



# *Integrated Management: Where Freshwater Basins Meet Coastal Areas*

## **An Invitation**

Roundtable Discussion on *Meeting Human and Environmental Needs through Linking Integrated Management of Freshwater Basins with Downstream Coastal Areas and their Ecosystems* at the 5th World Water Forum

March 20, 2009, 14:30-16:30, Istanbul, Sub-session 3.3.2.1 (Sutluce Carpark room)

Coastal ecosystems are strongly influenced by land-based activities and pollution from all activities upstream. Freshwater affects all aspects of ocean and coastal biological and physical characteristics, including productivity, trophic balances, salinity, turbidity, and streams. At the same time, the dynamics of the coastal ecosystem may impact the sources of freshwater by influencing the water cycle, tidal movement, and intrusion of salt water into coastal aquifers. The interface between freshwater and marine systems generates some of the most productive ecosystems on earth, including estuaries, deltas, and mangroves, which depend on the balance between the two systems. The threat of climate change could eventually break this balance, affecting both the marine and freshwater systems, hence the urgent challenge of addressing this linkage through integrated management. The potential impact of not addressing this issue in a timely manner may have catastrophic effects on the global economy and on human and environmental health.

Although many international environmental fora have alerted scientists and decision makers to the importance of developing integrated tools to address the linkage of freshwater and ocean and coastal management, these two communities remain fragmented, addressing their own problems, speaking different languages, having separate budgets, duplicating many national-regional efforts, and disregarding each system's issues and potential joint solutions.



### **Living on the Edge**

- Freshwater demand will significantly increase with rapidly increasing coastal development:
  - Projected to affect 91% of all inhabited coasts by 2050
  - 15 of the 20 largest cities in the world are on the coast
  - Coastal population densities are projected to increase from 77 people/km<sup>2</sup> to 115 people/km<sup>2</sup> by 2025
- The economic future of many countries is centered in the coastal zone, where sensitive coastal areas, such as deltas and estuaries, coral reefs, low-lying coastal wetlands, small islands, and sand/gravel coastlines and beaches, are more vulnerable to the combined impact of land-based pollution and climate change effects
- Upstream and downstream management and planning are not connected; stakeholders in both areas are not aware of their impact on each other

### **Upstream to Downstream Impacts**

- More than 80% of marine pollution originates from land-based sources
- Nitrogen exports to the marine environment are projected to increase at least 14% globally by 2030. In Southeast Asia more than 600,000 tons of nitrogen are discharged annually from the major rivers
- Sedimentation has decreased in some areas due to reduced river flows as a result of terrestrial overuse for agricultural irrigation, while increasing in other regions as a result of coastal development and watershed deforestation
- Coastal wetlands and mangroves are declining rapidly, typically by 50–90% in most regions in the past four decades

- Climate change may alter ocean circulation patterns and continental shelf processes crucial to coastal water quality and nutrient cycling

The roundtable discussion, which is part of a session on *Ecosystems for Water and Life— Benefits Sharing for Regional Prosperity (Session 3.3.2)*, aims to provide a venue at the 5th World Water Forum where water users, practitioners, scientists, decision-makers, representatives of governmental, non-governmental, and intergovernmental organizations, industry, media and other stakeholders in integrated water resources management and coastal and ocean management can contribute their perspectives and share their experiences on the following questions:

- How can coastal and ocean management and integrated water resources management be effectively linked and integrated across all levels and sectors?
- What positive and negative impacts (economic, social and environmental) are there on ecosystem goods and services from freshwater flows to ocean and coastal ecosystems?
- How do these impacts affect different sectors (industrial, agricultural, fisheries, tourism, transportation, energy, environment)?
- What are possible recommendations to promote and ensure: 1) equitable sharing of water resources among upstream and downstream users; 2) conservation of freshwater and marine ecosystems; and 3) sustainability of multiple uses?

Recommendations emanating from the 2008 Global Conference on Oceans, Coasts, and Islands on closing the gap between freshwater and coastal management include: 1) taking coordinated action at all levels (including local, national and international); 2) communicating the

importance of integration among decision makers and main stakeholders; 3) promoting demonstration projects and implementation of best management practices; and 4) prioritizing increased funding and capacity building.

Management of freshwater and its impact on ocean and coastal areas is a cross-cutting issue (environmental, political, social, and economic) and must be a priority focus of the 5th World Water Forum, and a permanent World Water Council agenda item for future fora.

The roundtable discussion is co-organized by the Global Forum on Oceans, Coasts, and Islands, the U.S. National Oceanic and Atmospheric Administration, Global Environment Facility, UNDP, UNEP Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, Global Water Partnership, The Nature Conservancy, UNEP-DHI Centre for Water and Environment, and the American Water Resources Association, with the leadership of the Global Forum Working Group on Freshwater to Oceans

(<http://www.thew2o.net/events/freshwater/>;

<http://www.globaloceans.org/freshwater/index.html>).

For more information about the roundtable and the work of the Global Forum on linking the management of freshwater and oceans and coasts, please contact:

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