Coastal Land Resource Use

Tamil Nadu & Pondicherry coastline: 1076 km
- Pitchavaram and Muthupet mangroves
- Gulf of Mannar Biosphere Reserve

State specific threats to coastal natural resources:
- Unregulated coastal development
- Port construction – 3 major ports and 13 minor ports, 2 nuclear establishments (Koodankulam and Kallakkadam)
- Tourism
- Rare earth mining - Indian Rare Earths in Manavalakurichi (without environmental clearances)
- Coral mining for limestone
- Poaching of endangered species (sea cucumbers, sea horses, red corals etc)
- Mangrove felling by Forest Department
- Thermal Power plant – dumping fly ash in Gulf of Mannar BR
- Sethusamudram Ship Canal Project in Gulf of Mannar BR
- Pollution and sewage outlets in GoM
- Sea walls and breakwaters at the Ennore port leading to sea erosion

Source: Coastal Action Network, Sridhar & Parthasarathy, 2003, Waves

Coastal Land Resource Use

Kerala coastline: 590 km
Extensive backwater system with 41 west flowing rivers
Narrow coastal tract of land
First community based turtle conservation rookery at Kollavipalayam

State specific threats to coastal natural resources:
- Cochin Port and 17 minor ports – controversies over Vizhinjam Port (Sridhar and Parthasarathy, 2003)
- Sea wall construction – nearly 300 km
- Unregulated tourism
- Unregulated construction along coast
- Illegal sand mining despite numerous court orders
- Cochin and Trivandrum - illegal constructions and destruction of mangrove areas


Coastal Land Resource Use

Andhra coastline: 970 km (largest)
- Pulicat Lake (Ramsar Site)
- 582 sq. km of mangroves = .9% of forest areas (MSSRF, 2002)
- Number of turtle rookeries and local conservation initiatives

State specific threats to coastal natural resources:
- Shrimp farming
- Pharmaceutical Industries
- Industrial estates
- Building violations
- 1 major port and 11 minor ports (Gangavaram and Krishnapatnam controversies)
- Proposals for ship-breaking

Source: Citizen, consumer and civic Action Group, Toxics Link, Waves, PUCL

Coastal Land Resource Use

Andaman and Nicobar Islands:
- 306 islands and 206 rocky outcrops; area of 8200 sq km
- Aboriginal Tribes: Negritos: The Great Andamanese, the Onge, the Jarawas and the Sentinelesse. Mongoloid origin: the Nicobarese and the Shompens
- 86% of original forest left, 10-20% destroyed by human activities (ANET, 2003)
- Mangroves: 929 sq km
- Only Leatherback turtle nesting grounds in India (Galathea in Great Nicobar)
- 11,000 sq km of coral reefs

State specific threats to coastal natural resources:
- Colonization programme by British and then by India
- Sedimentation, agricultural run off,
- Poaching of endangered species
- Illegal Thai trawlers
- Andaman Trunk Road through the Jarawa Reserve
- Tourism – the Phuket way (Anon, 2005, Saldanha, 1989; Equations, 2005)
- Proposal for defence establishments at Great Nicobar

Fisheries Resource Use

Need to look beyond 50 years to understand the changes over the decade

- Modernisation programme, the Indo Norwegian Project in the 50s
- Motorisation programmes (BoBP in TN & AP and Matsyafed and SIFFS in Kerala) – Increase of decrease of the ‘drudgery’ of fishing (Salagrama, 2002)
- Growth and status and decline of sustainable fisheries: Much has been said (Kurien, 1978; Kurien, 1985; Kurien, 1991; PCO&SIFFS, 1998; Velmurukanandan et al, 1997; Kurien 1998; D’Cruz, 1999; Salagrama, 1999; Salagrama, 2000; Bavink, 2001; Salagrama, 2002; Gilet, 2002; Bavink, 2003; D’Cruz, 2004; Kurien, 2005)
- Fisheries Data: State fisheries departments and CMFRI Questions on data reliability
- New trends: Mariculture, sea ranching, the latest ‘conservation’ fad – the FAD

The CMFRI conducted frame surveys including census of fishermen and craft and gear during 1961-62, 1973-77 and 1980. During 1998, a rapid census of fishing craft and gear was conducted. The results are summarised as:

<table>
<thead>
<tr>
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<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Active</td>
<td>2.3</td>
<td>3.2</td>
<td>4.7</td>
<td>1.6</td>
<td>10**</td>
</tr>
<tr>
<td>Artisanal craft Motorised</td>
<td>0</td>
<td>0</td>
<td>26171</td>
<td>50922</td>
<td></td>
</tr>
<tr>
<td>Non-Motorised</td>
<td>90423</td>
<td>106480</td>
<td>14083</td>
<td>15925</td>
<td>76596</td>
</tr>
<tr>
<td>Mechanised</td>
<td>0</td>
<td>8086</td>
<td>19013</td>
<td>34571</td>
<td>49070</td>
</tr>
<tr>
<td>Trawlers</td>
<td>0</td>
<td>NA</td>
<td>11316</td>
<td>NA</td>
<td>36979</td>
</tr>
<tr>
<td>Total (Male+female)</td>
<td>90423</td>
<td>106480</td>
<td>14083</td>
<td>182096</td>
<td>127518</td>
</tr>
</tbody>
</table>

The increase in craft corresponds to the increased fish catch but disaggregated data shows that the majority is from the mechanised sector. Data is only available for gear types not for individual nets. This has management implications since it makes regulating difficult to justify.

Social impacts of changes in fisheries

- Export driven approach has resulted in decreased per capita fish consumption among fishing communities
- ‘Masculisation’ of the sector. Women were mostly affected by the modernisation drive
- Greater unemployment as a result of a more individualised fishery
- Destruction of marine habitats
- Increased indebtedness arising out of increased uncertainty in fishing
- Greater migration and associated social problems
- Polarisated classes among the fishing communities

Post-tsunami land tenure: Use, issues & conflicts: Mainland

January 2006: Govt estimates reconstruction costs at 1.6 billion dollars

June 2005: Govt states that 12405 were dead (8,009 in Tamil Nadu, 3,513 in Andaman & Nicobar Islands, 599 in Pondicherry, 177 in Kerala and 107 in Andhra Pradesh)

Official estimates say the tragedy affected 27.92 million people in 1,089 villages:
- 43,000 people in Pondicherry
- 196,000 in Andhra Pradesh
- 1,30,000 in Kerala
- 599 in Andaman & Nicobar Islands (ReliefWeb).

JAM of ADB, UN & World Bank estimates livelihood losses to cost 21.2 billion dollars in Andhra Pradesh, 36.3 billion in Kerala and 108.3 billion in Tamil Nadu. These translate into the aid offered by the bank for reconstruction.

First phase bank was to fund rebuilding efforts in TNadu but the NGOs got there first! Now the bank proposed another 60 $ million dollars to aid reconstruction.

The DFID states that total missing persons was about 5792, but reliable estimates are still unavailable.

Post-tsunami land tenure: Use, issues & conflicts: ANI

The A&N Administration declared in 2006 that 3513 were declared dead or missing

Official Govt estimates put affected persons numbers at 356,000 in the Andaman and Nicobar Islands (ReliefWeb).

The Department of Fisheries in the Andamans gives the following estimates:

1. Loss to government property was estimated at Rs. 820.00 lakhs.
2. Two technical officials from Katchal Islands were reported missing.
3. 69 fishermen have been reported missing/dead.
4. A total of 2323 fishermen were directly affected.
5. 622 local made dongies were fully damaged.
6. 316 engine fitted boats were fully damaged/ lost.
7. 294 engine fitted boats were partially damaged.
8. 294 engine fitted boats were partially damaged.
9. Several fishers lost their nets, fishing implements, marketing assets, etc.

**Tsunami and land tenure in the Indian mainland**

O.O 172 of the Government of Tamil Nadu declared that all government sponsored new houses would be constructed only 200 metres from the HTL.

Did not provide aid to those who already had houses within 200 m. CRZ was interpreted as not permitted reconstruction within 200 m.

Concerns were voiced by several groups including the Coastal Action Network against this discriminatory order.

A petition has also been admitted in the Tamil Nadu high court against this order as coastal communities fear land grabbing by the tourism industry.

On the other hand NGOs were free to construct houses with their own funds but were ignorant of CRZ building rules on the coast.

Fishing communities do not have pattas or land rights in many areas. The CRZ only allows authorised constructions. The dichotomy has not been addressed yet.

Many communities still live in temporary shelters with tin sheets or tat-coasted sheets and corrugated metal with tarpaulin vs mud, bamboo houses of CWWC, issues with disproportionate houses in Kerala. NGO conflicts, communal divides.

T.Nadu has guidelines for building now.

**Post tsunami resource use concerns**

- Immediate impacts were few, such as fisherfolk in GoM extracting sea cucumbers from the reefs instead of going fishing in the sea.

- Poor understanding of environmental laws has led many NGOs to violate those norms.

- Large donors not yet paying much attention to environmental laws.

- A large number of motorised boats and fishing nets have been dumped in several villages. Though this may not have devastating impacts on the fishery resource, it has changed the social fabric of many villages and their way of life.

- In areas such as the Andamanas several NGOs have begun construction ranging from Oxfam, Care, and the Mata Amritanandamayi Mission (includes electric provisions for fridge, mixer, television, telephone etc. www.amma.org)

- Sea walls are being contemplated in several areas such as near Kalpakkam.

**Bioshields**

- The initial call to ‘fortify’ Tamil Nadu with a 1000 km sea wall gave way to much discussion and promotion of greening the coast with ‘bio-shields’ and shelter beds (of non mangrove species).

- It is vital to commission studies on the effectiveness of various species being mooted as bioshields, especially casurina and other exotics against natural hazards such as cyclones and storms. Orissa 1999.

- The impacts of these plantations on other coastal and marine species and their habitats is unknown (Pandav, 2005 casuarina plantations & turtle nesting).

- Officially, suitable sites (based on scientific studies) are not yet identified for plantation of these shelter beds / bioshields in all areas. However, plantation work has begun in parts of Tamil Nadu by the Forest Department.

- Promoted by various agencies such as the Green Coast Project.

- Workshops have been conducted by TRNet and MRSRF on coastal protection measures.

**Agriculture related issues**

The tsunami damaged large tracts of agricultural areas. It created salinised soils, washed away top soil, standing crops were damaged, salt and sand casting and siltation of ponds, irrigation and drainage occurred.

The NCRC estimates the damages as 8460 ha in Tamil Nadu and about 5000 ha in Nagapatinam itself.

Many initiatives are underway in Tamil Nadu to restore agriculture related livelihoods. These include removal of mud, clearing of drainage and irrigation channels, deep ploughing of fields, creating trenches around fields etc. 23 NGOs are involved in Nagapatinam district alone.

Short term measures include green manuring fields, growing salt resistant crops, while long term measures are aimed at overall improvements in agriculture.

Limitations appear to be process related. Coordination, community demands and expectation etc were listed at a recent workshop in Tamil Nadu on the Tsunami and Agriculture. Timely interventions appear to have been lacking in this sector.

**Source:** Compiled from NGO presentations at the Workshop on Disaster Preparedness in Agriculture. NCRC

**Policies and institutional provisions**

**Coastal Regulation Zone Notification**


- It declares coastal stretches as coastal regulation zones (CRZ) and regulates activities within this CRZ (through a system of prohibition and permission of activities).

- It includes the coastal stretches of seas, bays, estuaries, creeks, rivers and backwaters which are influenced by tidal action (in the landward side) upto 500 metres from the High Tide Line and the land between the HTL and the Low Tide Line (LTL).

(CRZ for rivers and creeks changed over the years and tidal influence = upto 5 ppt)

**Tsunami and land tenure in ANI**

- Tribal and settlers: Land rights and compensation

- Violation of human rights in temporary and intermediate shelters

- Ministry of Urban Development and Housing to provide pre-fabricated houses in Nicobars, while Nicobars live in locally designed machars (bamboo and dhala leaves).

- Pattas: Only one house per patta holder issues initially, houses and people multiplied.

- Whether permanent housing would mean security of tenure is not clear.

Implementation issues with the CRZ notification

- 19 amendments since 1991 – ushering in industrial development and rendering the CRZ meaningless
- No finally approved CZMPs and maps
- No demarcation of CRZ areas till date
- No consolidated notification – near impossible to interpret and implement
- Ambiguity of terms such as ‘traditional inhabitants’, ‘customary uses and rights’, ‘roads’ etc
- Near zero implementation, and even less action taken
- Multiple interpretations from legal cases and by implementing authority
- Only recognised legal and authorised constructions of the fishing community and considered all else as unauthorised
- Severely violated all along the coast


New Coastal Management Zone law, based on Swaminathan Committee Report on the CRZ Notification

Marine Fisheries Regulation Laws

Each maritime state has a Marine Fisheries Regulation Act

- Calls for a traditional fishing zone, to minimise conflicts between the mechanized and traditional sector
- Can specific closed areas or other fishing restrictions such as craft and gear regulations.
- Can declare prohibitions on catching certain species of fish.
- Seasonal bans – monsoon bans

However, its almost entirely not implemented. No capacity to implement with Departments, laws are not accepted by the powerful mechanised lobby. In Kerala the traditional community now includes large boat owners garnering more income than mechanised purse seine fisheries. Increased conflicts with ‘marine conservationists’.


Lessons (to be) learnt:

There are many findings from the tsunami and its impact on coastal areas. Whether these are lesson learnt is yet to be seen.

Detailed recommendations exist for each sector of coastal and marine planning and conservation. These cannot languish anymore in reports alone. Marine conservation, coastal planning and fisheries management must find more and more common ground.

The review of the Swaminathan Committee Report leads us to believe:

- Future coastal planning process be guided by principles of scientific rigour
- should follow a truly participatory process in planning and implementation bearing in mind the related goals of sustainable development and socio-ecological resilience.

Traditional fisheries management:

A few well-researched accounts on traditional and community-based fisheries and marine management practices in the country (Mathew, 1991; Bavares, 2003; Kurien, 2003; Salagrama, 2007; Lobo & Berkes, 2004). These studies illustrate the different community arrangements for fisheries management whose designs are based on varying community institutions and structures, fishery practices, governance mechanisms and habitats.

Gradually giving way to newer fisheries technologies. Unions catering to populist strategies – no concrete analysis or direction on future management.

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Welcome to the Homepage of the Post-Tsunami Environment Initiative Project.

Following their relief assistance, the UN system developed a Post-Tsunami Recovery Framework. The Framework calls for the formulation of a medium-term Environment Sustainability strategy as a component of the UN Recovery Framework. This component is operationalised through this project titled ‘Post Tsunami Environment Initiative’. Project is jointly executed by the Nature Conservation Foundation (NCF), Mysore, the Ashoka Trust for Research in Ecology and the Environment (ATREE), Bangalore and the Citizen consumer and civic Action Group (CAG), Chennai.

The project aims to understand coastal vulnerability and resilience in the face of such natural disasters within the Indian context, establish participatory ecological and community monitoring systems, critically analyse developmental policy with respect to coast, and develop management models for key sites along the coast.

Acknowledgements

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Anusha, Bharat Sundaram, Neha, Meera Anna Oomen, Rakhi Rai

Ashoka Trust for Research in Ecology and the Environment