Decision Support System for the Integrated Coastal and Marine Area Management

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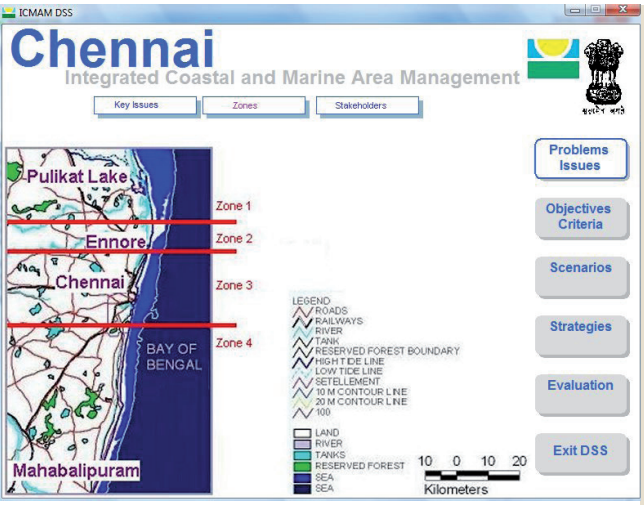

***Interface DSS showing the four zones** identified for development of ICMAM plan, with the Framework for Analysis.*

Summary

A Decision Support System (DSS) was built for the Chennai coastal zone to support Integrated Coastal & Marine Management (ICMAM). The project area for the Chennai ICMAM Plan was from Pulicat Lake in the North to Mahabalipuram in the South, subdivided into four zones.
The project used a Framework for Analysis consisting of four analytical elements:

i) Identification of the major problems and issues,
ii) Objectives and criteria commonly defined,
iii) Selection of scenarios and policy strategies and
iv) Evaluation strategies and scenarios.

The Framework guided the development of the ICMAM Plan. It was also used as the basis for the DSS and the analysis of alternative strategies. The DSS enabled the user to compare alternative solutions (strategies) for different scenarios (developments beyond the influence of the decision maker).

A large group of stakeholders of the Chennai coastal areas went through the four elements of the Framework at a series of workshops. Their active participation was a prerequisite for success. They prepared alternative strategies, for particular scenarios. This process was facilitated by introducing a 'user-interface' (see ICMAM-DSS below) illustrating the various analytical steps.
The DSS module based on 'cross-impact analyses' quantified and illustrated the various relationships between the stakeholders, the uses and their impacts on the environment and resources.
The co-design of the ICMAM-DSS by the Indian project partners, regional stakeholders and the Dutch experts determined the contents of the DSS and identified the key issues and actions. This required flexibility in the design of the DSS.

The DSS was successfully used as a structuring tool when making the ICMAM Plans for the coastal zones in Chennai (Tamil Nadu). It was later also applied in Goa and Gujarat (the Gulf of Kachchh). These ICMAM Plans provide the basis for strengthening the institutional ICZM arrangements in India.

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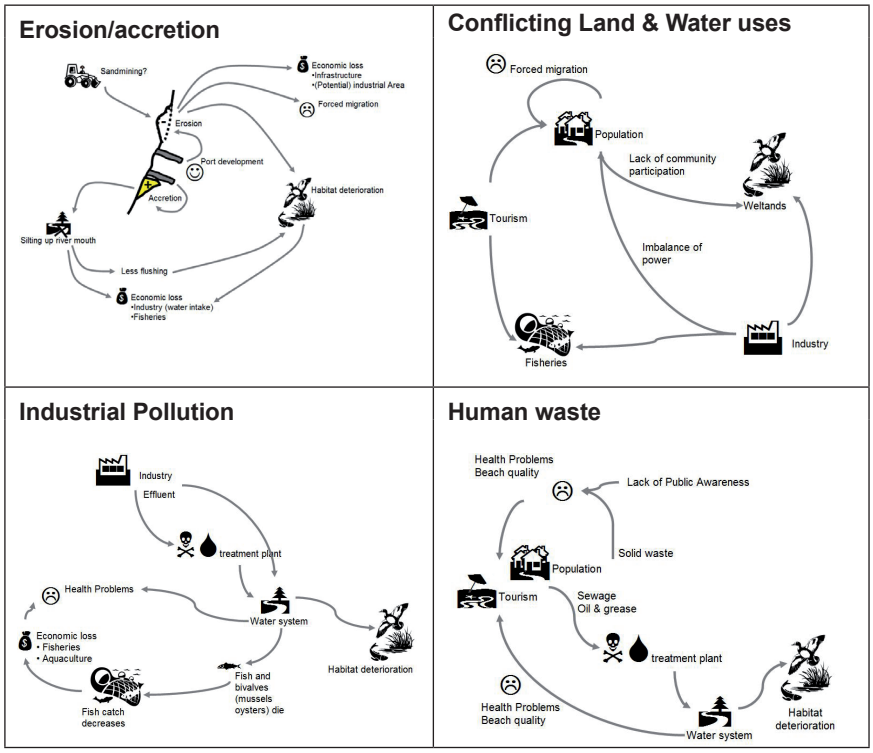
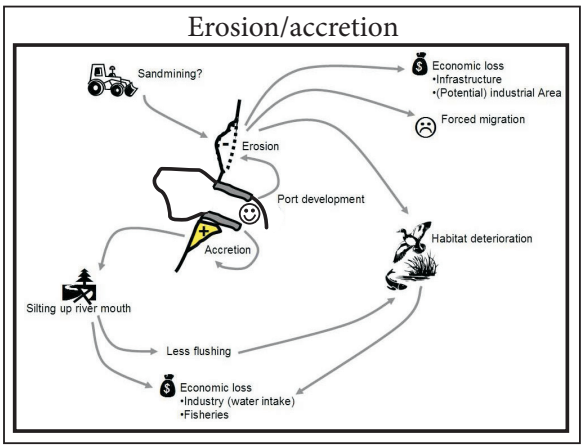
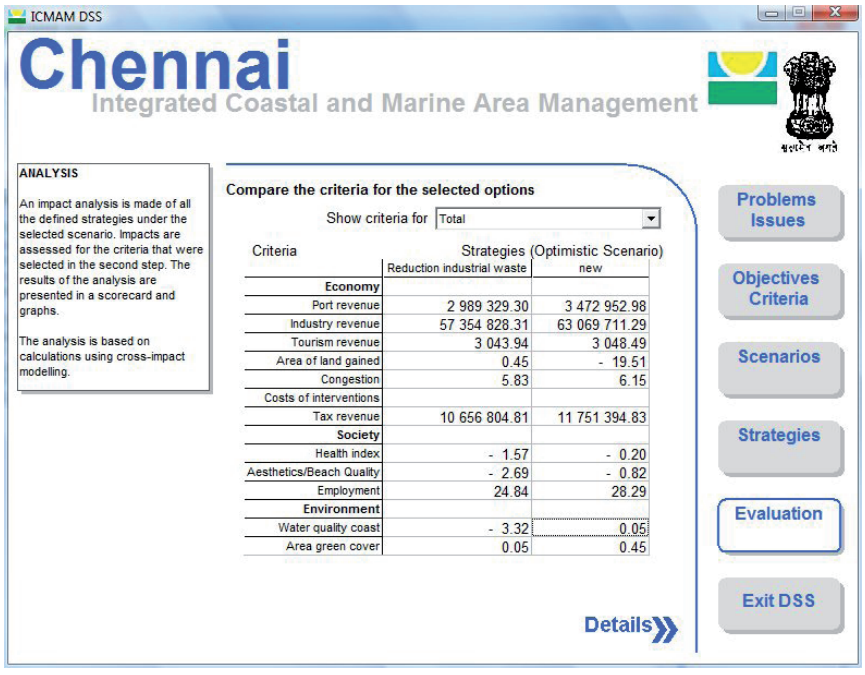


Key issues and system diagrams in the Decision Support System (DSS) *The four depicted diagrams, together with 'Institutional Arrangement" and 'Community Participation' captured the key issues identified during workshops for inclusion in the ICMAM plan and DSS.*



The relation between causes and impacts *are shown for the issue: Erosion and accretion. Effect of sand mining, port development and breakwaters, longshore currents impact the economy, habitats and forced migration due to loss of land.*



Interface of the DSS for the evaluation of strategies*: comparing a predefined strategy: 'Reduction of industrial waste' with a 'New' strategy defined by the participants of the ICMAM-DSS Workshop III; both strategies are analysed under the same 'Optimistic Scenario'.*