Coastal Greenbelt Initiative: Development of green belts to protect coastal communities and resources

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The Coastal Greenbelt Initiative
A response to the Asian Tsunami

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Objectives

The proposed objectives of the Initiative are as follows:

1. Enhance communication and exchange between different stakeholders involved in coastal greenbelt protection and rehabilitation
2. Provide guidance to communities, governments and international agencies on strategies and best practices relating to greenbelt establishment
3. Support the establishment of pilot and demonstration sites in the Asian region
4. Monitor and evaluate the progress made in establishing coastal greenbelts

Activities

- Enhance communication and exchange
  - Regional information exchange network for tsunami, storm, greenbelt and community livelihood issues
  - Exchange information on planned activities and funding opportunities
- Guidelines
  - Guidelines on value, structure, composition, establishment, management and risks of greenbelts
- Ecological restoration techniques
- Community-led rehabilitation of coastal forests and other ecosystems
- Support pilot and demonstration sites
- Network of pilot and demonstration sites
- Encourage the designation or development of coastal greenbelts
- Support community involvement

Monitoring and evaluation progress
- Assess greenbelts and storm erosion/tsunami impacts
- Review role in protection and livelihood support
- Role in climate change adaptation and mitigation

Progress

- Rapid assessment of tsunami impacts in selected parts of Malaysia, Indonesia, Thailand, India
- Compilation and analysis of information of importance of coastal forests in relation to tsunami

Lagoon Formation – near Calang
Total transformation of coastal landscape
Did Coastal Forests protect shorelines?

- From previous observations and earlier studies, the function of coastal forests in tsunami disaster reduction are:
  1. to reflect and resist tsunami energy, reduce inundation depth, inundation area, tsunami current;
  2. to stop driftwood and other materials moved by the tsunami, and to prevent the secondary damage by driftwood impact;
  3. to prevent people being washed out to sea;
  4. to reduce erosion of beaches and dunes which also act as a barrier against tsunamis.

Mangroves absorb wave energy

Source: www.dmce.gov.in

Casuarina Cyclone shelterbelt, Tamil Nadu, India

Conclusions

- Coastal forests provided significant protection where there was a sufficient width of intact forest
- Degraded forest or widely spaced trees provided little protection
- Situation varies significantly between sites influenced by different factors
- Strong justification for protection of remaining coastal forests
- Strong justification for immediate support for rehabilitation
**Progress 2**

- Regional and national workshops
- Public awareness and media engagement (more than 400 media articles)

**Progress 3**

- Publication in scientific journals on value of coastal greenbelts.
  - Science (October 2005, December 2005)
  - Nature (December 2005)
- Publications by other groups in:
  - Journal of Estuarine and Coastal Science
  - and other journals
- Development of more detailed analyses and modeling greenbelt benefits

**Progress 4**

- Collation of experience and lessons learned from rehabilitation measures
- Directory of post-tsunami rehabilitation sites and sharing of experience

**Experience and lessons learned**

- Rehabilitation strategy is critical
  - Eco-hydrological approach is needed
  - Use the power of nature rather than work against it
  - “Plant and go” strategy leads to high risk
- Site selection is critical
  - Sites with heavy wave action are not appropriate (example: Malaysian Category 1.2) — other erosion prevention measures are needed first
  - Planting on naturally bare mudflats is inappropriate — changes ecology and does not work
- Need to coordinate with other coastal development and reconstruction plans
Experience and lessons learned (2)

- Species selection is critical
  - Patrona species (e.g. Avicennia) should be used on open coasts
  - Non-pioneer species (e.g. Rhizophora) on more sheltered sites
  - Consider mixed species planting
  - Look at potential long-term use of species

- Community approach is needed especially for areas outside of formally protected forests (e.g. forest reserves)
  - Communities need proper support, access and security of tenure to stimulate long-term involvement
  - Training and initial support is needed for local community, especially in countries without a history of community action.

Progress 5

- Development/promotion of guidelines on greenbelt establishment
- 5 Step strategy for ecological rehabilitation of mangroves (Developed by Mangrove Action Project)
The 3-5 year old mangrove trees along shrimp pond’s dike in Pemalang, Central Java. A project supported by Wetlands International-IP in collaboration with local cooperative (Mitra Bahan).

Casuarina after 5 years

Future plans - Coastal Greenbelt Initiative

- Continued compilation of experience and lessons learned in rehabilitation or greenbelt establishment
- Publication of guidelines on Greenbelt establishment and maintenance — linked to best practice demonstration sites
- Development and monitoring of pilot projects/demonstration sites on community-based approaches to greenbelt establishment
- Assess vulnerability of coastlines to climate change related sea-level rise and increase in storm frequency and link to adaptation and mitigation strategies

(No Q/A session)