

# **THE ROLE OF COASTAL FOREST AND TREES IN COMBATING COASTAL EROSION**

GS Prasetya\*

Agency for the Assessment and Application of Technology  
Republic of Indonesia

Most of the coastlines are naturally dynamic, and cycles of erosion are often an important feature of their ecological character. Wind, waves and currents are easily moved the unconsolidated sand and soils in the coastal area resulting rapid changes in the position of shoreline. The shorelines change (erosion and accretion) take place over a range of time scales; it may occurred in response to smaller-scale (short term) events, such as storms, or regular waves, tides and winds, or in response to large scale (long term) events such as glaciations or orogenic cycles that may significantly alter sea levels (rise/fall). Without human involvement, those processes are just the basic movement of evolution to natural system.

Human activities along the coast (ie. reclamation, port development, shrimp farm); within the river catchments (ie. river damming and diverting), and offshore (ie. dredging, sand mining), combined with those natural forces often exacerbated coastal erosion in many places and jeopardize the possibilities for the coasts to fulfill their economical, social and ecological role on the long term and at a reasonable cost for the society. Development within coastal areas has increased the interest in erosion problems and has led to major efforts to manage the coastal erosion problem and to restore the ability of coast to accommodate short and long term induced changes occurring due to human activities, extreme events and sea level rise. The erosion problem become worse whenever the countermeasures that had been applied were inappropriate, not properly designed, constructed, or maintained, and without careful evaluation on the effects to the adjacent shores. The costs of installing hard structures for coastal protection are very high, and often aggravated the problem this led to increase interest soft structures for coastal protection (including increased forest cover) and of use of a mixture of hard and soft structures.

The growing appreciation in the role of coastal forest and tress that form barrier and provide some shore protection is due to the fact that clearing of coastal forests has increased the vulnerability of coasts to erosion. In this paper, the causes of coastal erosion, the impact of forest clearance and degradation on increasing exposure of coasts to erosion, and the role of forests and other vegetation on protecting against coastal erosion will be elaborated and discussed.