Mangrove Restoration Efforts in Sri Lanka

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Including........

• Introduction

• Current status of mangroves in Sri Lanka

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  o Rekawa Lagoon
  o Negombo Lagoon
  o Puttalam Lagoon
  o Madu Ganga

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• Evaluation of Results

• Discussion

• Conclusion
CURRENT STATUS OF MANGROVES IN SRI LANKA

- Associated in 22 brackish water bodies
- Vegetation is estimated ~ 12,000 ha.
- Many benefits - economic goods and ecological services.
- Habitat degraded due to human activities.
- Increase of population density
- Attempts taken to restore mangrove
Six Study Sites

- Puttlam lagoon: two sites
- Negombo lagoon: two sites
- Madu Ganga: one site
- Rekawa lagoon: one site
Rekawa lagoon

- Located about 200 km south of Colombo in Hambantota District.
- Extent of the lagoon is about 250ha
- Mangrove and scrub forest (about 200 ha.) surround the lagoon
• Rekawa lagoon is shallow with the water depth averaging 1.4 meters.

• ~5,400 people living

• About half of the population is engaged in sea and lagoon fishing.
Negombo Lagoon

- Large estuarine lagoon in Gampaha District, south-west of Sri Lanka.

- Located about 35 km away from Colombo.

- Fed by number of small rivers and a canal.
Negombo Lagoon

• Surrounded by a densely populated region. The land is used for fishing and agriculture.

• People in the area are engaged on lagoon fishing and shrimp industry.

• Mangrove cover is depleting rapidly due to land clearing for large-scale shrimp aquaculture.
Puttalam Lagoon

- Largest mangrove patch in Sri Lanka.
- Coastal communities depend on lagoon fishery and mangrove forests for their survival.
- Heavy exploitation by coastal community.
- large-scale shrimp farming and agriculture.
Puttalam Lagoon

More than 3000 ha of mangroves lands were converted to shrimp farms.
Madu ganga

• The lakes Madu Ganga is located on the south-western coast of Sri Lanka.

• Madu Ganga has one of the most unique biodiversity.

• These vegetation types comprise a total of 303 species of plants.
Madu Ganga
Objectives of the Study

• To compare sustainability of six planting sites
• Study environmental suitability for the mangrove planting
• To compare increase of ecological & economical values of study sites
• To study reasons for failures
Materials used:

- Reports on Mangrove restoration projects
- Research papers and presentations done by researchers in Sri Lanka.
- Questionnaires – 20 individuals per site
- Test kits - chemical/physical parameters in lagoon water.
Methods applied for the study:

• Discussions with project leaders and participants.
  - compare number of plants succeeded
  - find out reasons for the failures

• On-site observations and photographs.
• Questionnaires and interviews with community /20 individuals in each site
  – Increase of ecological & economical values

• Water Quality analysis
  - Study environmental suitability for the mangrove planting
  - Water Quality parameters measured;
    pH, salinity, Temp, Conductivity, DO
% of survival of plants

Study sites

- Rekawa
- Madu Ganga
- Negombo-Molawatta
- Negombo-Kurana
- Puttalam-Kalpitiya
- Puttalam-Anawasala

% of survival of plants
Variation of Water Quality Parameters at Six Sites

Study sites

- Rekawa Lagoon
- Madu Ganga
- Negombo-Molawatta
- Negombo-Kurana
- Puttalam-Kalpitiya
- Puttalam-Anawasala

- Temperature (°C)
- DO (mg/l)
- Conductivity (ms/cm)
- pH
- Salinity (ppm)
Increase of ecological and economical values after re-plantation

No. of people with the positive answers

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<th>Study sites</th>
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<th>Increase of Economical values</th>
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<td>Puttalam-Anawasala</td>
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Discussion

- Among 6 mangrove re-planting sites, identified successful and unsuccessful results.

In Rekawa Lagoon and Madu Ganga sites,

- Low salinity conditions.
- Lack of monitoring after planting.
- The poor species selection without adequate site assessment
- Poor coordination among institutions and the community
Sites at Negombo and Puttlam Lagoons where success;

- Suitable environmental conditions
- Monitoring after planting
- Correct species selection
Mangrove plantation at Kalpitiya
Mangrove plantation at Anawasala
Conclusion

• Increase of ecological/economical values in 4 success sites.
• Water quality impact on the growth of mangrove plants

Recommendations:

- Building awareness among villagers, school children, government/NGO officials.
- Carryout more researches on mangrove habitats.
- Introduce appropriate technology and suitable legislations.
Thank You