BABU / REUTERS

Local vendors evacuate Marina beach in Chennai after a tsunami warning on July 17, 2006. This day tested the Early Warning Centre at the Indian National Centre for Ocean Information Services for the first time.

Riders of the storm

India's race to install a tsunami warning system

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WITH JUST days to go for the second anniversary of the tsunami that struck on December 26, India is racing to develop its Early Warning System for Tsunami and Storm Surges at the Indian National Centre for Ocean Information Services (INCOIS), Hyderabad.

While the Centre is scheduled to be ready in September 2007, an interim Early Warning Centre that operates round the clock has already been established at INCOIS. The Centre monitors two tsunamigenic zones — Java-Sumatra in the east and Makaran coast in the west.

A seismically active Indonesia has ensured that the INCOIS team has been actively investigating the possibility of a tsunami hitting the Indian coastline through the year. The team's first big test came on July 17, 2006 when a tsunami hit Java. INCOIS was able to confirm within an hour what it would — or would not, in this case — do to the Indian coastline. On December 1, there were no less than two high intensity earthquakes in Indonesia.

Says Dr Shailesh Nayak, director of INCOIS, "Since April 2005, we have investigated at least 17 tsunami scenarios. On an average, there is an earthquake of intensity greater than 6 every month in the Indian Ocean region. Each time, we have to check for the occurrence of a tsunami."

INCOIS receives earthquake and tsunami advisories from the India Meteorological Department (IMD), Japan Meteorological Agency, Pacific Tsunami Warning Centre as well as tide gauge data from several stations. The following systems will strengthen the system by September 2007.

Seismic stations: Seventeen interconnected broadband seiemic stations will communicate real-time with IMD in New Delhi and INCOIS, Hyderabad. The stations at Port Blair, Bhuj, Shillong and Hyderabad and the central receiving station at IMD will be ready by January 2007. The remaining 13 will be made operational by May 2007.

Bottom pressure recorders: This will be a real fillip to the system. Ten BPRs are to be installed in the Bay of Bengal and two in the Arabian Sea at a depth of 3,000-4,000 metres below sea level. These will be able to measure changes in sea level up to 4 mm and be of help in making observations in areas where there is no coast. Three BPRs have been deployed this October; the remaining nine will be made operational by April 2007.

Tide gauges: There are plans to install as many as 50 tide gauges. These will be able to accurately measure changes in the water level near the coast. Fourteen have been installed by the Survey of India and National Institute of Ocean Technology. Six stations at Goa, Kochi, Port Blair, Chennai and Minicoy are sending data real-time to the SOI centre at Dehradun. INCOIS will be networked with these stations shortly. By March 2007, the remaining 36 stations are expected to be in place.

A tsunami model: A tsunami model has been calibrated using the extensive filed data collected in December 2004. Travel times have been generated for historical earthquakes, which are in the process of being organised into a database. Simulations have also been done for probable earthquake scenarios.

Quite clearly, India — which is heading the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning System — has a deluge of projects to finish before September 2007.

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