



Report of the State Comptroller of Israel |  
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The Water Authority

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# **The Supply of Drinking Water in Times of Emergency**





# The Supply of Drinking Water in Times of Emergency

## Background

Water is an essential and existential commodity for humans and nature. The water sector incorporates diversity of entities responsible for various aspects of the production and supply of water and the maintenance of water infrastructures. These entities differ in size, nature (public or private), geographical location, operational characteristics, and importance to the water sector. The water suppliers include the Mekorot Company, 257 local authorities, 56 water and sewage corporations, and hundreds of other local water suppliers. According to the Water Authority: "In a situation of massive destruction of infrastructure, there may be temporary water shortages in different areas of the country due to the need to transport the water from areas that were not damaged." Therefore, an earthquake is the most serious reference scenario for which the water sector should prepare in terms of water supply in emergency.



## Key Figures

**about 2.4  
million  
residents**

residents of local authorities<sup>1</sup> not adequately prepared for water supply emergency

**about  
400,000  
residents**

the population to which the Water Authority is prepared to assist in an emergency, through its means, in addition to the water suppliers' means

**over  
1,000**

water suppliers in the rural communities of which the Water Authority has no sufficient information regarding their emergency preparedness

**in 18  
hospitals  
(about  
30%)**

of the 59 audited hospitals supervised by the Ministry of Health, with no pooling of water required to meet emergency needs

**about  
13,161  
hospital  
beds**

are found in hospitals with water reservoirs that are not Earthquake-proofed

**in about  
38%**

of the local authorities whose preparedness for emergency water supply was examined by the National Emergency Management Authority (NEMA) and the Water Authority, have no water distribution plan for populations that require special attention in the event of damage to the water supply

**12 liters  
per person**

residents are required to store in their homes for emergencies. The Water Authority has no information regarding the implementation of this directive

<sup>1</sup> It was found that some of these Local Authorities Incorporated in a water corporations, are not prepared for water supply in emergency even though their water corporation is prepared



## Audit Actions



From June to December 2021, the State Comptroller's Office examined the Water Authority and various water suppliers preparedness to supply drinking water in an emergency in the following aspects: the reference scenarios and service goal; the Water Authority's measures to prepare for water supply in emergencies; the water and sewage corporations, local authorities and hospitals preparedness to supply water in an emergency; tie-up of contractors during the recovery phase; coordination between the parties, the division of responsibilities between them and the enforcement of their instructions; and regulating the cyber protection and supervision of water suppliers. In addition, an analysis was carried out on information collected and processed from the audits findings in recent years by the Water Authority and NEMA in 95 of the 159 local authorities incorporated into water and sewage corporations; in 16 of the 23 local authorities required to incorporate that did not incorporate; in 51 of 54 regional councils and the water and sewage corporations. The audit was conducted at the Water Authority. Completion examinations were conducted at the Ministry of Energy, Health, NEMA, Mekorot, and the National Cyber Directorate (NCD).

## Key Findings










**Establishment of a Command and Control System (C&C) for Water Crises and Supply of Water in Emergency** – as of the audit completion, December 2021, the Water Authority has not yet implemented the national C&C system for the water sector. In the absence of a system that gives a situation report, the ability to draw wide-ranging conclusions about the entire water sector, set priorities, and make decisions based on complete information is impaired and may also impair the ability to manage emergency events in the water sector.



**The Preparedness of Local Authorities for Water Supply in Emergencies** – about 2.4 million Israeli residents (about a third of the residents of the local authorities examined) live in local authorities that are not adequately prepared for water supply in emergencies. The percentages of audited local authorities not optimally prepared for water supply in an emergency are about 58% of the incorporated local authorities, about 62% of the audited local authorities required to be integrated and have not yet been integrated, and about 57% of the regional councils. It was also raised that 40 (about 75%) of the incorporated local authorities, whose level of preparedness for a water crisis is insufficient, are in high-intensity earthquake areas of level 8 or more.



-  **The Tie-Up of Contractors** – about 50% of the water corporations in the central and southern regions are not adequately prepared for an emergency regarding tie-up of contractors. It was also found that the Water Authority has no complete situation report of the contractors who provide essential services to corporations in an emergency. Therefore, it is difficult to ensure that each corporation has enough contractors who can provide a service recovering water infrastructures after a water supply crisis.
-  **The Gap Between the Water Corporations and the Incorporated Authorities' Preparedness to Supply Water in an Emergency** – about 87% of the corporations are almost very well prepared or highly prepared, compared to about 40% of the incorporated local authorities, which were similarly prepared. This gap may affect the overall ability to supply and distribute water to the local authorities' residents in an emergency.
-  **Preparedness to Assist Populations Requiring Special Attention in Case of Damage to the Water Supply (special attention populations)** – 36 of the 95 incorporated local authorities (about 38%) have no outline for distributing water to the special attention population.
-  **Regulation and Control in the Rural Sector** – the preparedness of the regional councils and the water suppliers in the rural sector for water supply in an emergency has not been fully regulated. The Water Authority does not conduct preparedness audits among over 1,000 water suppliers in the communities (including the local committees and the agricultural cooperative societies). It has no situation report on its readiness to supply water in an emergency.
-  **Storage of Water in Homes by the Residents** – according to the Water Authority guidelines, residents should store 12 liters per person at home to prepare for an emergency. The Water Authority has no data on the above mentioned, it did not raise the residents' awareness to store water as required, nor did it distribute questionnaires or surveys among the public to gauge their awareness to store water for emergencies. Therefore, the Water Authority has no situation report on the number and rate of residents prepared for the first days of an emergency event with no water in the taps.
-  **Distribution of Bottled Water in Emergencies** – one of the components of the national reserve is bottled water. The preparation of bottle manufacturers and supermarkets for producing water bottles and their distribution has not been regulated. The Water Authority has no written agreements with the bottle factories and supermarkets ensuring the preparedness of the bottle factories and supermarkets to supply bottles, transport and distribute them in an emergency to the citizens in the supermarkets.
-  **Pooling of Water in Emergency in the Hospitals** – in 18 (about 30%) of the 59 hospitals supervised by the Ministry of Health, the water pooling required to fulfill emergency needs is not carried out. In 5 out of 59 audited hospitals, there is a gap of



over 30% between the pooling volumes required for their functioning in an emergency and the volume available to them. The situation is dire in three private hospitals with no pooling; the water reservoirs in 39 hospitals, which are about 69% of the hospitals with water reservoirs, are not earthquake protected.



**Establishing a Reserve of Equipment for Emergency Water Supply** – the Water Authority established a reserve of equipment to serve as a backup for the alternative water distribution equipment found among the water suppliers to help the water suppliers in an emergency. As part of the aforementioned reserve, as of December 2021, the Water Authority holds equipment to distribute water to about 400,000 residents.

**Initiating the Establishment of an Operational System** – Mekorot Company initiated in September 2020 the establishment of an operational plan for the national water supply management, whose data will be made available to the Water Authority and can assist in managing emergency events. The system is intended to be operational in 2027, but parts are expected to operate starting in 2023.

## Key Recommendations



It is recommended that the Water Authority ensure that the water suppliers will encourage residents to store water in their homes and that it examines their actions on the subject as part of the audits it carries out. It is also recommended that the Water Authority periodically survey the public's awareness of the need to store water for emergencies, among other things, through a survey based on the estimated number and rate of residents prepared for the first days of an emergency. It is also recommended that the Authority encourage water storage in homes through advocacy actions and cooperation with the Home Front Command.



It is recommended that the Water Authority and NEMA formulate a comprehensive plan to improve the preparedness of the local authorities whose level of preparedness for the supply of drinking water in an emergency is not adequate and implement it. It is also recommended that the Water Authority, the Home Front Command, and NEMA conduct joint training and exercises for the water corporations and the local authorities affiliated with those corporations to improve their preparedness level for an emergency from the citizens' perspective, and in particular in incorporated local authorities whose level of preparedness is not optimal, such as Hadera and the local authorities included in the "Great Shefaram Water & Sewage" corporation. In addition, it is recommended that the Water Authority and NEMA conduct repeated audits in local authorities that are required to be incorporated and have not yet been included, in particular in local authorities located in



areas prone to a relatively high risk of earthquakes that have not been audited in recent years; or that have been audited and found to be unprepared.



The Ministry of Health should ensure that water pooling is carried out as required in all hospitals, particularly in the government hospitals owned and supervised by the state. The hospitals that do not have sufficient reservoirs should establish the necessary water reservoirs and protect them from an earthquake. The Ministry of Health should prepare, in cooperation with the hospitals whose water reservoirs are not protected, a multi-year plan to minimize the disparities in this vital area and monitor its implementation.

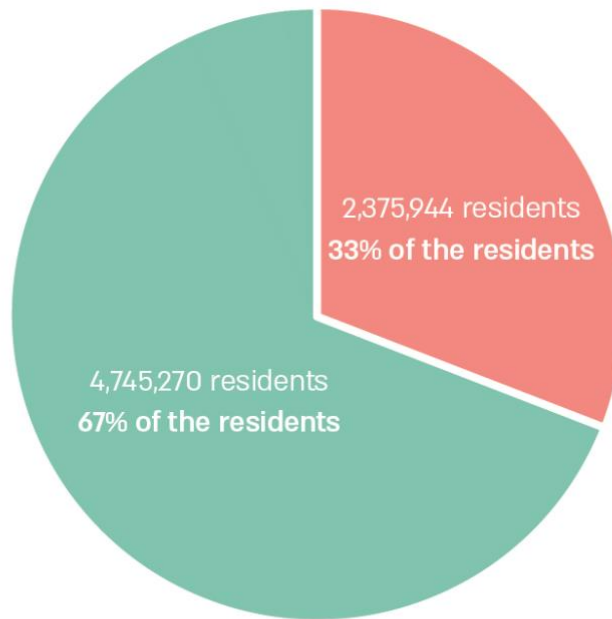


It is recommended that the Ministry of Interior, as the regulator of the local government, the Ministry of Defense, the Home Front Command, the Ministry of Labor, Welfare and Social Services, and the Water Authority regulate the preparedness of the local authorities and the essential enterprises for civil emergencies such as an earthquake, including the regulation of appropriate measures, which will enable local authorities to enforce municipalities that are not adequately prepared for water supply during an emergency to fulfill their obligation regarding the required preparation. Furthermore, it is recommended that the Ministry of Energy and the Water Authority regulate the formulation of water security rules, as stipulated in the Water Law.





### The Number and Rate of Residents in Audited Local Authorities, Segmented According to Their Level of Preparedness for Water Supply in an Emergency



■ The extent of preparedness  
"unprepared" – "well prepared"

■ The extent of preparedness  
"almost very well prepared" –  
"highly prepared"

According to the State Comptroller's Office's analysis and processing of the findings of audits conducted in recent years by the Water Authority and NEMA in 95 of the 159 local authorities that were incorporated into water and sewage corporations, In 16 of the 23 local authorities required to incorporate and that were not included; In 51 of 54 Regional councils and the water and sewage corporations.



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## Summary

Water is an essential and existential commodity for humans and nature. Disruption of the water supply or damage to drinking water quality may affect public health and orderly life routines. The potential threats to the water supply are diverse and may materialize without prior warning. According to the National Emergency Management Authority (NEMA) and the Water Authority, the most severe reference scenario the water sector should prepare for in terms of water supply during an emergency is an earthquake.

The Water Authority has no information on the amounts of water the residents store for times of emergency. It has not raised the public's awareness of the need to store water as required, and the water suppliers are not fully prepared for an alternate water supply. 30% of hospitals have no water reservoirs sufficient to meet their emergency needs as required, and in three hospitals, no emergency water reservoir was even established. The water reservoirs in most hospitals are not earthquake protected. The Ministry of Interior, the Water Authority, and NEMA should improve the preparedness of small local authorities with a low socio-economic level for water supply in an emergency. It is recommended that these entities consider providing an alternative solution for water supply in the first hours after an emergency. The Ministry of Energy, the Water Authority, the Ministry of Health, and the hospitals should consider the recommendations in this audit report and rectify the noted deficiencies.