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## **A STUDY ON TSUNAMI VICTIMS AFTER DISASTER IN 2004**

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### **Introduction**

Tsunami is a Japanese word importance harbor wave. Tidal wave is a marvel of gravity waves created in outcome of development of the Ocean floor that because of seismic tremors, avalanches, volcanic emissions and huge shooting star impacts. A tsunami is a progression of ocean waves that sends gush of water, rarely outstretches heights of over 100 feet (30.5 meters), onto terrain. These walls of water can cause all-embracing ruination when they smash ashore. These awe-stimulate waves are typically caused by huge , subaquatic earthquakes a tectonic plate boundaries . When the ocean floor at a plate borderline arises or falls instantaneously, it misplaces the water above it and hurl the lurching waves that will become a tsunami. Tsunamis may also be caused by subaquatic earth fall or volcanic explosion. They may even be propelled, as they habitually were in Earth's ancient past, by the impact of a large meteorite plunging into an ocean. A wave's trough, the low point underneath the wave's peak, regularly achieves shore first. When it does, it delivers a vacuum impact that sucks beach front water offshore and uncovered harbor and ocean depths. This withdrawing of ocean water is an essential cautioning indication of a tidal wave, in light of the fact that the wave's peak and its tremendous volume of water normally hit shore five minutes or so later. Perceiving this marvel can spare lives. A tidal wave is generally made out of a progression of waves, called a wave prepare, so its dangerous drive might be intensified as progressive waves achieve shore. Individuals encountering a wave ought to recall that the threat might not have gone with the main wave and ought to anticipate official word that it is protected to come back to powerless areas. Tsunamis raise beyond the sea at up to 500 miles (805 kilometers) an hour—about as rapid as a jet. They can cross the entire swathe of the Pacific Ocean in less than a day. And their long wave-lengths mean they lose very little vigour along the way. On December 26, 2004, at 7:59 am standard time, an subaquatic earthquake with a magnitude of 9.1 stricken off the coast of the Indonesian island of Sumatra. Around successive 7 hours, a tsunami—a concatenation of massive waves—operated by the tremble outreached out beyond the Indian Ocean, demolishing coastal terrain as remote as East Africa. Some locations reported that the waves had reached a height of 30 feet (9 metres) or additionally when they hit the borderline . And earthquakes affected at a lower place the Indian Ocean nearer to Indonesia, generating an ginormous tsunami that alleged quite 230,000 lives in fourteen totally various countries, one amongst the dangerous natural disasters ever recorded. Today, several of the communities have recovered, although painful reminiscences and a few ruined structures stay in place. Across Asia these days, memorials were held in remembrance of the thousands of victims. In India specifically in Tamil Nadu tsunami affected areas like Velankanni, Nagapattinam, Cuddalore, Chennai and others.Over 8,000 people were killed in Tamil Nadu by the giant wave in 2004.

**Objectives:**

To analyse the appropriate reason for tsunami.  
To know the effect of tsunami in Tamil Nadu.

**Research methodology:**

This research is based on both primary source and secondary source of data;  
Primary information for present study is collected from survey.  
secondary information for present study is collected from research articles and government records.

**Limitations:**

1. The information is limited due to the tolerating nature of the Victims.

**Review of Literature:**

According to scientists “tsunami is an expansive wave on the sea, generally caused by an undersea tremor, a volcanic emission, or waterfront avalanche. A torrent can travel many miles over the vast ocean and cause broad harm when it experiences arrive. According to scientists “An extensive sea wave that is caused by a submerged seismic tremor or volcanic ejection and frequently causes extraordinary decimation when it strikes arrive. Waves can have statures of up to 30 m (98 ft) and achieve rates of 950 km (589 mi) every hour. They are portrayed by long wavelengths of up to 200 km (124 mi) and long stretches, for the most part in the vicinity of 10 and a hour”.

**Chapter 1:**

On December 26, 2004 morning wayfarer and piscator inhabiting along the eastern coast of India perceived a strange occurrence of the sea receding few 100 metres inside uncovering parts of the coastal shelf. What they were perceiving was a precursor to the incoming enormous tsunami waves triggered due to a M 9.3 Great subaquatic earthquake off the coast of Banda Aceh, northern Sumatra. This earthquake happened along a thrust fault in the subduction zone where the Indian tectonic plate is going below the overriding Burmese plate. As a result, the ocean bottom stone-broke and there was a vertical displacement of concerning fifteen to 20 meters on the fault inflicting giant scale displacement of water and thus, generating tsunami waves. This kind of large vertical displacement happened because the magnitude of the earthquake was greater than 9 and it occurred at a shallow depth of less than 30km below the ocean. Since 1900, solely 5 earthquakes, worldwide have exceeded magnitude 9.0 every of them occurred in geologic process zones at shallow depths and stone-broke the ocean bottom with displacement of the order of larger than ten metres generating large tidal wave waves. These earthquakes which are referred to as “Megathrust” earthquakes were 1952 Kamchatka, Russia, 1960 Chile (the world’s greatest so far with M 9.5), 1964 Prince William Sound, Alaska, 2004 Sumatra and 2011Tokyo , Japan. Tsunami waves are called to possess generation by earthquakes of larger than 8.5 magnitudes however with lesser intensities. The rupture of the M 9.3 Sumatra earthquake in 2004 began on a NW-SE trending overthrust fault off the coast of Sumatra and so propagated in North-South direction on the Nicobar and Andaman islands to a length of 1200 km. Since, an oversized quantity of tidal wave energy propagates normal to the trend of the fault direction, the tidal wave wave propagated in south-west and westerly direction within the Indian Ocean outstretching Indian coast, Srilanka, Maldives and outstretching up to eastern African coast lines. Since the tsunami waves are long period waves with wave lengths of 200-250 kilometres, their height in the open sea ranges between few centimetres to a metre and cannot be distinguished by people travelling on a ship in an open sea. The speed of a tsunami wave is related to the depth of the ocean, greater the water depth higher the speed. Typically, for a median ocean depth of four kilometer, like within the Indian Ocean/Bay of Bengal region, the speed of the tidal wave waves will go up to 720 km/h or about the speed of a jet airliner. As the tsunami waves approach the shore, the water depth becomes shallower, waves slow down, wavelength becomes shorter and the waves gain larger amplitude or heights and become destructive

**Chapter 2:**

The average distance from Banda Aceh to the Indian eastern coast ranges between 1,800 and 2,000 kilometer and therefore, the period of time taken by the tidal wave waves was concerning a hundred and fifty minutes. The earthquake occurred at 06:28(IST) and the first waves were observed around

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09:00 (IST) on the eastern Indian coast. More than 16,000 people perished in the Andaman and Nicobar islands and along the eastern coast of India. Although the occurrence of tsunami across the world is well known, it was the first experience for the people of India. Earlier, there are records of tidal wave waves touching the Indian shores within the West in 1945 and within the East in 1941. But these waves were insignificant and less than 1 metre in height. But in the case of 2004 tsunami, the maximum run-up height of more than 5 metres was observed along the Nagapattinam region in Tamil Nadu and lateral inundation being up to 1 km at some places. Most of the loss of life and damage to property was within 500 metres of the shore and the local coastal topography played an important role in the inundation process. The varying tsunami wave heights along the east coast from 2.5 metres at Devanaampatnam to 5.2 at Nagapattinam were due to the bathymetry of the coastline. The 2004 tidal wave was additionally a wakeup incorporate the Indian earth scientists' community to take up analysis on this new coastal hazard. The Indian scientists made great strides since then, by setting up a Tsunami Early Warning System at INCOIS, Hyderabad in 2007. Since, then many thriving warnings were given by the Centre whenever there was an Subaquatic earthquake of any significance within the Indian Ocean. In terms of tsunami research several models were developed in which scenarios were created which will help in predicting the time of tsunami wave arrivals, their heights and inundation along the east and west coast of India in case of earthquakes occurrence in the two subduction zones in Markran, south of Pakistan in the west and Andaman and Nicobar and Sumatra in the east, identified to be sources of tsunami generation. At least 1,500 died in Tamil Nadu alone as the waves swept through the coastal areas, bringing in their wake death and destruction. In Nagapattinam district, around 700 people died, followed by Kanyakumari (250) and Cuddalore (200). Around 125 perished in the state capital of Chennai. Morning walkers on Marina Beach and inhabitant in the Foreshore Estate slums almost bordering the sea got a churlish shock when tidal waves leaping up to 30-40 ft across the beach and banged into the houses nearby, catching people unawares. Most of the victims were women and children who could not get out of the way. The second unit of the Madras Atomic Power Station at Kalpakkam was shut down after water entered the plant. About 500 tourists were stranded at the Vivekananda Rock Memorial in Kanyakumari following the tremors. Helicopters from nearby Thiruvananthapuram were pressed into service to rescue them. In Pondicherry, at least 102 deaths were reported.

### **Conclusion:**

This study is explores the impact of the 2004 tsunami on the islands fringing the Indian Ocean and the many things learned to prevent such events from occurring again in the fortune. Tsunami is a big threat for the these islands of the Indian Ocean due to the presence of a tectonic interactive plate. Their calamity management priority is the development of an prior tsunami warning system in order to effectively and timely communicate with all the people in that region. Disaster management should involve national, regional, and international organizations at all levels in order to develop tsunami program, fund tsunami projects, and continue research program. The essential driver of wave related mortality was suffocating and, in spite of the fact that various damage sorts were accounted for following waves, the proportion of dead to harmed is considerably more noteworthy in waves when contrasted with other cataclysmic event sorts. Hazard variables for tidal wave related demise included female sex and extremely youthful and seniority. Tidal wave misfortunes are probably going to increment in future years because of populace development in high hazare seismic regions. Expanded thoughtfulness regarding wave counteractive action and relief techniques, with an attention on territories most inclined to tidal waves and populaces at more serious hazard is important. While methodologies that are particular to the advancement level and nation setting are critical, worldwide activities, for example, early cautioning frameworks are basic for assist tidal wave hazard moderation.

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