

WHAT THE TSUNAMI DISASTER LEADS US TO CONSIDER

H A R U N Y A H Y A

The South Asian earthquake of 26 December 2004, the largest in the last 40 years and fifth largest since 1900, registering 9 on the Richter scale, and the tsunami that followed it, caused a disaster leading to the deaths of more than 220,000 people. 1,000 square-kilometre faults that appeared as the result of the movement of great underground plates and the enormous energy created by land masses changing place combined with the great energy occurring in the oceans to create tsunamis. The tsunamis struck the South Asian countries of Indonesia, Sri Lanka, India, Malaysia, Thailand, Bangladesh, Myanmar, the Maldives and the Seychelles, and even the coast of the African country of Somalia, some 5,000 kilometres away.

The word "tsunami," meaning harbour wave in Japanese, became part of the languages of the world in the aftermath of the 15 June, 1896, Great Meiji Tsunami that hit Japan and in which 21,000 people lost their lives.

In order to understand the tsunami, it is most important to distinguish the tsunami from tides and waves formed by the wind. Winds blowing over the surface of the ocean set up a current limited to the upper layer of the sea by raising relatively small waves. For example; divers with air-bottles can easily dive down and reach still water. There may be waves of 30 metres or more in violent storms, but these do not set the deep waters in motion. In addition, the speed of a normal wind wave is up to 20 km/hour, while one feature of the tsunami wave is that it travels at 750-800 km/hour. The tides move over the Earth twice in the course of a day and, just like tsunamis, can produce currents that reach down to the sea bed. In contrast to genuine tidal waves, however, the source of tsunamis is not the gravitational force of the Moon and Sun.

The tsunami represents a long-period sea wave that forms due to energy passing into the sea because of earthquakes, volcanic explosions and strata collapses connected to these in the ocean or sea bed, tectonic events such as underwater plate slides, or meteor effects. When the ocean floor changes place at high speed, the whole mass of water above it is affected. What happens in the sea floor is reflected on the surface of the water, and the whole mass of water, down to a depth of 5,000-6,000 metres, joins in the wave motion. Consecutive swelling and falling may cover an area of up to 10,000 square kilometres.

TSUNAMIS HAVE NO EFFECT IN OPEN SEAS

In the open ocean, tsunamis are not the enormous walls of water that most people would imagine; they are generally less than 1 metre high, with a wave length of around 1,000 kilometres. As can be seen from this, the wave surface is very slightly inclined (1 cm in 1 km). In deep and open ocean regions, these waves go unperceived, despite moving at the high speed of 500 to 800 km/hour, since they are masked by normal surface waves. In order to better comprehend the speed of the wave, we may say that it could compete with that of a Boeing 747 jet. A tsunami that takes place in the open sea will not even be felt by any vessels.

TSUNAMIS DEPOSITING 100,000 TONS OF WATER ON LAND

Research has shown that rather than consisting of a single wave, tsunamis actually consist of a series of waves with a single centre, like a stone thrown into a swimming pool. The distance between two consecutive waves may be 500-650 kilometres. This means the tsunami can cross the ocean in a matter of hours. The tsunami only reveals its enormous energy when it approaches the shore. Energy distributed in a thick column of water becomes concentrated as that column increasingly contracts and a rapid increase in the height of the surface wave can be observed. Waves less than 60 cm high in open ocean waters lose speed as they approach shallow waters, the distance between the waves decreases, and waves piling on top of others create the tsunami by forming a wall of water. These giant waves, that are generally 15 metres high and rarely exceed 30 metres, use enormous force against the shore they strike with great speed, inflict serious damage, and cause considerable loss of life.

The tsunami deposits more than 100,000 tons of water for every metre of shoreline, with a hard-to-imagine

destructive force. (The tsunami that struck Japan in July, 1993, the largest known tsunami ever, rose 30 metres above sea level.) The first sign that a tsunami is approaching is usually not a wall of water, but the sudden retreat of the sea.

MAJOR TSUNAMIS IN HISTORY

The greatest recorded giant sea waves caused by earthquakes are listed as follows:

The oldest known giant marine earthquake wave, called "tsunami" by the Japanese and "hungtao" by the Chinese, is that which took place in the eastern Mediterranean on **21 July, 365 AD** and killed thousands of people in the Egyptian city of Alexandria.

The Portuguese capital was destroyed in the Great Lisbon Earthquake of **1 November, 1775**. The Atlantic ocean wave, 6 metres high, devastated the Portuguese, Spanish and Moroccan coasts.

27 August 1883: The Indonesian volcano Krakatoa erupted, and the tsunami that washed over the Javan and Sumatran coasts killed 36,000 people. The volcanic eruption was so powerful that for many nights the sky shone with red lava dust.

15 June 1896: The "Sanriku Tsunami" struck Japan. The 23 metre high giant tsunami that swept over masses of people gathered together for a religious festival cost the lives of 26,000 people.

17 December 1896: A tsunami destroyed part of the embankment of Santa Barbara in California, USA, and the main boulevard was flooded.

31 January 1906: The Pacific Ocean earthquake wave destroyed part of the city of Tumaco in Colombia, as well as all the houses on the coast between Rioverde in Ecuador and Micay in Colombia; 1,500 people died.

1 April 1946: The tsunami that destroyed the Aleutian Scotch Cap Lighthouse with its crew of five, proceeded to Hilo in Hawaii, killing 159 people.

22 May 1960: An 11-metre high tsunami killed 1,000 people in Chile and 61 in Hawaii. The giant wave crossed to the opposite shore of the Pacific Ocean and rocked the Philippines and the Japanese island of Okinawa.

28 March 1964: The Alaskan "Good Friday" tsunami wiped three villages off the map with 107 people dead, and 15 in Oregon and California.

16 August 1976: A Pacific tsunami cost the lives of 5,000 people in the Moro Gulf in the Philippines.

17 July 1998: A tremor wave occurring in northern Papua New Guinea killed 2,313 people, destroyed 7 villages and left thousands homeless.

26 December 2004: The 8.9 earthquake and giant wave that struck six countries in South-east Asia killed more than 156,000 people.

FACTORS INCREASING THE VIOLENCE OF TSUNAMIS

According to information provided by Dr. Walter C. Dudley, a professor of oceanography and the cofounder of the Pacific Tsunami Museum, no matter what the force of the earthquake, movement on the sea floor is necessary for a tsunami to appear. In other words, the greater the dislocation in the sea floor, the greater the mass of water it will set in motion, and this will increase the violence of the tsunami. Another factor increasing tsunami force is the structure of the coast it strikes: In addition to factors such as that coast being a gulf or cape, flat or inclined, the structure of that part of the coast that remains under water may increase the violence of killer waves.

In another statement, in which he made it clear that the precautions taken could not represent a definitive solution, Dudley said that America and Japan had established very advanced monitoring systems in the Pacific Ocean, but that all these systems had a false alarm rate of fifty percent!

SIGNS OF THE END TIMES

Natural disasters, which cannot be prevented even with technological means or precautionary measures, show just how helpless mankind truly is.

From the 20th century, characterised as the "century of disasters," up to the present, there have been catastrophes such as earthquakes, volcanic eruptions, tornados, storms, typhoons, whirlwinds and floods, in addition to tsunamis, and these have inflicted terrible damage and cost the lives of millions of people. When one thinks about these extraordinary phenomena, it can clearly be seen that they bear a close similarity to the natural phenomena revealed as indicating the first period of the End Times.

According to what is revealed in the hadiths, the End Times is a period that will come about close to doomsday, and when the moral values of the Qur'an will be widespread among people. The first period of the End Times will be one when people will draw away from religious moral values, when wars will increase, and extraordinary natural phenomena will be experienced.

Indeed, in the hadiths eradicated cities and peoples wiped from the pages of history are reported as signs of the End Times. In those hadiths dealing with the matter, our Prophet states:

"The Hour (Last Day) will not be established until ... earthquakes will be very frequent." (Bukhari)

"Big phenomena will happen in his time." (Ibn Hajar Haytahami, Al-Qawl al-Mukhtasar fi'alamat al-Mahdi al-Muntazar, p. 27)

There are two great hadiths before the day of Judgment ... and then years of earthquakes. (Narrated by Umm Salama (r.a.))

"So many appalling incidents will occur in his time." (Imam Rabbani, Letters of Rabbani, 2/258)

In the second period of the End Times, God will free people from degeneration and war by means of the Mahdi. At this time, known as the Golden Age, war and conflict will come to an end, the world will be filled with plenty, abundance and justice, and Islamic moral values will prevail on Earth and will be widely practiced. No such period has ever taken place before but, by God's leave, one will be experienced before doomsday. It is now awaiting the time appointed by God.

Everything is under the control of God. Believers who know this truth and who have sincere faith in God submit to our Lord in the knowledge that they are following their destiny. God has flawlessly arranged everything, down to the very finest detail, from the creation of the Earth up to the Day of Judgment. Everything is recorded in the book "Lawh-i Mahfuz." Everything has already taken place in a single instant in the sight of God, Who is not bound by time or space, and the time and place of every event has been determined. This fact is expressed thus in a verse: **"Every communication has its time, and you will certainly come to know."** (Qur'an, 6:67)