Chapter 4
Post-Tsunami Assessment of Coastal Vegetation, with the View to Protect Coastal Areas from Ocean Surges in Sri Lanka

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Abstract The magnitude and impacts of tsunamis and ocean surges are unpredictable. Careful examination of these events and their consequences provide an insight towards natural protection against these hazards; therefore better preparedness and disaster risk reduction are crucial in countries at risk. This paper attempts to demonstrate some of the lessons from the December 26, 2004 tsunami which struck Sri Lanka, one of the most severely affected countries in the Indian Ocean region. We explored the effects of the tsunami on coastal vegetation in affected areas, and assessed their recovery after the event. We also explored the economic uses of the coastal plants, with the view that plant species with high resilience over tsunami, could be used to establish green barriers against tsunamis and ocean surges while at the same time being of economic value to local communities.

This study revealed that good mangroves were able to stand up against tsunami, helping to reduce the risk. However, mangrove (re-) forestation should be essentially limited to those areas that are physically and environmentally able to host them and the extent of such areas along the coastline of Sri Lanka is less than one third of the total coastline. This study also identified non-mangrove species, which could be the potential elements for green barriers along the non-mangrove areas of the coastline. It is noteworthy that all these species except cultivated plants were found to be constituents of the natural seashore vegetation and dune forming vegetation in the past; however, currently their individuals are sparsely distributed probably as a result of anthropogenic pressure. We believe that the direct economic uses of those species as well as the importance of green barriers may motivate dwellers to restore the coastal green barriers along the non-mangrove areas of the coastline.

Keywords Sri Lanka • Tsunami • Green barriers • Dune vegetation • Mangroves

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