THE ECOLOGICAL SOCIETY OF AMERICA

Frontiers in Ecology and the Environment

Issue No 8 Volume 5 October 2007

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esa

Storm brews in India over coastal regulations

Leslie Bienen

Recent coastal disasters, and the presence of 2.3 billion people (forecast to grow to 3.2 billion by 2025) living within 100 km of the coast, have made "sustainable" coastal management an urgent issue worldwide. The sustainability of existing and newly outlined coastal policies is under intense debate in India. The controversy centers on the proposed replacement of the 1991 Coastal Regulation Zone Notification (CRZ) with a new regulation, entitled Coastal Zone Management Notification (CZM).

The CZM regulations, which were already in the pipeline prior to the December 2004 tsunami, are based almost exclusively on the Swaminathan Committee Report, a document sharply criticized by environmental groups and community-rights NGOs. A report entitled *Coastal Zone Management Notification '07: better or bitter fare?*, issued in July 2007 by the Ashoka Trust for Research in Ecology and the Environment (ATREE; Bangalore, India), states that the CZM is "completely antithetical to the...principles of integrated coastal zone management" and is "a brazen attempt at disempowering fishworkers and traditional coastal communities and making available premium lands in coastal areas to commercial interests". "The CZM", says one of the report's authors, Sudarshan Rodriguez of ATREE, maintains a "conspicuous silence on rights access and tenure of fishing communities. The CRZ at least had some safeguards and was regarded as fisherfolk/livelihood-friendly by the communities and NGOs themselves."

Although the Swaminathan Report has its supporters, even among environmentalists, statements such as Rodriguez's capture the abiding frustration of ecologists and conservationists struggling to establish a scientific, rather than a political, basis for post-tsunami coastal management in India and neighboring regions. Rajib Shaw (Kyoto University, Japan) is editing a forthcoming special issue of the *Journal of Environmental Management*, entitled *Environmental aspects of the Indian Ocean tsunami recovery*. Shaw describes efforts to replant on dunes and shore breaks as "in most cases, haphazard". Antonio Mascarenhas (National Institute of Oceanography, Goa, India) concurs, pointing out that storm surges "are more common and of greater concern than are rare tsunamis". He adds that "three cyclonic storms and one to two severe storms strike the east coast of India every year, and storm surges have caused thousands of lost lives and seawater invasion up to 35 km inland". Yet, say the legislation's detractors, coastal development and growth of settlements continue unchecked and may be greatly expanded by the CZM.

A Mascarenhas and S Jayakumar, NIO

Casuarina saplings along an upper beach in Tamil Nadu, buried in sand – an example of the wrong trees in the wrong place.

Much of the frustration for ecologists stems from the fact that remedies exist for addressing and mitigating ecological disasters, but are largely ignored. "Lack of political will is a major cause of the prevailing undesirable scenario on India's coasts", laments Mascarenhas. Adds Rodriguez, "There was a Supreme Court judgment in 1996, where the court, appalled by non-implementation of the CRZ, asked the state and central governments to get their act together, and even gave specific deadlines for doing so, which none of the states have complied with to date."

Mascarenhas also emphasizes that "coastal managers must understand and consider the role and function of sand dunes and vegetation in dissipating oceanic energy", which has not consistently happened. "Well-designed forested shelter belts, containing a gradation of species from the dune line toward the hinterland, are needed", he says, although these management specifics will require much more study. For example, casuarina plantations successfully neutralized the 2004 tsunami in many locations. However, post-tsunami efforts have commonly resulted in trees being planted on sand dunes, where they actually increase beach erosion, rather than behind dunes, where they help to dissipate wind and waves. "Communities do not want them in front of villages because the visibility of the sea is important for making fishing decisions about wind, currents, etc", explains Rodriguez. "This defeats the logic of the trees providing any kind of bioshield."

Sangeeta Sonak (Energy Resources Institute, Goa, India) has written extensively on how India might adopt integrated coastal zone management concepts in rebuilding efforts; she has called for specific guidelines for replanting mangroves and casuarinas, though she also warns that extensive use of casuarinas, exotic to India, may cause other problems. Sonak further believes that "the lack of clearly defined guidelines for reconstruction" following the tsunami has hampered the success of rebuilding efforts.

On a positive note, however, Rodriguez says the proposed legislation has galvanized fisher-based NGOs and fishing communities. Fishing communities are now motivated to "assert their rights in the reconstruction process and in drafting laws that affect their livelihoods." ■