Environmental Case Study

Earthquake in Turkey

At 3:02 a.m. local time on August 17, 1999, a major earthquake with a magnitude of 7.4 on the Richter scale jarred western Turkey. At the epicenter, near the port city of Izmit and about 100 km (60 mi) east of Istanbul, the ground moved sideways as much as 5 m (16 ft). Shocks were felt as far away as the Turkish capital of Ankara, 480 km (300 mi) to the west. Poorly built apartment buildings and private homes collapsed, burying their sleeping residents under tons of cement and rubble. At least 15,000 people were confirmed dead. 45,000 were injured, and another 35,000 people were missing and believed to be buried by debris. Around 500,000 people were homeless after the quake, many of whom refused to reenter damaged buildings as the ground continued to shake with more than 250 aftershocks over the next few weeks. Although Izmit and its neighboring cities near the epicenter sustained the greatest damage, most deaths and injuries occurred in the heavily populated metropolitan area of Istanbul, home to some 12 million people.

In addition to building damage, the quake collapsed bridges on major highways, snapped electric lines and water pipes, and started fires when gas lines and oil tanks ruptured. Relief efforts were hindered by poor information, government red-tape, travel problems, and lack of emergency preparedness. Although Turkey lies in an highly active seismic zone and suffers earthquakes regularly, only one emergency rescue crew was available when this earthquake struck, and even they lacked the sophisticated videocameras and sensitive listening devices available in other countries. Hot weather, a general lack of sanitation and clean drinking water, and the large number of dead bodies believed still to be buried raised worries about the spread of disease in devastated communities.

Among the reasons that the death toll from this earthquake was so high is the poor quality of construction in many Turkish buildings. Less prosperous than other quake-prone regions like California or Japan, Turkey can ill afford the expensive reinforcing and building stabilization called for by wealthier city’s building codes. Still, even Turkey’s low official building standards are rarely enforced. Corrupt politicians who allowed unethical contractors to bypass even minimal safety codes are blamed for many deaths. In many places a well-constructed building with no damage at all could be seen standing next to others that had collapsed like houses of cards.

Although this was not by any means the largest or most deadly earthquake in history, it reminds us of the powerful forces that shape the earth’s crust, our need to understand something about geology and earth science, and the wisdom of preparing for natural disasters.