ENCROACHING ON WETLANDS:
CLIMATE CHANGE, LAND USE CHANGES AND
COASTAL VULNERABILITY

CASE STUDY OF CHEYYUR 4000MW
COAL POWER PLANT
Climate Change: What We Can Expect

- Rising Sea Levels – 44 cm by 2070 (IPCC)
- Increased frequency/intensity of Extreme Weather Events

What this means:
- Salinity Intrusion – Effects on Agriculture/Drinking water
- Damage to coastal infrastructure
- Increased risk of flooding
“Soft” Protection Against EWE

- Sand dunes; Beaches -- Storm mitigators; reservoirs
- Wetlands as flood mitigators
- Mangroves – Pichavaram and tsunami
Sand dunes; Beaches -- Storm mitigators; reservoirs
Mangroves – Pichavaram and tsunami
<table>
<thead>
<tr>
<th>Cheyyur Ultra Mega Power Plant Vital Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Capacity</strong></td>
</tr>
<tr>
<td><strong>Imported Coal</strong></td>
</tr>
<tr>
<td><strong>Seawater Intake (Cooling/Freshwater)</strong></td>
</tr>
<tr>
<td><strong>Effluents to Sea</strong></td>
</tr>
<tr>
<td><strong>Total Ash Generated</strong></td>
</tr>
<tr>
<td></td>
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</tbody>
</table>
## Land Requirements

<table>
<thead>
<tr>
<th>Component</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Plant</td>
<td>415.45 ha (incl. 342.6 ha agriculture)</td>
</tr>
<tr>
<td>Ash Pond</td>
<td>90 ha</td>
</tr>
<tr>
<td>Coal Conveyor</td>
<td>22 ha</td>
</tr>
<tr>
<td>Rail Corridor</td>
<td>55 ha</td>
</tr>
<tr>
<td>Captive Port</td>
<td>84 acres including 650 metres beachfront</td>
</tr>
</tbody>
</table>
Claims Made to Get Clearance

- No sensitive areas in vicinity
- No sand dunes in project area
- No threat of erosion – stable coastline
- No mangroves/seagrass
Tamil Nadu
False Claim 1
No sensitive Areas
EIA fails to Assess Disaster Risk

- 1978 – 319 mm in 24 hours
- Plant designed for a shock-load of 280 mm in 24 hours
- Eris mitigate floods, recharge ground water
False Claim 2
No sand dunes in Port area (Panaiyur)

- Dunes extensive and common on Coromandel coast (Sanjeevi, 1996)
- Panaiyur dunes possibly extension of Kadapakkam dune complex (Namboothri et al, 2008)
Transect map
Sampling
“Community Mapping of Sand Dune Ecosystems of the Panaiyur Coast, Kanchipuram District, Tamil Nadu”
“Community Mapping of Sand Dune Ecosystems of the Panaiyur Coast, Kanchipuram District, Tamil Nadu”

Results:

- Confirms presence of continuous stretch of well-established dunes
- Dune begins at 5-10 m from beach berm, extends 570 metres
- Average height: 9.774 m
- Stretches for more than 1 km North and South of Periakuppam
- Coal stacking yard to come up atop a large sand dune
False Claim 3
Coastline is stable

Source: “National Assessment of Shoreline Change” Ministry of Environment & Forests
MORE FALSE CLAIMS

Area is not a significant fishing ground or feeding ground for fisheries
Any impact to fisheries would be local and shall not affect fisheries production of state

No mangroves or seagrass

No estuaries in vicinity
Yedaianthittu magroves
Yedainthittu Estuary

“The naturally occurring vegetation consists of sea grasses such as Halophila ovalis, mangroves such as Avicennia marina and Rhizophora sp. (the latter has been planted lately) and algae such as Chaetomorpha, Enteromorpha, etc.”

Source: Ramanujam M E et al (2009), Journal of Threatened Taxa
## Recipe for Disaster

<table>
<thead>
<tr>
<th>District</th>
<th>No. of Plants</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nagapattinam</td>
<td>6</td>
<td>8020</td>
</tr>
<tr>
<td>Kanchipuram</td>
<td>1</td>
<td>4000</td>
</tr>
<tr>
<td>Thoothukudi</td>
<td>4</td>
<td>5570</td>
</tr>
<tr>
<td>Thiruvallur</td>
<td>3</td>
<td>3400</td>
</tr>
<tr>
<td>Cuddalore</td>
<td>3</td>
<td>6400</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>17</strong></td>
<td><strong>26,440</strong></td>
</tr>
</tbody>
</table>

Source: Compilation of data from MoEF website. Preetha K.V., doctoral student, MIDS.
Greenhouse gas emissions

- Cheyyur plant (80 percent PLF)
- Total Annual Electricity Production: 28 million MWh
- CO2 emissions in tonnes/MWh = 0.75 to 0.91
- Total Annual CO2 emissions from Cheyyur 4000 UMPP = 21 to 25 million tpa
- Total CO2 emissions over 30 year lifetime: 620 million to 750 million tpa
Climate Commission, Government of Australia.

“From today until 2050 we can emit no more than 600 billion tonnes of carbon dioxide to have a good chance of staying within the 2°C limit.”
ARE WE MAD?

The jury's out!