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India develops tsunami-warning system

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India has developed its own tsunami warning system, barely three years after it was caught off guard when the sea waves spawned by a massive earthquake wreaked havoc along its southern coastline.

The National Early Warning System for Tsunami and Storm Surges in the Indian Ocean, a project of the Ministry of Earth Sciences, has taken shape at the Indian National Centre for Ocean Information Services (INCOIS) in Hyderabad.

Tsunami warning system by September 2007

The system is likely to be inaugurated by Earth Sciences Minister Kapil Sibal on October 15.

Scientists last week installed two bottom pressure recorders (BPR), key sensors that indicate the generation of tsunami, off the Gujarat coast in the Arabian Sea.

A set of four BPRs have already been installed in the Bay of Bengal region and were put to test on September 12 when a massive undersea earthquake hit southern Sumatra.

"There are two 'tsunamigenic' zones in our vicinity ?Andaman-Sumatra trench in the Bay of Bengal and the Makran coast in the Arabian Sea," said INCOIS Director Shailesh Nayak explaining the need to install BPRs in the two regions.

INCOIS, in association with Tata Consultancy Services, has generated simulations of possible 550 scenarios of tsunami after massive earthquakes.

"The information about magnitude, location and depth at which an earthquake has occurred is fed into computers which picks up an appropriate scenario and simulate formation of tsunamis," he said.

"We are able to issue tsunami alerts within 30 minutes of an earthquake," Nayak said.

According to the plan, 12 BPRs, including 10 in the Bay of Bengal, are planned to be installed as part of the network.

?Asked how the system would function with only six BPRS, Nayak said: "All critical locations from the point of view of validating tsunami by monitoring sea level changes have been covered."

Twelve BPRs were planned keeping in view the redundancy factor. "In case of a malfunction, we cannot repair the BPRs immediately as they are installed on the sea bed at a depth of few kilometers," he said. Besides the BPRs, tide gauges installed along the coastline including the Andaman and Nicobar Islands will give further confirmation on generation of tsunami, Nayak said.

INCOIS has been receiving earthquake information from India Meteorological Department, Japan Meteorological Agency and the Pacific Tsunami Warning Centre and also is digitally connected to seismic stations across the world.

"We could validate the September 12 earthquake off southern Sumatra within 12 minutes," Nayak said adding that the tsunami warning centre swung into action and issued an red alert in the next 13 minutes, which was downgraded to orange in less than two hours.

"We did not issue a tsunami warning like the Pacific System, which would have required evacuation of people from coastal areas," he said. A red alert requires the citizens and the administration to be prepared for evacuation and in the event of an orange alert the administration has to remain vigilant. Nayak said the effectiveness of the system was proved in the last high-magnitude undersea earthquakes in the Indian Ocean region.