## India: tsunami warnings could have been made

Ganesh Dev 10 January 2005

Thousands died or were left homeless when the December 26 tsunami struck India's eastern coast and engulfed the Andaman and Nicobar Islands in the Bay of Bengal. The response of the Indian political establishment has revealed its indifference and contempt toward the poverty-stricken villagers and fishermen who were the main victims.

The United Progressive Alliance government (UPA) in New Delhi, along with the state governments in Tamil Nadu, Andhra Pradesh, Pondicherry and Kerala, have insisted that they were unaware of the tsunami and could do nothing to save lives. All of them have defended the lack of a tsunami warning system by insisting that, unlike the Pacific, the Indian Ocean has not experienced frequent tsunamis.

The hollow character of these justifications was brought into sharp focus by the events in the small coastal village of Nallavadu in Pondicherry. A timely telephone call, warning about the impending tsunami, saved the village's entire 3,600 inhabitants, as well as those of three neighbouring villages.

Nallavadu was involved in the M.S. Swaminathan Research Foundation's Information Village Research Project. Vijayakumar, a former project volunteer, was working in Singapore and heard a tsunami alert issued there. He immediately phoned the research centre in the village, which issued an alert. His quick thinking, followed by swift and coordinated action, led to the evacuation of the four villages before the tsunami hit the coast.

The vast majority of deaths could have been averted if, like Singapore, India had been part of an established tsunami warning system. Even without such a network, however, there were danger signs that Indian officials failed to respond to. Well before the tsunami struck the coastline of southern India, the huge waves had swamped the isolated Indian territory of the Andaman and Nicobar Islands in the Bay of Bengal.

The undersea earthquake off the Sumatran coast that triggered the tsunami took place at 6.29 a.m., Indian time. Fifty minutes later, at 7.19 a.m., one of its aftershocks rocked the Andaman and Nicobar Islands. Eleven minutes later, at 7.30 a.m., the Indian Air Force on mainland India received an alert from its airstrip at Car Nicobar, after which communications with the archipelago were temporarily lost.

At 7.50 a.m., however, the Chennai unit of the Indian Air Force contacted Car Nicobar using a higher frequency. The last emergency message sent out by the 25 air force personnel stationed on the island, before the tsunami killed them and their families, was the "island is sinking and there is water all over".

India's own satellites, IRS-P4 and IRS-P6, photographed the waves crashing over Car Nicobar between 7.30 a.m. and 7.50 a.m.. The satellite photos show the tsunami racing inland along most of the seashores.

It is clear that there was time to issue warnings, of some kind, to the coastal population on India. Satellite photos taken at 8.32 a.m. show that the first tsunami wave hit the mainland crashing over beaches near Madras and surging up the Adayar river mouth. Following the first wave, four more hit. The second was at 9.20 a.m., the third at 10.20 a.m., the fourth at 10.40 a.m. and the final wave struck at 11.00 a.m.

The official response was a combination of incompetence and indifference. According to a report in the *Indian Express*, Indian Air Force chief S. Krishnaswamy eventually tried to get in touch with authorities in New Delhi. His assistant sent a message—via fax—to the home of the former science and technology minister. No further action was taken.

The private secretary to the cabinet secretary in the UPA government was not informed of the tsunami until two minutes after the second wave hit Madras and the southern coast of Tamil Nadu. It was not until 10.20 a.m. that Cabinet Secretariat officials were informed.

The Crisis Management Group—the government's main emergency response unit—did not meet until 1.00 p.m., some two hours after the final wave hit India and more than five hours after the Air Force received the SOS from the Car Nicobar air base. By then it was too late.

In the aftermath of the tsunami, various Indian officials have attempted to rationalise the failure to issue a warning and save lives.

The director of seismology at the Indian Meteorological Department, R.S. Dattatrayam, claimed in the *Indian Express* that "tsunamis had never been recorded in Indian history, so it did not occur to us (to prepare for one)". Prime Minister Manmohan Singh made a similar claim at a press conference on January 3. "It (the tsunami) was a new phenomenon not experienced by the country," he stated.

The historical record is different. While tsunamis are not as frequent as in the Pacific Ocean, they have occurred before in the Indian Ocean with devastating consequences. The best-known example is the wave generated by the 1883 volcanic explosion of the island of Krakatoa near southern Sumatra that killed an estimated 36,000 people throughout the region, including in India. Two years earlier, on December 31, 1881, an earthquake of magnitude 7.5 off Car Nicobar Island also generated a tsunami.

There have been more recent cases. According to a paper published last year in the scientific journal, *Current Science*, an earthquake on June 26, 1941 of between 7.5 and 8.5 on the Richter scale, triggered a tsunami that inundated the western coast of the Andaman Islands and then hit the Indian coast, destroying property and claiming numerous lives. The earthquake itself caused extensive damage to the Andamans, including bringing down the central tower of the infamous Cellular Jail where British authorities were incarcerating political opponents of colonial rule.

In the magazine, the *Week*, Dr. Arun Bapat, a Punebased seismologist, explained that it was not only India's eastern coast and the Andaman and Nicobar Islands that have experienced tsunamis, but also India's western coast. An earthquake of magnitude of 8.25 in the Arabian Sea on November 27, 1945, generated sizeable waves along the western coast of India. He also pointed to other potential danger zones in the Indian Ocean that could produce earthquakes and tsunamis.

There is no denying that tsunamis are less frequent in the Indian Ocean. But as the events of the past fortnight demonstrate, to ignore the long-term dangers amounts to criminal negligence. The lack of a tsunami warning system, which involves relatively modest costs, has led to the loss of tens of thousands of lives and suffering to millions. The responsibility rests with the governments of the region, New Delhi included, and above all the major powers, which have ignored calls by scientists to establish such a network.



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