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## **Maintaining Coastal Forests as a Barrier to Tsunami**

**By Wan Shahara Ahmad Ghazali**

*This is the first in the series of two articles on research of coastal forests.*

KUALA LUMPUR, Sept 19 (Bernama) -- The 2004 Tsunami that originated in the Indian Ocean as a result of a massive earthquake off the west coast of Sumatra and sent huge waves crashing against the shores of 18 countries, changed the existing perception on environmental calamity.

In the wake of this catastrophe, accusations were made at the authorities for failing to prevent the loss of lives and severe damage to properties. Blames were also given for neglecting the coastal ecosystem that could have acted as a protective barrier against the giant killer waves.

However, people had forgotten the land reclamation work being carried out in the name of development. This had gone completely unchecked until the day when the world was shaken by the devastating results of the greatest Tsunami ever recorded on earth.

Last March 11, another Tsunami on an equally catastrophic scale occurred in Japan. It destroyed half of the country's north-east coast.

More than 15,000 people died while 8,000 went missing in the aftermath of the Tsunami. Worse still, 300 hospitals were damaged in the calamity, including 11 which were totally devastated.

The most frightening impact of the disaster was the nuclear crisis which attained catastrophic proportions, leading to meltdown of three nuclear reactors. Huge amount of radiation, up by at least 1,000 times the normal level, was leaked into the environment, affecting food and water sources.

Following the incident, the European Energy Commission declared that the impact of the Tsunami was similar to an apocalypse.

The world will continue to see the phenomena of Tsunamis, yet we remain unprepared for it. Although there is no defence against this catastrophe, there are ways to mitigate its impacts.

### **COASTAL FOREST, THE BEST BARRIER**

Deputy Secretary-General (Natural Resources) in Natural Resources and Environment Ministry, Datuk Aziyah Mohamed agreed that coastal forests are the best barriers against the impact of Tsunamis.

She said the R&D to boost the quantity and quality of coastal forests will turn these forests into a formidable barrier against Tsunami.

The forests, be it mangrove swamps or the conifers along the coast, reduce the impact of waves and winds that cause erosion.

The mangrove trees can trap sediments and this naturally builds up the sand embankments. The mangrove swamps are also the habitat of many of the marine life, and as such the destruction of these jungles severely affects the ecosystem.

This also has a critical impact on the nation's food resources.

"We should be thankful to have such unique features that are beneficial to the mankind," Aziyah said.

### **SPECIAL ATTENTION TOWARDS CONSERVATION**

Special attention is being given by the ministry towards the conservation efforts on coastal forests, particularly the mangrove forest, by initiating a Programme To Plant Mangrove and Other Suitable Trees along the nation's coast.

The national programme was launched on April 14, 2005, in the wake of the 2004 Tsunami.

"In the 9th Malaysia Plan (9MP), RM8 million from the RM40 million allocated for this programme, had been set aside for R&D activities, while under the 10MP, RM200,000 has been allocated for the programme," Aziyah noted.

In the 9MP, the national project managed to plant 5.87 million mangrove trees and other species of trees on 2,260 hectares of land nationwide.

Faced with various challenges such as vandalism, pollution and an uncertain weather, as well as strong waves that destroy the tree saplings, it has been quite difficult to gauge the success of the programme.

Based on observations at 393 locations, 171 locations were reported to be successful in achieving 80 per cent tree growth, while 73 other spots achieved a growth percentage of 51-79.

### **R&D INPUT CRUCIAL FOR CULTIVATION**

Although the programme has seen a good performance on the whole, other locations could only achieve less than half the growth.

"This proves that input from R&D is crucial to help us achieve better tree growth performance," Aziyah said, adding that the planting programme posed a risk in the marshy areas and, hence, a better planting technique was required to improve the success rate.

She remarked that the programme was the result of a close cooperation between the

ministry's Technical Planning and Implementation Committee (JTTP), steered by the Forestry Department, and the Committee on Research and Development (JTRD), which is chaired by FRIM.

JTRD, which comprises of researchers from FRIM, Universiti Malaya (UM) and Universiti Malaysia Sabah (UMS), undertakes studies on the best methods to revive the coastal forests' negative impact of erosion, apart from the composition, interest and commercialisation aspects of mangrove forest.

## **RESEARCH OUTCOME**

About 40 R&D research studies have been successfully carried out by the JTRD since 2005. The outcome of these were tabled at the National Seminar on R&D Projects On Coastal Mangroves in Malaysia: R&D Direction and Implementation, held at FRIM recently.

Among the research findings are the Comp-Mat and Comp-Pillow techniques for the cultivation of mangrove trees, those on stabilisation of eroded coast as well as the planting of mangrove and conifers along the Malaysian coast, apart from its issues and solutions.

Aziyah admitted that the work on conserving the coast was intricate and difficult and for this reason the ministry required a better system to pave the way for its scientists and researchers to make more meaningful contributions to the world.

## **DEVELOPMENT, POPULATION GROWTH**

In its efforts to conserve and rehabilitate the nation's coastal forests, the government has also been facing increasing demands as a result of development and population growth. As such, more coastal land is making way for housing, agriculture and farming projects among others.

"In the past two decades, some 18 per cent of the mangrove forest along the coast had to make way for development projects to meet the population and economic growth," she said.

However, the nation is still on the track of successfully implementing sustainable development through environment conservation without compromising the economy, she noted. -- BERNAMA