

## 5 things to know about earthquake search and rescue operations

It's not just digging into the rubble in the hope of saving lives. It takes much more effort to rescue people trapped under walls and debris.



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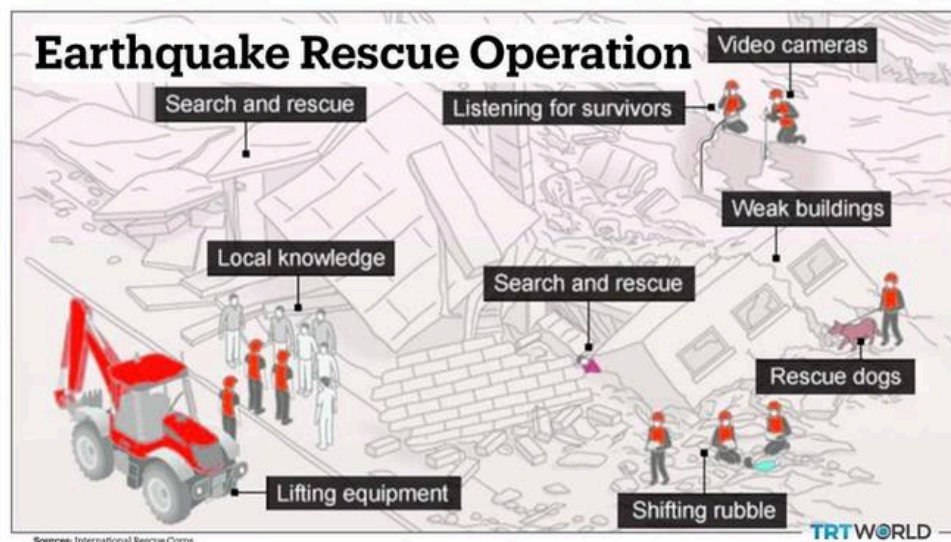
Search and rescue works continue after a 7.4 magnitude earthquake hit southern provinces of Türkiye, in Malatya, Türkiye on February 6, 2023.

A large-scale search and rescue operation started after an earthquake of 7.7 magnitude centred in the Pazarcik district of Kahramanmaraş province struck southeastern Türkiye, leaving hundreds of people dead and thousands injured.

The entire region reeled from 78 aftershocks, including those with higher magnitudes (6.6 and 6.5), encompassing southeastern Gaziantep province as well, according to Türkiye's premier Disaster and Emergency Management Authority (AFAD).

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A map of how a search and rescue operation is carried out by the agencies and volunteers.

AFAD officers, 27 accredited municipality and NGO officers, search and rescue volunteers totalling 9698, and 216 vehicles were immediately dispatched from Istanbul to support local responses in the earthquake zones.

A total of 300,000 blankets, 19,772 tents, 24,172 beds, 47,176 pillow-sheet sets and 1,106 kitchen sets were sent to the region, AFAD said on Twitter.

But how exactly does such a large and complex operation work?

Here are 5 key things to keep in mind.

### 1. Coordination:

The first step is to mobilize search and rescue crews, who are frequently highly skilled volunteers, with at least two-year training processes.

### 2. Analysing and looking for voids:

As soon as the rescue team arrives on the scene of the accident, the first thing they do is to assess the situation, evaluate the building, its history whether it is old or new, and try to figure out where in the building people are most likely to be.

Rescue workers look for voids, such as under desks, in bathtubs, or in stairwells where victims of wall collapse might become trapped or may have

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It is also crucial to assess the extent of a building's damage and whether it is likely to fall again, endangering survivors and rescue workers.

Similarly, rescue workers should look for dangers like downed power lines, gas leaks, flooding, and other hazardous items. Special suits, gloves, masks, and oxygen and carbon air quality monitoring devices are all examples of protective equipment.

### **3. Paying attention to faintest noises:**

The smallest noises can be located within a few meters with the use of specialized sound equipment. The site must remain silent while a rescue team member hammers three times in the hopes of getting a reaction.

Carbon dioxide detectors can be used to locate unconscious survivors. They function best in small areas where there is a higher concentration of CO<sub>2</sub> from people who are still breathing because of this.

The thermal image camera system, which shows areas of body heat, and trained sniffer dogs are among the research tools.

### **4. Debris removal and victim extrication:**

The situation must be stabilised before pulling survivors out of debris. This is done by building a rectangular wooden framework known as "box crib" and placing it underneath the debris.

Rescuers use a variety of heavy equipment to move rubble, including hydraulic jacks and diggers. Once an entry is secured, paralyzed victims are lifted, dragged or carried out of the debris with special safety equipment.

The workers can view any trapped individuals inside by using diggers to rip apart large concrete slabs on a building's exterior. To cut through the wreckage, chainsaws and other power tools are also carried.

Other tools might include "shoring" equipment, which provides stable and secure pathways, and flat bags that are placed below large objects and inflated with an air pump.

As survivors are extracted, their health status is assessed; individuals are prioritised using triage, which is dependent on how serious their conditions are. The most urgent medical procedures usually start on the site.

### **5. Deciding when to end:**

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found to survive for up to 13 days if they had access to water, the average period for this changeover is between five and seven days.

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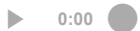
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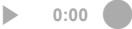


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