



# Earthquake Preparedness Toolkit

## Summary

OSAC members with operations in and travel to high-risk seismic regions should prepare for the possibility of earthquakes and tsunamis, with emergency preparedness plans practiced and ready for implementation should the need arise. Earthquakes pose an immediate threat to the physical safety of personnel, but also cause multiple tertiary hazards and security issues, including fires, hazardous leaks, and damaged infrastructure, not to mention impassable roads, limited communications, and unavailable emergency services. OSAC created this guide to assist members with natural disaster emergency planning.

## Recent Earthquakes Demonstrate Importance of Preparedness

On February 6, a magnitude 7.8 earthquake struck southern Turkey near the border with Syria, followed nine hours later by a magnitude 7.5 earthquake in the southwest. It was the most devastating earthquake to hit Turkey in more than 20 years, and caused over 50,000 deaths, displaced 1.5 million people, and resulted in widespread damage in an area approximately the size of Germany. Over 160,000 buildings were either destroyed or severely damaged, with an additional 150,000 commercial infrastructure damaged as well.

Turkey's devastating earthquake, one among many, has highlighted the need for U.S. organizations and their staff to be prepared for an unexpected seismic event. Countries across the world also pose significant seismic risk, not just because of the frequency of earthquakes in the region, but because of the vulnerability of the infrastructure to the shock itself and the government's incapacity to handle an emergency response.

Many substandard Soviet-era buildings across Kazakhstan may crumble with a major earthquake, leading to a larger scale of fatalities and destruction than if modern earthquake-resistant structures were in their place. Multiple other countries face similar risks. In Bangladesh, an earthquake of magnitude 7 could cause hundreds of thousands of deaths and massive destruction to buildings, bridges, and utility services. The risk posed by seismic activity in Bangladesh is compounded by its major cities' poor infrastructure: unplanned electricity transmission and gas lines, widespread construction that do not comply with building codes, and other factors increase the likelihood of casualties.

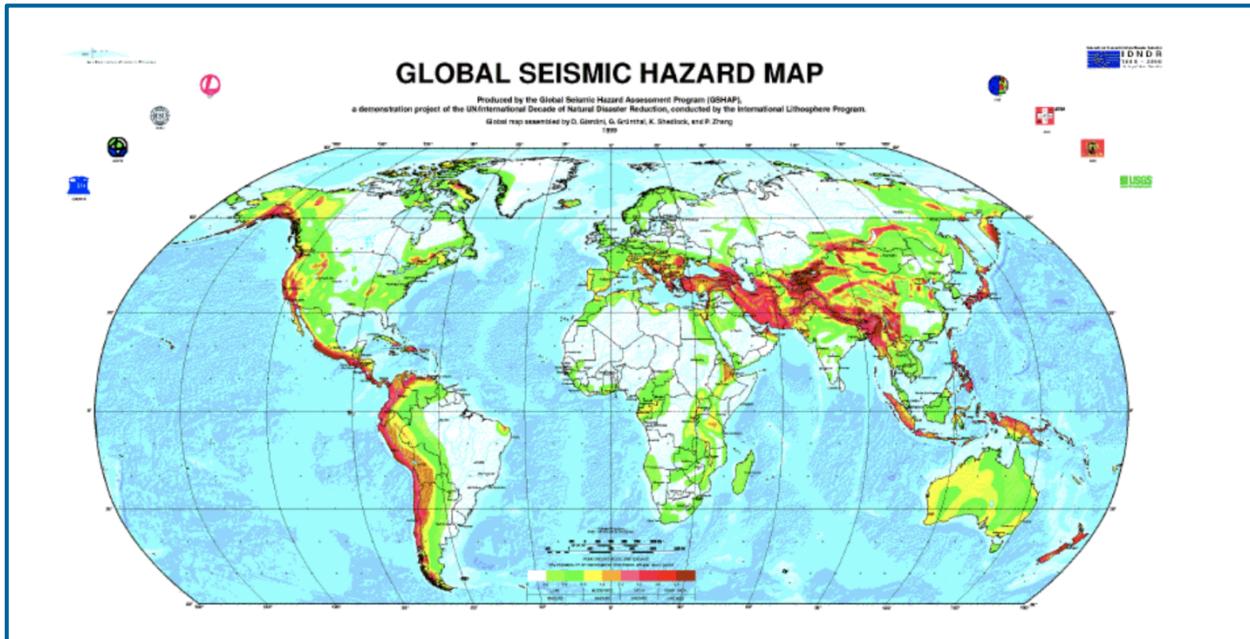
## Where is the Risk of Earthquakes the Highest?

Seismic hazard is the risk of earthquakes in a particular area, calculated by considering past earthquakes, fault lines, and sometimes soil data and building structural performance. The interactive [FM Global Worldwide Earthquake Map](#) calculates the probability that an earthquake will cause severe damage in a particular location.

The risk of seismic activity varies within and between regions. High-risk seismic regions are typically found along coastlines, though this is not always the case. The active earthquake zones in South America stretch along the continent's Pacific border and along the Caribbean coast of Colombia and Venezuela. The Asian continent has multiple high-risk zones, particularly where the Australian tectonic plate wraps around the Indonesian archipelago. Japan sits astride three continental plates, and while the continent of Australia has a low to moderate risk of quakes, New Zealand is one of the highest risk locations for

seismic activity in the world. Meanwhile, Northern Europe contains few high-risk earthquake zones, but the risk significantly increases as you move southeast toward Greece and Turkey. Africa and the Middle East have very few seismic zones compared to other continents, though pockets of activity exist, such as in Lebanon.

For a more detailed map of seismic zones, see the [Global Seismic Hazard Map](#) below and the corresponding regional breakdowns. This multi-year project, sponsored by the United Nations, was developed in 1999 to help nations prepare for future earthquakes and take steps to mitigate potential damage and deaths. The data it gathered remains accessible and broadly accurate.



## Mitigating Seismic Hazard

U.S. organizations should consider assessing the seismic hazard their personnel face in a particular location by determining the likelihood of seismic activity in conjunction with the vulnerability of local infrastructure and company facilities to severe damage. Earthquakes are a threat to local staff and travelers [alike](#). While it is possible to determine the relative risk of seismic activity in a particular location, accurately predicting a severe earthquake with any precision is [nearly impossible](#). Therefore, it is important to take preemptive steps to mitigate your organization's vulnerability to seismic hazard, assess resources, and prepare crisis management processes you will implement if, or when, a major earthquake occurs.

## Vulnerability Assessment

One component of a seismic hazard assessment of your operations includes an evaluation of the vulnerability of the infrastructure in the area of your operations. This factor may be a significant determinant of the collateral risk your personnel face overseas; for example, infrastructure resiliency varies between countries facing similar risk levels (such as Nepal and New Zealand) and even between locations within a country. These risk factors come with the area of operations, so it is up to your organization to determine the level of risk you are willing to tolerate.

However, the structural vulnerability of your organization's facilities and accommodations are a more controllable factor. You can predict many of the hazards to workers during and following a shock, and it is possible to mitigate them by identifying them, planning around them, and addressing known issues.

Consider making improvements to your building to fix structural issues that could cause your building to collapse during an earthquake. This means you must evaluate:

- Your location
- Your facility
- Your financial vulnerability
- Your personnel

According to the Occupational Safety and Health Administration's (OSHA) earthquakes guide, workers in a facility impacted by an earthquake are primarily at risk of: being struck by structural components or furnishings, inadequately secured stored materials, burns resulting from building fires due to gas leaks or electrical shorts, or exposure to chemicals released from stored or process chemicals.

### Systematize Your Crisis Preparations

Make a plan for you, your personnel, and your organization to follow in the event of an earthquake, even if your security team is not based in the country it occurs in. Preparing a systematic crisis response plan specific to earthquakes will [allow you to focus on protecting your personnel](#), rather than figuring out what to do. It is also essential to brief your personnel on this plan and they demonstrate their understanding; this creates buy-in, reduces fear and anxiety in the moment from lower through upper-level management, and lets everyone know how to respond.

Security managers may find it difficult to account for personnel during such an emergency. OSAC members operating in seismically active zones should prepare staff for the possibility that they will need to provide for their own needs for an extended period of time, whether at work, at home, or on the road.

Consider using the [FEMA Earthquake Safety Checklist](#) as a basis for your plan. A few elements of your crisis preparation process could include:

- Drills to conduct with all levels of staff
- Awareness sessions for your staff about the risk of earthquakes and what to do during one
- Identify safe zones where staff should go
- How to create a Go Bag: see [Before Disaster Strikes: Preparing Your Go- and Stay-Bags](#)
- Liaise with local and national government offices – one option to consider is to ask for your organization to be included in emergency drills

### When it Happens

When it happens, an earthquake is a surprising and disorienting event. Rather than freeze or make an uninformed choice that could put you in further danger, remember a few simple steps recommended by [Ready.gov](#):

- If you are in a car, pull over and stop. Set your parking brake.

- If you are in bed, turn face down and cover your head and neck with a pillow.
- If you are outdoors, stay outdoors away from buildings (more than ten feet).
- If you are inside, stay. Do not run outside and avoid doorways.

During an earthquake, remember three things: Drop, Cover, and Hold On.

- Drop on your hands and knees, and hold onto something stable.
- Cover your head and neck, and bend over to protect vital organs. Crawl underneath a sturdy table or desk for shelter. If there is no shelter, crawl next to an inner wall unless there is debris.
- Hold on to the table or desk, and move with it if it moves.

After the shaking stops:

- There can be serious hazards even after an earthquake stops, such as a damaged building, downed power lines, and leaking gas/water mains. Fire is the most common earthquake-related hazard.
- If you are in a tsunami-prone area, go inland or to higher ground immediately.
- If you are in a damaged building, now is when you go outside quickly and move away from the building. Always use the stairs.
- If you are trapped, bang on a pipe, wall, or send a text. Cover your mouth with your shirt and use a whistle instead of shouting.
- Expect aftershocks to follow.

Aftershocks can often follow the main shock in the hours, days, weeks, or months after the initial quake and cause further damage to buildings. Be mindful that some earthquakes are actually foreshocks to a larger seismic event.

Once you are safe, pay attention to local news reports for emergency information and instructions via battery-operated radio, TV, social media or from cell phone text alerts.

The U.S. Mission to the country may distribute a list of host government Rally/Contact points. After an earthquake, you should send a representative from your household or community to communicate with a warden at the nearest Rally/Contact point. Rally points may have information posted regarding possible evacuation options, general welfare assistance, and other relevant updates. Again, be prepared to provide for your own needs for an extended period of time: evacuation may not be safe or possible, as a major earthquake could damage runways and other aviation infrastructure for some time. Ensure that all travel documents are up to date.

In a disaster, U.S. Embassy Consular officers face the same constraints as everyone else – lack of electricity or fuel, interrupted telephone lines, closed airports, etc. The Embassy/Consulate officers must give priority to helping Americans who have been hurt or are in immediate danger.

## Create a Business Continuity Plan

Consider the following questions in your Earthquake crisis response plan:

- How will you respond to interruptions in operations and/or a loss of essential utilities and services?

- How will you calculate damage and assess personnel safety?
- Where could personnel find temporary shelter, emergency transport, and essential services in the event of an earthquake? Do they know this information, and is it available offline?
- Are emergency contact points available to personnel offline? (This should include the U.S. Embassy's American Citizen Services number, if relevant)
- What will be your communication procedures for reaching personnel and customers?
- What are your back-up supply chain alternatives?
- How will you protect sensitive or critical materials – either physical or informational – in the event of a natural disaster?

## Additional Resources

For more information on crisis management and preparedness, contact [OSAC's Asia team](#).

- OSAC Report: [Crisis Preparedness](#)
- OSAC Report: [Before Disaster Strikes: Preparing Your Go- and Stay-Bags](#)
- OSAC Report: [Guide to U.S. Government-Assisted Evacuations](#)
- [Federal Emergency Management Agency How to Series](#)

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