



1. The Tsunami

The Worst Natural Disaster in the World

No one predicted the earthquake under the ocean off the coast of Sumatra, measuring 9.0 on the Richter scale, would lead to such a massive human tragedy. The wave generated by the earthquake hit 12 countries around the Indian Ocean, and killed 300,000 people.

The celebrations and parties that Thais had prepared for the New Year of 2005 were immediately cancelled on the morning of 26 December 2004, when the tsunami hit six provinces on the Andaman Sea, destroying the lives and property of thousands of people, as well as coastal habitats and historical sites. It was a year's end that was full of tears and human tragedy, which will be difficult to forget.

The disaster was caused by a violent earthquake at 7:58am, Thai time. The epicenter of the earthquake was under the east coast of the Indian Ocean, near the city of Banda Aceh on the island of Sumatra. The United States Geological Survey measured the earthquake to be 9.0 on the Richter scale. It was the fourth most powerful earthquake ever recorded, and the most powerful for 40 years.

No one predicted that the clash of the continental plates would cause a fissure more than 1,000 kilometers long under the Indian Ocean, which would cause enormous tragedy in Thailand. Water was sucked into the fissure, and was then forced out again, creating a 80-200 kilometers long, traveling at 700-1,000 kilometers per hour. When it reached shallow water, it slowed down, but rose to 10 meters high as it reached the beaches. This was one of the greatest natural catastrophes in the history of Thailand and of the world.

Numbers of people killed, injured, and missing

In the first minute that the tsunami reached Phuket it crashed down on Kamala, Patong, Kata, Karon, and Rawai beaches, sweeping away everything in its path, and causing massive destruction.

Aside from Phuket, the tsunami reached all along the Andaman coast, hitting the provinces of Ranong, Phangnga, Krabi, Trang, and Satun. Phangnga suffered the greatest number of deaths. According to data of 8 March 2005, 5,395 Thais were killed by the tsunami, 8,457 were injured, and 2,932 were missing (see Table 1).

There were 127,282 undocumented migrant workers from neighboring countries in the six provinces. It is likely that many of these people were also killed and injured. Some indication can be gained by looking at the number of fishers who were lost at sea. A total of 1,200 boats of 10 meters or more were missing after the tsunami. Each of these boats had 10-30 migrant workers. If migrant workers employed in hotels and resorts, or on beachfront shops, are also included, then it seems likely that around 2,500 migrant workers were killed. The places with the most deaths were Ban Nam Kem, and Khao Lak, in Phangnga.

The tsunami also caused devastation in seven other Asian countries: Indonesia, Malaysia, Myanmar, Bangladesh, India, Sri Lanka, and Maldives. It even reached four African countries: Somalia, Kenya, Tanzania, and Seychelles. The global death toll was 298,705 people. The most deaths occurred in Indonesia, the country closest to the epicenter of the earthquake, with 237,488 people killed in total. (see Table 2).

Among tsunami deaths across the affected countries, many were tourists from Europe and from Asia. It was, therefore, called a global tragedy.

Destruction of property, lives, and natural features

In the affected provinces, a total of 11,616 houses were damaged, of which 4,363 were totally destroyed. In addition, more than 968 hectares of farmland, 1,224 fishponds, 651 cows and buffalo, 4,044 poultry, 1,214 large fishing boats, and 4,337 small fishing boats were lost. The total value of the productive assets lost was 9,168 million baht. Altogether 503 hectares of coral were partly damaged and 88 hectares were completely destroyed, 992 hectares of beach were damaged, 298 hectares of mangrove swamps were partly damaged, and 89 hectares were badly damaged. Following the loss of lives and property, approximately 20,000 people working in the tourist industry lost their jobs, including about 3,700 people in Phuket, 4,000 people in Phangnga, and 3,000 in Krabi. The government has provided many forms of assistance to these people, including compensation money and help in finding new jobs.

Approximately 10,000 people working in industries that depended on the tourist industry were also affected. These people were not eligible for social welfare.

An organization assisting undocumented migrant workers affected by the tsunami stated on 27 February 2005 that about 1,600 survivors of the tsunami were unemployed because they had lost their personal identification papers. However, no government agency has estimated the number of migrant workers killed or injured in the disaster, or the number of migrants who lost or changed their jobs, or the number of employers who need migrant workers to replace people killed by the tsunami. In addition, the government has not seriously conducted any investigations of migrants who died in the tsunami, has not offered any help to survivors, and has not tried to replace migrants' identification papers.



It is time for Thailand to improve its earthquake and tsunami warning system

The lack of warnings about the tsunami has persuaded people around Asia to establish a warning system. At the ministerial level meeting in Phuket on 29 January 2005, ministers from around the region decided to cooperate in establishing a warning center in Southeast Asia and the Indian Ocean. Under the resolution, the United Nations would supervise the installation of the warning system including the establishment of a fund that would provide supports to the warning system installation. Thailand is also establishing a broadband satellite system, connected to the warning system in Hawaii.

However, early warning systems based on local wisdom should also not be overlooked. Traditional instructions about what to do when the sea rose and fell helped the Morgan people and many tourists narrowly escape death. Similarly, fishers in the village Laem Tookkæ on Siræ Island in Phuket observed that the sky appeared unusual, and that many marine animals swam to shore on the morning of the tsunami. The fishers decided that something strange was happening, and prepared themselves for danger. No one in this village was killed in the tsunami.

Television, the most powerful mass medium, failed to give warnings or adequate information on the first day of the tsunami. Television stations, whether public or private, have to ask themselves in natural disasters, what can they do to reduce loss of life and property? In addition, what can the government do to make television more useful to society? News programs currently compete among themselves to mislead viewers with feel-good stories, devoid of content, rather than quality programs.

Money also needs to be invested in an earthquake warning system, because most Thais know nothing about earthquakes, and because no Thai government has ever invested in research on earthquakes. The first step would be to investigate the nature of the fault lines passing through Thailand. Preparing for an earthquake is difficult, because natural events are hard to predict. However, it is possible to prepare measures to protect tall buildings from the effects of tremors. In terms of the plans on national earthquake system, the government has laid out the plans as following.

1. Establish an information center in Bangkok that will coordinate different agencies, such as the Department of Meteorology, the Department of Geological Resources, and the Department of Pollution Control. All data will be provided to technical experts, who will decide whether to issue a warning.

2. Construct a warning system to send data to the information center, which will distribute it to all radio and television stations, to 150,000 amateur radio operators, and to the message services of more than one million mobile phones.

3. Construct warning towers in high-risk areas. This will be completed by the end of 2005. The first towers will be built in the southwestern provinces that experienced the tsunami. The next will be set up in the Southeast, and then finally in the eastern part of the Gulf of Thailand, and in low-lying areas near water. These towers will use battery or solar power, and will be sent information by satellite. Even if electricity is cut off, the communication system will be intact. The towers will broadcast spoken warnings and use sirens. With 20-30 meters high, the towers will be able to withstand wind and waves, and will have warning lights at night.

Help from many sources

After the crisis, Thais from every part of the country came to the six affected provinces to help. There was a saying that the 'wave of kindness from Thais was many times bigger than the tsunami.' Large numbers of volunteers worked without rest, alongside survivors and local people. In addition to sympathy from Thais, other countries sent help in the form of medical teams, police, forensic science teams, counselors, relief supplies, money, and volunteer translators.

The government instructed the Ministry of Interior and the Governors from the affected provinces to mobilize police, soldiers, local officials, and volunteers to assist the survivors, and to mobilize doctors and nurses to treat the injured and carry out post-mortems. The government worked with embassies to assist foreigners. It also began to prepare plans for rehabilitation, including mental recuperation and the repair of public buildings, career rebuilding, tourist sites, and ecological recovery.

The disaster demonstrated that Thailand has abundant social capital when facing a natural catastrophe. Thais helped themselves, one another, and people from other countries, before the arrival of official assistance. The kindness shown by Thais received praise from the Scandinavian tourists.



Natural barriers are the best defense against natural hazards

The Ministry of Natural Resources and Environment has assigned Chulalongkorn University to bring together academics from educational institutions to make plans for environmental recovery consisting of four plans on natural resources, information technology and natural resource database, environment preservation areas, and the recovery of damaged marine national parks.

However, experience with the tsunami shows that nature provides the best protection against natural disaster. The tsunami caused enormous damage to areas along beaches, but much less damage in areas where there were mangroves. Places with natural barriers, such as the fertile mangrove of Ban Bang Ben, Ranong province, escaped much of the devastation received by places without barriers, or where the barriers had been removed.

Are we ready to recognize the importance of nature and to live in ways that are in harmony with it?



Table 1 Number of people killed, injured or missing from the tsunami (As of 8 March 2005)

Province	Killed	Missing	Injured
Phuket	279	620	1,111
Phangnga	4,224	1,733	5,597
Krabi	721	569	1,376
Ranong	160	9	246
Satun	6	0	15
Trang	5	1	112
Total	5,395	2,932	8,457

Source: www.disaster.go.th/news01/1247/news_after_shock_97.pdf

Table 2 Number of people killed, injured, and missing from the earthquake and tsunami, by country (As of 24 February 2005)

Country	Killed	Missing	Injured
India ¹	10,872	5,766	7,214
Indonesia ²	123,487	113,961	1,736
Malaysia ¹	68	6	767
Maldives ¹	83	26	1,313
Myanmar ¹	61	3	43
Sri Lanka ¹	30,974	4,698	23,176
Bangladesh	2	-	-
Thailand	5,395	2,932	8,457
Somalia ²	298	-	-
Kenya ²	1	-	-
Tanzania ²	10	-	-
Seychelles ³	3	-	-
Total	171,254	127,392	42,706

Source 1. World Health Organization
http://w3.whosea.org/EN/Section23/Section1108/Section1835/Section1862_8812.htm accessed 24 February 2548;

2. IFP News office, http://story.news.yahoo.com/news?tmp=story&cid=1539&ncid=1539&e=11&u=/a/20050224/sc_afp/asiaquaketoll_050224130937 accessed 24 February 2548;

3. <http://www.reliefweb.int/rw/RWB.NSF/db900SID/SODA-69G9SE?OpenDocument&rc=3&emid=TS-2004-000147-LKA>

Note Dashes indicated no data available