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The World Bank funded coastal shelterbelt project threatens sea turtle nesting habitats in Tamil Nadu, India

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The ETRP shelterbelt project

Over three decades of monitoring along the Chennai coast and surveys along the rest of the Tamil Nadu coast have shown that this coast is a significant sporadic nesting ground for olive ridley turtles (Shanker, 2003; Bhupathy, 2007). These turtles use the sandy beaches along the coast to nest between January and March each year. After the December 2004 tsunami, the World Bank funded an Emergency Tsunami Reconstruction Project (ETRP) in the south Indian state of Tamil Nadu. One of the measures implemented at great cost is the raising of 'bio-shield' shelterbelts on the

beaches, primarily of *Casuarina,* an exotic fast growing species. The plantations covering over one third of the Tamil Nadu coast have been established up to the high-tide line, in the process eliminating large stretches of sea turtle nesting habitat.

The ETRP shelterbelts have been established by the Tamil Nadu Forest Department (TNFD), ironically the very agency charged with protecting the olive ridley, a Schedule I species under the Wild Life (Protection) Act, 1972. Some government officials acknowledged unofficially that planting *Casuarina* right up to the high-tide line may not have been advisable, but since the acreage available for planting was grossly overestimated, officers at the field level were forced to plant wherever possible.

The Casuarina plantations have ostensibly been raised to protect fishing communities and other humans living on the coast, from tsunamis and cyclones. Our surveys show that most of these communities have insisted that no trees be planted on the beachfront facing their habitations, as that would impede their progress to the sea and obscure their view of it. The irony of the ETRP shelterbelt project is that the only areas that actually need some form of protection are the ones devoid of plantations.

Immediately after the tsunami, the M.S. Swaminathan Research Foundation (MSSRF) did a rapid assessment of the efficacy of shelterbelts in tsunami impact mitigation. Their study, supported by the Tamil Nadu Forest Department states the following with regard to coastal *Casuarina* plantations:

"Starting of casuarina plantations right from the high tide line is one of the serious concerns relating to shelterbelt plantation along the coastal areas. This may have serious implications on the ecology of the coastal areas, sometimes even on the wildlife.

Many of the sandy beaches are utilised by sea turtles as nesting grounds and it has been reported in many places, that raising casuarina very close to the sea prevents nesting by sea turtles. Different species of crabs live in different vertical zones near the high tide line and planting of casuarinas close to the high tide line would also affect the niches of these crabs.

Most importantly, sandy beach supplies sand to the littoral current, which runs parallel to the shoreline. This current system, in combination with wind-induced waves, takes away sand from one place and deposits it in another area. Since this process takes place simultaneously all along the coast, a balance is achieved between removal and supply of sand in a given place and this balance prevents sea erosion. If shelterbelt plantations are raised from the high tide line, the supply of sand to the littoral current would be reduced or stopped (due to sand binding property of the plantation) and to compensate this, current and waves would remove large amounts of sand from other areas, leading to erosion in those areas.

In order to avoid such environmental problems it is recommended, on the basis of the above study, that shelterbelt plantations should start at least 50 to 75 m away from the high tide line."

This gives rise to questions that neither the Government nor the World Bank has answered satisfactorily:

1. Were any Ecological Impact Assessments made before funding these plantations? If so, what was the basis on which plantations were allowed to be established right up to the high tide line? Were independent biologists and experts consulted?

2. Were any consultations or public hearings held to ascertain the views of different sections of society?

3. Why were the recommendations of the M.S. Swaminathan Research Foundation not heeded?

Recommendations

Casuarina plantations very close to the high tide line may cause severe, irreparable erosion of the entire coastline in the long run, affecting not only turtles and other species but also fishing

communities and coastal residents. The problem can only be resolved by removing *Casuarina* plantations up to at least 50 m from the high-tide line.

We recommend the following urgent steps:

1. Call for detailed records and maps of World Bank funded shelterbelt projects on the Tamil Nadu coast, specifically, the plantations within 50 m from the high tide line (these records are readily available with the Tamil Nadu Forest Department).

2. Provide emergency funding for the removal of plantations within 50 m of the high tide line. (Saplings planted in 2007 can be easily uprooted by bare hands. Plants more than a year old need more effort as the roots have to be dug up).

3. Set up a monitoring committee that includes representatives from credible non-governmental organisations to ensure compliance.

4. Ensure that, in the future, such shelterbelt projects and other projects that will impact natural ecosystems are scientifically assessed before funding and carefully and independently monitored during implementation.

Letter to the World Bank

The SSTCN has sent a letter with the above details to the World Bank, requesting them to take suitable action as suggested. The letter has been sent to Robert B. Zoellick, President and Chief Executive, The World Bank, 1818 H Street, NW, Washington DC, 20433, USA.

The letter is copied to Greenpeace, Wildlife Protection Society of India, Nature Conservation Foundation, World Wide Fund for Nature, Kalpavriksh, Wildlife First, Sanctuary Asia, Centre for Science and Environment, Reef Watch, Bombay Natural History Society, M.S. Swaminathan Research Foundation, Salim Ali Centre for Ornithology and Natural History, Care Earth, Ashoka Trust for Research in Ecology and the Environment, and other NGOs and media organisations.

Postscript

Following the letter to the World Bank, there was a call from the WB office in Delhi and a visit to Chennai by Mr Christoph Pusch Regional Coordinator South Asia, Hazard Risk Management and Ms Ranu Sinha Consultant, Hazard Risk Management. The two of them met SSTCN members and were to meet the Forest Department the next day. During the meeting with SSTCN, promises were made to immediately make arrangements to remove the casuarina in the 50m closest to the high tide line, but after that and till the time of printing this report, there has been no word at all from the World Bank.

Literature cited

Bhupathy, S. 2007. Monitoring of marine turtles along the Kerala and Tamil Nadu coasts. *Indian Ocean Turtle Newsletter* 5: 1-9.

Shanker, K. 2003. Thirty years of sea turtle conservation on the Madras coast: A review. *Kachhapa* 8: 16-19.