Sea-walls – A necessary evil

One can well understand the concern of Shareef of the disappearing beaches in the wake of construction of sea-walls. Whereas fresh building activities have been banned under the Coastal Regulation Zone (CRZ) Act, what about the aggravations that came up along the shoreline, centuries and millennia ago and are now affected by the advancing sea and the consequent nearing of the monsoon inundation line? Will it be practical and possible for the Government to evacuate and rehabilitate the millions living at the edge of the 7000 km long coastline affected by the landward march of the sea? The ‘no encroachment’ area proposed by Shareef is a good solution, but too late to be implemented for a densely populated country with a long history.

Vertical walls like the one at Marine Drive, Mumbai, supported by tetrapods, or at Paducherry promenade supported by boulders provide good protection, but are expensive. The disadvantage is that the sandy beach is lost as the waves come right up to the wall. These walls need periodic repair as tetrapods and boulders sink in the sand. The cost of repairs to the Marine Drive wall is reported to be Rs 18 crores for a length of 600 m.

Engineers at the Central Water and Power Research Station, Pune, have come out with a design of offshore breakwaters, which in a sense are boulder-walls, for Tithal and Uvdava beaches, Valsad district, Gujarat, that are severely affected by sea-erosion. A village in Valsad district, Moti Dandi, has already been washed away by giant monsoon tides. Seven such breakwaters covering a length of 600 m have been constructed on Uvdava beach in 1998–99 at a cost of Rs 55 lakhs. This may be compared with the colossal cost of repairs to the Marine Drive wall. The break-waters now protect the properties at the sea-front.

So far the problem has occurred only during the peak of monsoon: During a storm, atmospheric pressure falls and the sea level rises. Coupled with the high tides of the new moon or full moon days giant waves ravage the shoreline. The northern ends of the break-waters break down after 3 to 4 years of violent storms and tidal onslaughts. However, any structure that controls such a mighty force needs periodic repairs. Meanwhile, sand keeps on accumulating on the landward side of the walls. Thus the walls ‘sacrifice’ themselves to protect the town.

An alternative to break-waters (sea-walls) is the beach nourishment treatment that was proposed for Uvdava in order to eliminate the sea-walls. The idea was to dredge the nearby Kolak River and deposit the sand on Uvdava beach. Social and ecological problems cropped up in the way of the project. Residents of Kolak village opposed the plan on CRZ grounds. Secondly, the Kolak creek is lined by mangroves, which stabilize its banks. But these salt-water trees are known to react to dredging operations, which alter the ecological conditions of the creek. And with the disappearance of the mangroves, stability of the banks cannot be assured.

Vegetation which is effective in curbing wind-erosion, unfortunately gets uprooted by the force of waves, unless present in protected pockets like mangrove marshes.


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