

NOTES

PHYSIOGRAPHIC CHANGES DUE TO TSUNAMI IN NORTH COASTAL PART OF TAMIL NADU

The physiographic changes and the extent of inundation of sea water vary from place to place along the coast of Tamil Nadu. As a prelude to a brain-storming session sponsored by the Earth System Science Division of the Department of Science and Technology (DST) and conducted by the Institute of Ocean Management, Anna University, Chennai on the 30th January, 2005, a field trip was arranged for all the participants on the 29th January, to inspect areas of major changes along the coast between Chennai and Cuddalore, over a distance of about 200 km.

At the mouth of Cooum river there was a blockage of the outlet with substantial amount of sediment brought by the stormy waters. The width of the Marina beach in the city seems to have increased. At the Adyar mouth, both at the narrow strip of coastal belt and the low lying areas behind a beach ridge (on which there is a colony), substantial erosion has taken place. At Muthukadu, marine sediments were brought in along the backwaters up to the East Coast Road (ECR) bridge and the boating facility a little further west. The Mahabalipuram Shore Temple escaped any physical damage, though sand blasting had taken place around the temple, most of the material since removed.

A major part of the security wall constructed along the coast, over a distance of about a kilometer at Kalpakkam collapsed since it was on an unconsolidated sand dune throughout its length and could not stand the fury of the tsunami waves. If practically no part of the ECR was affected, it was either because it was far away to the west of the shoreline or if nearer, it was laid on higher ancient beach ridges. But in certain sections, the inundation followed by a cover of dune sands could be seen almost up to the eastern edge of the ECR, recognizable by a thin spread of black sands over the white sands of the area.

At the Pallar river mouth the presence of a N-S extending sand ridge in the southern bank, with a cover of palmyrahs and limited vegetation stood as a wall preventing transgression of water further inland to the west. The

difference in the texture and content of the sediments over the ridge and at the foot of it, to its east, could be easily perceived by the naked eye.

At Cuddalore, the Uppanar river mouth got almost blocked by the sediments brought in, though a connection can be seen now. The Gadilam river, further south, aided as a passage way for the onrushing waters, and the water swelled over the river banks into the interior and this perhaps, reduced the extension of the incursion of sea water deeper into the mainland. Presence of a few sand ridges saved parts of Devanampattinam from complete destruction.

From the above brief reconnaissance survey made on this stretch of coastal Tamil Nadu it was obvious that apart from various other factors (particularly the nature of near offshore profile, which to a large extent controls the height of the wave) the absence of stabilized sand ridges, the presence of water outlets of rivers/streams or tidal creeks, made considerable differences in the effect of tsunami waves on the land.

During the following session on the 30th January, projects were formulated mainly to study the morphology, sediments, groundwater and any biotic changes at specific areas along the coasts of Tamil Nadu, Andhra Pradesh, Kerala and Andaman and Nicobar islands in detail. This was to be completed within 4 to 6 months. Measurements are to be made of such of those parameters that can be, with the equipment already available or made available for the project. It is true that changes due to natural and anthropogenic causes might have already taken place in certain sections. In such cases enquiries have to be made for authentic information from reliable sources and cross-checked. It is hoped that the primary data collected from the field and laboratory investigations following them in certain cases, would enable formulation of action plans to mitigate the present effects and prepare to face possible future hazards resulting from a similar catastrophic event.

20, Maria Susai Nagar
Cuddalore – 607 001
Email: vaithu31@sify.com

R. VAIDYANADHAN