

EXCHANGE AND INTER-RELATIONSHIP AMONG THE WATERSHED, COASTAL LAGOONS, AND COASTAL OCEAN ECOSYSTEMS: A TRAIN-SEA-COAST COURSE FOR THE BRAZILIAN COASTAL ZONE

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The Brazilian coastline extends for approximately 8,300 Km including diverse environments as sandy beaches, sand bars, estuaries, mangroves, bays, coastal lagoons and reefs among others. Recent analyses of the coast have detected a myriad of environmental problems related to the planning and use of the coastal ecosystems. The dominant problems include the inadequate management of water resources and land use, the impact caused by industrial and port activities, high population density in coastal settlements during summer seasons, contamination by industrial and urban sewage, and erosion.

Main Environmental Problems for the Brazilian Coast

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| Pollution | Coastal Erosion |
| Poor Occupation of Coastal Areas | Inadequate Agricultural Practices |
| Inadequate Management | Deforestation |
| Irrational Exploitation of Living Resources | Conflicting Uses |
| Lack of Environmental Literacy | |

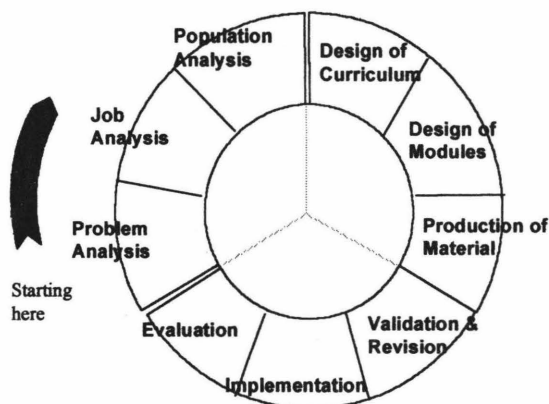
Several are the reasons for such problems although it is generally accepted that the Brazilian coastal zone has been analyzed and planned in a segmented way, ignoring that the dominant components and processes are part of the same broad ecosystem. It is also understood that coastal managers do not have adequate knowledge, skills and attitudes to approach coastal problems comprehensively.

A Proposed Training Course

Based on such needs the Brazilian unit of the United Nations' Train-Sea-Coast Programme is developing a training course on exchange and inter-relationship among the watershed, coastal lagoons, and coastal ocean ecosystems. First offerings of the course will target coastal managers at local, state and national levels. The Train-Sea-Coast Programme aims at improving the existing capacities of training/educational institutions and individuals having responsibilities in the field of coastal and ocean management. Courses are based on a common set of standards, both in methodology of course design and in the type of the training materials which are applied throughout the network of training centers. The approach followed is that of the TRAIN-X strategy, that over the past 15 years has been followed by a number of UN agencies. The training model involves three distinct phases towards the creation of a training course- Analysis of

Training Need, Development of Training, and Evaluation of Training. These activities are then broken down into nine phases as indicated in the following diagram:

The Phases of Training Development



The proposed course will include four major modules: (1) Identification of the dominant coastal problems, (2) Emphasis of the context of each problem applying a systems approach, (3) Critical analysis of the methodologies presently used for coastal planning and management, and (4) Discussion of innovative methodologies. The type of training for the course will include group training and individual practice. Full simulated, or hybrid situations based upon case-studies will be used. Focus will be set on questions as:

- What to do when information is not sufficient?
- Does the present environmental legislation consider an integrated approach?
- Is it possible to follow an alternative and better course?
- How to make a choice when uncertainty seems to be the norm on environmental issues.

During the training process the need to advance from a segmented to a comprehensive approach considering land use policies and management linked with water management will be stressed. Freshwater, coastal, and marine environments should also be understood as a management continuum where downstream effects provoked by anthropogenic activities are recognized. Innovative methodologies of management should ideally evolve from a traditional curative to proactive approaches. Further concepts to be discussed include co-management, adaptive management, subsidiarity, and national and local conditions to develop new methodologies.

Expected Results from the Course

An expected practical result from the course is a better qualification of personnel presently involved with coastal management programs. It is also expected that conditions to set the standards for the coastal management tasks through a systems approach and based on such new concepts will be established by the end of the course. An important challenge for the Train-Sea-Coast Programme in Brazil for years to come will be the evaluation of the effects of the continuous offering of the course on the solution or attenuation of the detected problems. This aspect (that characterizes the

course evaluation step) produces the necessary feedback to adjust next offerings of the course in search for the best integrated management of the coast. Some important constraints of the evaluation are related to the large extension of the Brazilian coast, the high diversity of coastal environments and the unequal level of development among coastal states. Based on such diversity the offering of the course at different sites and adapted to different ecological, social and economic realities of the involved communities is proposed.