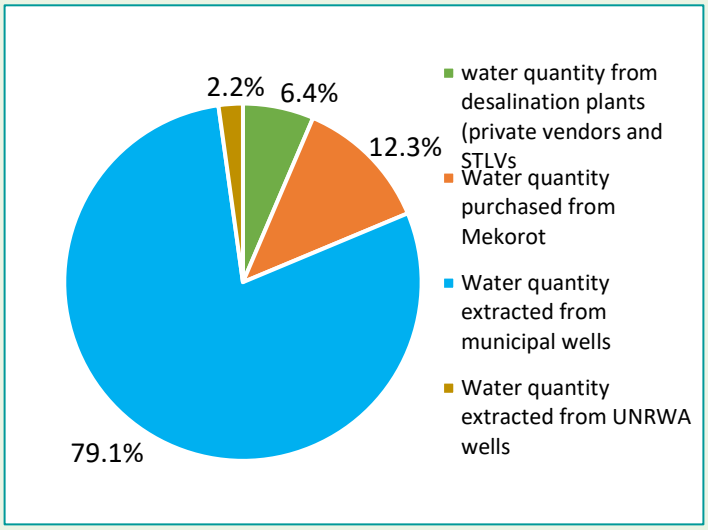


% of households by reported main source of drinking water used at the time of data collection[2]

[1] Multiple Indicator Cluster Surveys (MICS), PCBS 2020
[2] Multisectoral Needs Assessment (MSNA), OCHA 2022

Water quality in the Gaza Strip

According to the Palestinian Water Authority (PWA) Gaza water resources report 2022, more than **96 percent** of the water from the coastal aquifer is unsuitable for drinking due to the high salinity resulting from the seawater intrusion. Therefore, the PWA and the water service providers in the Gaza Strip are relying on other water resources, such as water purchased from Israel and seawater desalination plants. Nevertheless, more than **79 percent** of the water used in the households in the Strip still does not reach the minimum WHO standards for drinking water.[3]



% water quantities from each type of water resource in the Gaza Strip

In September 2022, the WASH Cluster, in cooperation with the PWA and the Costal Municipalities Water Utility (CMWU), conducted a water quality analysis in the Gaza Strip. According to this analysis, the average rate of total dissolved solids (TDS) from the water wells **is 3,000 mg/l (WHO standard is 600 mg/l)**[4] and the average rate of nitrate is 155 mg/l (WHO standard is 45 mg/l)[5]. Moreover, according to the MICS household survey from 2020, **E. coli cell cultures were detected in more than 15 per cent of the Gaza households.**

In addition, the limited operation and maintenance capacities of PWA and the water service providers affect their ability to deal with the water quality challenges in the Gaza Strip. As a result, they are facing serious challenges in allocating the required technical and financial resources for monitoring the water quality and providing the required response to increasing the number of households with improved access to safe water.

Impact on health

Unsafe water is linked to the transmission of diarrheal diseases and exposure to preventable health risks. Since 2015, several studies have been conducted examining the association between drinking water and health in the Gaza Strip, including a literature review done by the Norwegian Institute of Public Health (NIPH) in collaboration with the Palestinian National Institute of Public Health (PNIPH)[6]. In the studies, the following were identified as the most vulnerable groups to exposure to unsafe drinking water:

New-born babies and infants up to six months of age: due to the elevated levels of nitrates in drinking water, they are at increased risk for methemoglobinemia or "blue baby syndrome". In the body, nitrates are reduced to nitrites. The nitrites react with haemoglobin (Hb) in the red blood cells to form methaemoglobin, affecting the blood's ability to carry enough oxygen to the cells of the body. The Hb of young infants is more susceptible to metHb formation than that of older children and adults.

[3] Gaza Water Resources Summary Report, PWA 2022
[4] Guidelines for drinking-water quality, WHO 2022
[5] Gaza water quality analysis, WASH Cluster, PWA, CMWU 2022.
[6] A Systematic Literature Review and Recommendations on Water Usage in the Gaza Strip, NIPH & PNIPH 2014

Children six months up to five years of age: the presence of *E.coli* in some of the water samples tested in Gaza raises concerns related to faecal contamination leading to increased risk of diarrhoeal diseases. Globally, diarrhoeal diseases are a leading cause of children under 5 years' morbidity and mortality.

Pregnant women or lactating women: during pregnancy, waterborne infections, such as Hepatitis E have been associated with obstetrical complications and severe liver function impairment. Pregnant women are also potentially susceptible to metHb formation because of high levels of nitrates in drinking water.

Elderly: exposure to unsafe drinking amongst the elderly increases the risk of more frequent and often more severe infections due to factors such as the presence of multiple underlying medical conditions, weakened immune system, malnutrition, and age-related changes in the gastrointestinal tract.

Actions to improve access to safe drinking water

The WASH Cluster, with support from the Health Cluster, is coordinating the WASH partners' activities to ensure increased access to safe drinking water for the Gaza population through:

1. Support water service providers in the Gaza Strip in disinfecting the bulk water by providing 100,000 litres of chlorine every month to avoid the biological contamination of the supplied water to the Gaza households.
2. Support PWA and the water service providers in the Gaza Strip in monitoring and mapping the water quality at the supply and distribution level to identify the most vulnerable zones and improve the water supply scheme.
3. Support the emergency operation and maintenance of the water wells and the seawater desalination plants, including the provision of the required mechanical and electromechanical parts and consumable materials.

Key asks and recommendations

In light of the health implications on Palestinian communities and households living in the Gaza Strip resulting from the poor water quality, the WASH and Health Clusters call upon:

Development Partners: to prioritise funding the WASH and Health projects that deal with the water quality problems in the Gaza Strip, including providing water disinfection materials, increasing the productivity of the alternative water resources and upgrading the water supply infrastructure to ensure adequate distribution of the available potable water.

Israeli authorities: to allow restriction-free entry of required water quality monitoring and water disinfections materials and tools in the Gaza Strip, as well as for the operation and maintenance of water wells and desalination plants.

PalestinianAuthority: allocate the necessary resources and accelerate the planning and implementation of the bulk water production and supply projects in the Gaza Strip.

Clusters partners: to support the PWA and the water service providers in monitoring the water quality in Strip and raising public awareness about the recommended water management and use practices.