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## **Preparing for an Earthquake: Responses by the Public and the Authorities**

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The United Nations Office for Disaster Risk Reduction (UNISDR) estimates that in the past 20 years, approximately 1.3 million people were killed and approximately 4.5 billion were affected by natural disasters, including earthquakes. Yet the number of casualties caused by the earthquake in Haiti in 2010 varied sharply from the number of casualties caused by the earthquake in Christchurch, New Zealand in 2011. The earthquake in Haiti was of similar magnitude as the major quake in Christchurch, but the human toll was significantly higher: 185 people were killed in the Christchurch earthquake, versus an estimated number of more than 220,000 killed in Haiti. Clearly, then, it is not the magnitude of the disaster or natural hazard that determines its impact.

A state of national emergency resulting from a high-magnitude earthquake is expected to occur in Israel, which is situated on the Syro-African Depression. The last serious earthquake in Israel took place in 1927, and statistically, an earthquake rated 6 or more on the Richter scale occurs in Israel on average once every 80 years. According to the updated preparation framework for earthquakes in Israel, as published in a report by the Knesset Research and Information Center, the number of people who will be killed by a possible earthquake in Israel is estimated at double the number of all the people killed in terrorist operations in Israel in the state's seventy years of existence. In addition, a study in Tiberias showed that in an earthquake rated 6-7 on the Richter scale, 55-95 percent of the buildings in the city will likely be damaged. Planning policy and legislation for an emergency situation caused by an earthquake, and drills for first responders and the general population are therefore very important in order to improve the response and moderate what is likely to be severe and widespread damage.

Israel's eleventh annual national emergency exercise was held in the second week of June 2017. All the emergency agencies, including the local authorities, public service agencies, and emergency and rescue organizations, held a joint exercise to test their

response to an earthquake. One of the main objectives of the exercise was to promote the essential cooperation between the emergency and rescue agencies, which are the first responders in emergency situations, and to expose the capabilities of professionals and the general public. This goal is consistent with the principle whereby successful handling of any emergency situation requires first of all strong preliminary preparation for an emergency, at both the policy and the institutional levels. The exercise presented a new approach to first response preparations, namely, concentrating these agencies in a single location as service suppliers for people in an emergency in order to provide a response to every need, basic or extreme. This differs from exercises conducted around the world that do not concentrate first response agencies in one place.

The National Emergency Management Authority (NEMA), which is responsible for the preparation, coordination, and guiding of government ministries, local authorities, and civilian agencies in emergencies, was given responsibility for the exercise. NEMA selected Karmiel, which was hit by 200 rockets and suffered heavy damage during the Second Lebanon War, to test the operational model for responding to earthquakes. To be sure, natural and man-made disasters require different standards of protection and a different response from civilians in the theater. However, both missile attacks and earthquakes do not necessarily occur in a single place, and can occur simultaneously in a number of places. This is likely to create difficulties in allocating, using, and moving forces. Thus the exercise site was divided into a number of stations in the city with representatives of all the agencies active in the emergency system, including the local authority and civilian organizations. These tested and presented material on the distribution of information to the public, recruitment and assignment of volunteers, psychological support, and distribution of food and equipment. Data collection systems were joined by medical and logistics responses, and assisted by cooperation between the local authorities and the emergency and rescue agencies.

The National Emergency Week took place against the background of the 2015 State Comptroller's Report, which criticized the government for "inadequately raising Israel's readiness for emergency situations caused by war, security events, and national disasters." The report included a long list of lapses, and cited the importance of preparations for various emergency situations, including those caused by natural disasters, such as earthquakes. The State Comptroller's severe criticism prompted the security cabinet to devote a special discussion during the exercise to questions involving evacuation of the population during an emergency.

In advance of the exercise, NEMA conducted a survey examining public awareness of the likelihood of earthquakes and preparedness by the public and all the relevant agencies for this scenario. In response to a question about the main threats for which the government

should prepare, only 0.8 percent of the respondents cited an earthquake, while 30 percent cited terrorism/intifada, 14 percent cited a security threat, and 13 percent cited a socioeconomic threat. In response to the question “In your opinion, what is the likelihood that Israel will experience a major earthquake in the coming years,” 25 percent answered that it was very likely, while 31 percent believed that it was unlikely. These results indicate that the public’s awareness of an emergency of this type and the risk that it is likely to entail is low, and thus reinforces the need for including the general public in the exercise - particularly given the estimated number of fatalities resulting from an earthquake.

The gap between the risk and the estimated damage resulting from an earthquake and the population’s perception of the risk and the damage should cause concern among the emergency authorities in Israel. The agencies responsible for emergency preparation in Israel, however, maintain that an intensive explanation of the possible risks and damage that can result from an earthquake in Israel is likely to sow unnecessary panic among the population. The desire to refrain from frightening the public is the reason for the lack of adequate explanation in routine times about an emergency situation resulting from an earthquake. However, at issue is not merely increasing the public’s awareness of the risk; more important is a strategy by the emergency authorities to enhance the public’s preparation for successfully coping with earthquakes.

Advanced preparations and readiness for emergency situations such as earthquakes are essential in order to foster a culture of preparedness, which requires strong civilian involvement. At the same time, one of the difficult challenges faced by the organizers of the exercise was the involvement of the civilian population. The emergency authorities have striven to prepare for dealing with possible risks stemming from an earthquake, but due to the public’s absence from the exercise, system-wide preparation by all the parties involved is as yet insufficient.

The question that arises then is: how should both public awareness of emergencies and the involvement of civilians in drills be enhanced, in order to improve the public response to emergencies? One way is to inform the public and train it for the experience, including introducing people to means of first aid and communications. A certain degree of self-capability should be developed in order to reduce the total dependence on first response agencies, for example, by delegating authority among members of communities. Their combined actions will support the state response to an emergency. Additional possible practices, all of which should be well rehearsed, are training community leaders and reinforcing instructing in schools, offices, and the public space, along with preparing proper use of the social media and conventional mass media (television, radio, and the press) in order to raise concern among the public. These and other measures can be

utilized when necessary, and thereby help to mitigate the damage that otherwise may befall the public at large.