Mangrove Rehabilitation Approaches in Sri Lanka

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Mangrove Coverage in Sri Lanka

- Area under mangroves (≈6,000 – 11,000 ha)
- 0.1 - 0.15% of the forest cover in 1999
- The Forest Department indicates an increase in the mangrove cover

Importance of Mangroves

- Ecological functions /Environmental services (breeding & nursery grounds)
- Physical barrier for wind, storms etc.
- Forest products
- Carbon sinks
- Etc.

Issues for Mangrove Survival

- Illegal logging
- Exploitation for fire wood
- Hydrological changes

Why Replant Mangroves?

- Re-establishment of habitats
- Re-establishment of functions – coastal protection and contribution to fishery production
- Enhancement of aesthetic quality of affected landscape

Replanting Mangroves

- Was not a ‘popular’ activity in the 70’s and 80’s
- Tsunami brought the focus on mangroves
  - Considerable donor interest on mangroves after the Tsunami
  - Many opportunities for funding – for ‘replanting’ mangroves to be completed ‘quickly’ – the project approach

Post-tsunami Replanting

Success in barrier built estuaries is less than 10%

- Inadequate site assessment and ignorance of hydrology
- Lack of knowledge on ecology of mangroves
- Lack of post-planting care
- Inadequate project period
- Lack of interest on sustainability

Source: Jayatissa, 2010

Factors for Consideration in Replanting (1/2)

- Cost of restoration
- Obtain local community participation and support
- Site selection:
  - Soil stability and flooding pattern
  - Elevation of the site
  - Soil/water salinity and exchange of fresh and seawater
  - Tidal and wave energy associated with the site
  - Extent of pollution

Factors for Consideration in Replanting (2/2)

- Planting
  - Selection of appropriate species (site specific and availability of seeds)
  - Quality of planting material
  - Success of nursery management
  - Timing of planting
  - Adoption of appropriate planting techniques – Spacing, distance from low water mark, direct or nursery raised
- After care:
  - Periodic monitoring
  - Gap filling

Some thoughts on Replanting Mangroves

- Most post-tsunami plantings have failed
- There is yet a belief that planting mangroves is ‘good’
- Still untested by science
- Unreliable for development of public policy
- Land accretion

Some thoughts on Replanting Mangroves

- In Sri Lanka, mangroves exist (with few exceptions) within closed ecosystems (or barrier built estuaries and lagoons)
- Separated partially or fully from the sea

Some thoughts on Replanting Mangroves

<u>Sedimentation</u>

- In Negombo lagoon, 50,000 MT of sediments get trapped annually (from about 280,000 MT that enter the lagoon)
- Mangroves and sea grasses trap mangroves – sediment rises at the rate of 6 mm per year

Some thoughts on Replanting Mangroves

<u>Sedimentation</u>

- The tidal difference between high tide and low tide is between 50 cm – 75 cm; a micro-tide
- No strong currents are seen to move the deposited sediments
- In some lagoons (Rekawa) where the mouth is usually closed, the currents are minimal
- Our lagoons and estuaries are sediment traps.

Some thoughts on Replanting Mangroves

<u>Perceptions</u>

- Change of perception is necessary.
- In lagoons and estuaries, planting mangroves can therefore increase the land area and reduce the water body (affecting the fishery)
- When mangroves are planted in lagoons etc. a compensatory water surface needs to be cleared.

Concluding Remarks

- Mangrove planting needs a good science base, and should examine the hydrological aspects more fully;
- Should be considered as a development activity needing a ‘permit’.
- A permit will allow those in charge of lagoons and estuaries to enforce conditions on replanting mangroves.
- Different agencies who are in charge of mangroves (CCD, FD, DWLC etc) need to provide agreed Guidelines for mangrove planting.


Thank you

Some thoughts on Replanting Mangroves

- Haphazard planting
- Purposely planted for land accretion