

# NITK faculty get ₹45 lakh grant to study tsunamis

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**Mangaluru:** Faculty members from NITK Surathkal are working on the development of new techniques, to protect the Indian coast from tsunamis. The development of these new techniques, is a part of a research and development project sponsored by the ministry of ports, shipping and waterways. A group of faculty members have been awarded a research grant of Rs 45 lakh. It is led by Babloo Chaudhary, assistant professor, department of civil engineering. He is the principal investigator, and has conducts rese-

## PROTECTING INDIA'S COAST

arch in areas of development of countermeasures, for both natural and man-made disasters, including earthquakes, tsunamis, landslides, floods, and others. Professor Katta Venkataramana and assistant professor G Sridhar, are co-investigators.

Chaudhary said that a breakwater is a coastal structure, that is built to protect the seashores from the adverse effects of sea waves, but it is vulnerable to tsunamis. Many breakwaters were damaged, and even collapsed during the 2004 Indian Ocean tsunami, and the 2011 Great East Japan earthquake and tsunami. In the present project, the breakwater of New Mangalore Port Trust will be modelled or scaled down in the laboratory, and tests will be conducted in the tsunami flume fa-

cility developed by Chaudhary, which is the only one of its kind in the country. The uniqueness of the flume, is that it can be used for earthquake motion as well as tsunami generation. The performance of the existing breakwater under tsunami impact, will be studied first. Later, the breakwater model will be made resilient, by adding countermeasures, such as placement of geogrids, gabions and geobags in the main body of breakwater; and insertion of sheet piles, and geogrid in the seabed foundation soil.

According to Chaudhary, tsunamis are generally caused by earthquakes, which is why strong earthquakes occur just before tsunamis. Therefore, studies should be conducted to determine whether the developed countermeasures would be effective during an earthquake that precedes a tsunami. Such studies can be carried out in the earthquake engineering laboratory, which he had already developed, as part of his project funded by the Science and Engineering Research Board (SERB), under the department of science and technology (DST). This facility has a large shake table that can simulate real-field earthquakes, and numerous sensors that can record the real-time performance of breakwaters, during earthquakes. Likewise, several physical model experiments and computer-aided simulations will be carried out to evaluate the effectiveness of the techniques and countermeasures, against the earthquake and tsunami.