

# Science Behind the Killer Earthquake: Why South Asia Must Be Prepared

by Ramtanu Maitra

A devastating earthquake on Oct. 8 flattened most of the western part of the disputed state of Jammu and Kashmir, belonging to Pakistan. The earthquake, which registered 7.6 on the Richter scale, struck during the morning when children were in schools. Thousands of children were killed, wiping out almost the entire next generation in this area. As of now,

officially, the death toll is above 30,000, but due to landslides and roadblocks, many remote villages remain out of reach and incommunicado. It is a certainty that the death toll will turn out to be much higher.

The hard, rocky terrain of Kashmir and northern Pakistan, where the land rises suddenly, will not give up its dead as easily as the sea did following the tsunami that took thousands of lives in south and southeast Asia last December. Inaccessibility, aggravated by the destruction of roads and bridges, lack of resources, and the onset of wet weather, is seriously hampering rescue and relief efforts.

## Report From the UN: Earthquake Toll Mounting

Since South Asia was struck by a major earthquake Oct. 8, this disaster area—mainly Pakistan—continues to be the first item at the daily noon briefing at the U.N., and for good reasons. The massive destruction of major towns and entire villages (UNICEF estimates that 140,000 schools have been destroyed), the very difficult mountainous terrain, the approaching winter weather, and the enormous damage to roads, water, and sanitation make this the most difficult disaster to respond to in recent memory, according to a report from the World Health Organization (WHO).

As of Oct. 19, the death toll stood at 40,000, with at least 65,000 injured. Thousands of people in urgent need of medical attention have still not been attended to, and many injured may die or develop disabilities unnecessarily, because of lack of timely treatment. Reports of gangrene and hypothermia continue to grow, and an estimated 50-60% of the population in need have not yet received any food rations. About 350,000 “winterized” tents are required.

Although there are no reports of outbreaks of epidemics as of Oct. 19, the lack of clean drinking water and sanitation facilities is creating major health threats such as diarrhea, typhoid, and other waterborne diseases. In response to this, the WHO has in the last days sent out an appeal for urgent action to provide safe drinking water for the area. —*Leni Rubinstein*

## Vulnerable South Asia

South Asia is one of the most earthquake-prone regions in the world. Due to a state of unpreparedness, earthquakes in the region have resulted in a colossal loss of life and property over the decades. A cataclysmic earthquake in India's northeastern state of Assam in 1897, registering 8.1 on the Richter scale, killed several thousand people and caused part of the overlying Shillong Plateau to rise up nearly 50 feet in just three seconds. On April 4, 1905, a powerful earthquake destroyed the district of Kangra in northwest India's state of Himachal Pradesh, killing almost 20,000 people. A massive earthquake again struck the northeastern region of India along the Indo-China border in 1950. One of the strongest in the 20th Century, it measured 8.6 on the Richter scale but left little damage in the sparsely populated area.

## The Genesis

About 225 million years ago, India was a large island still situated off the Australian coast, and a vast ocean (called the Tethys Sea) separated India from the Asian continent. When the supercontinent Pangaea broke apart about 200 million years ago, India began to forge northward. By studying the closing of the Tethys Sea, scientists have reconstructed India's northward journey. About 80 million years ago, India was located roughly 6,400 km (4,000 miles) south of the Asian continent, moving northward at a rate of about 30 feet a century. When India rammed into Asia about 40 to 50 million years ago, its northward advance slowed by about half. The collision and associated decrease in the rate of plate move-