Mangrove Forests Reduced Impact of Tsunami

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The tsunami catastrophe of 26 December 2004 following the severe earthquake off the coast of Sumatra caused incomprehensible suffering and devastation. The question as to how the impact could have been mitigated and how lives could have been saved is being discussed throughout the region, and indeed throughout the world.

The example of the Pichavaram mangrove wetlands that cover an area of about 1400 ha and are located about 280 km south of Chennai in the Indian district of Cuddalore offers one answer to this question.
According to information from the M. S. Swaminathan Research Foundation MSSRF, out of the 17 hamlets in the Pichavaram area, 6 were protected by dense mangrove forests and suffered no damage at all, whereas 5 hamlets located near the open beach were totally destroyed. The remaining hamlets were farther away from the coast and mangroves.

In its report, the MSSRF stated that mangrove forests reduced the impact of the tsunamis in two ways: the velocity of the water decreased due to friction with the dense mangrove forest, and the volume of water from the waves reaching inland areas was lowered due to the distribution of the water in the many natural canals in the mangrove ecosystem.

The mangroves themselves, in fact, did not suffer much damage. According to scientists from the MSSRF, the tsunamis may have had even a positive effect on the mangrove forests by washing away the hydrogen sulphide loaded soil and debris deposited on the forest floor. Thus, fresh sea water can enter the mangroves more easily and enhance their healthy growth by decreasing the salinity level.

Mangroves with their complex, above-ground root structure have again proved to be an effective shield against strong waves, as they had done before in storms and similar natural disasters. In addition to their role in protecting inland areas from otherwise devastating impacts of natural disasters, they provide nurseries for economically important fisheries and habitat for threatened wildlife species, yield valuable wood products and plants used in traditional herbal medicine, and act as natural filters for water-borne and marine pollution.

In many parts of the world where these unique forests are found, they are being degraded or cleared, often for short-term, unsustainable uses. For communities struggling to earn their livelihoods while conserving mangrove forest resources for future generations, practical solutions are needed that use the best available science to restore mangrove forest health and productivity and to generate local incomes. The conservation, sustainable management, and restoration of mangrove forests is therefore an important long-term measure to protect coastal areas and their inhabitants from heavy devastation and to sustain, and rebuild, their livelihoods.

Scientific information on mangroves and their management is prerequisite for this measure. In IUFRO, Working Party 1.07.08 on Ecology and Silviculture of Wetland Forests aims at contributing to a better understanding of the best management practices for mangrove forests and promoting interactions among ecologists, social scientists and foresters working in saltwater wetlands. Working Party Coordinator Brad Walters from the Canadian Mount Allison University in New Brunswick is an acknowledged expert in the subject, who may be contacted for further information: <bwalters@mta.ca> .

MSSRF report: http://www.mssrf.org/notice_board/announcements/tidal_tragedy.htm