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Can science and planning save the world's coastal zones?

Land – Ocean Interactions in the Coastal Zone, LOICZ, of the International Geosphere-Biosphere Programme and the International Human Dimensions Programme on Global Environmental Change.

EGMOND, The Netherlands: Coastal zones, their contributing rivers and estuaries are under serious threat from rapid unplanned development, over population, poor water quality and sedimentation according to international scientists attending the LOICZ Global Environment Change meeting in The Netherlands this month (26-29 June 2005).

The meeting prioritizes issues that need long-term scientific attention through research, training and social change. It includes sessions to evaluate future scenarios of a changing Earth system and highlights new tools, knowledge and policies for integrated coastal zone management.

Large parts of the world's population live in large coastal cities and along sprawling coast-urban townships. Estimates calculate that up to 3.1 billion people live within 200 kilometres of the sea, and if they can't live there, they take their holidays there, in what's fast becoming a clogged up, concrete coastline. Coastal zones contain rich resources to produce goods and services and are home to most commercial and industrial activities. In particular, it's where most fishing, tourism, shipping and manufacturing industries are concentrated.

Natural resources in coastal and marine areas are heavily exploited, often to sustain local people's livelihoods. Coastal over-development has led to the systematic overexploitation of nearshore fisheries; pollution from urban settlement, tourism and industrial development; poor estuarine water quality for ecosystem and public health; the rapid decline of waterways, mangrove forests and degradation of coastal ecosystems, such as seagrass beds and coral reefs. While these threats are widespread, issues dominating policy discussion are the competing uses of natural resources and rapid, poorly planned development of coastal and marine areas.

Appropriate valuations of coastal resources and ecosystems using innovative economic tools are needed to assess their monetary and cultural values. Protected areas are required to protect endangered species and habitats. Effective education and community participation are needed for sustainable coastal conservation and resource management efforts. Governments must resolve conflicting uses of coastal resources, lack of inappropriate land use planning, and unsustainable aquaculture practices, much of which involve destruction of coastal vegetation.

The overriding challenge in coastal management is developing and implementing sound coastal policies and regulations. Environment impacts are essentially social problems that require political solutions.

The world's leading natural and social science coastal researchers will address these issues at an international meeting at Egmond aan Zee in The Netherlands, in June 2005. This Inaugural Open Science Meeting of the Land-Ocean Interactions in the Coastal Zone, LOICZ, global research project and network provides the first forum to bring together the expert community to address the geographic and scientific scope of coastal zone research for the next decade. LOICZ addresses a number of challenges and opportunities for the global environmental change research community.

Both the International Geosphere-Biosphere Programme, a study of Global Change, and the International Human Dimensions Programme on Global Environmental Change, sponsor the LOICZ as a core project. The overall aim of the IGBP is "to describe and understand the interactive

physical, chemical, and biological processes that regulate the Earth's system, the unique environment that it provides for life, the changes that are occurring in the system, and the manner in which they are influenced by human actions." The IHDP aims "to promote, catalyse and coordinate research, capacity-building and networking on the human dimensions of global environmental change. It takes a social science perspective on global change and works at the interface between science and practice".

The conference, 'Coasts and Coastal People – Scenarios of Change and Responses', will explore:

- ❑ Vulnerability of coastal systems and hazards to human society
- ❑ Implications of global change for coastal ecosystems and sustainable development
- ❑ Human influences on river basin-coastal zone interactions
- ❑ Biogeochemical cycles in coastal and shelf waters
- ❑ Sustaining coastal systems by managing land-ocean interactions

Participants from around 60 countries will develop ways to better connect their activities outlined in LOICZ's new Science Plan & Implementation Strategy. They will identify society's priority coastal issues that need specific scientific attention through research, training and social change - including a discussion to evaluate future scenarios of a changing earth system. The meeting will also debate how coastal practitioners and community groups can apply research results, including new products and tools developed by LOICZ, and how scientific information can be better communicated to key stakeholder and interest groups. It will determine a strategy to generate broad international support for implementing the next LOICZ II program. Close to 300 of the world's top coastal natural and social scientists will present a broad range of approaches on monitoring and assessment, ecosystem processes, modelling and management, and community participation.

For further information visit: www.loicz.org/loicz_nl/loicz_nl_homepage.php

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