Sediments cause problems for the world's rivers and coasts

22 June 2005

EGMOND, THE NETHERLANDS: Billions of tonnes of sediment are clogging up the world's coastal zones, rivers and estuaries with devastating results to the environment, say scientists attending an international meeting organised by the Land-Ocean Interactions in the Coastal Zone (LOICZ) project, a global network of coastal and marine scientists.

Nutrient-laden mud, gravel and sand, pushed downstream by large rivers and estuaries, are changing the shape of coastlines, destroying aquatic life and even filling up parts of shallow continental shelves, they say.

Ironically, a seemingly opposite problem is also occurring in many regions. Damming of rivers is causing a loss of an estimated 1.4 billion tonnes of sediment that never make it to the coast. This results in a shortage of nutrient supply to the coast and severe erosion. An average of 1 dam higher than 15 m is built daily and large rivers are "managed" to extremes with almost no net run-off to the sea. These result in declines in fisheries and increased sediment-related risks for coastal cities.

Unfortunately the two forces do not cancel each other out since the primary impacts are local and regional rather than global.

The meeting will highlight future scenarios for coastal zones and how science is helping communities adapt to change and deal with catchment-to-coast issues.

As coastal mega cities and urban sprawl expand across all continents, estuaries, beaches and shallow seas are being consumed by polluted mud, gravel and silt at frightening rates, the scientists warn. Large cities are among the worst offenders. Of the world's mega cities with populations over 10 million inhabitants, 14 are coastal.

Roughly 3.1 billion people – half of the world's population – are estimated to live within 200 kilometres of a coast. In Latin America, the most urbanised of the developing regions, three-quarters of the population - 382 million – live within 200 kilometres of a seacoast.

While rivers are the main conduits of sediment transport and large dams are man-made reservoirs that reduce their delivery to the coast, it appears that climate change and incremental sea level rise will have an even more insidious and damaging affect over time. Coastal engineer Dr Boot, of the Department of Marine and Coastal Management at Delft in the Netherlands said widespread beach erosion is already occurring at a global scale. He estimates that 70% of the world's sandy beaches are already eroding and increasing sea levels will only exacerbate the problem.

Using a new model called DIVA (Dynamic Interactive Vulnerability Assessment), developed by a multi-disciplinary team of researchers from Germany, United Kingdom and The Netherlands, Dr Boot said the model shows that, without adaptation, coastal retreat

could be significant in nearly all regions of the world, with impacts such as land loss, urban inundation and damage to beach-based tourism.

The science meeting will also review how coastal development has led to the systematic overexploitation of near-shore 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.

But it's not all "gloom and doom" says LOICZ Chairperson, Liana McManus from the University of Miami Rosenstiel School. "The meeting will present new tools to address these threats, and innovative approaches to show how societies contribute to coastal problems and what their options are to move current scenarios to more sustainable states," she says.

"We need a coordinated global effort to overcome the many and complex changes occurring in the world's coastal zones. LOICZ is about the integrated science of coasts and the people dependent on these systems. Along with our research partners, we strive to provide the science so people can make better informed decisions on how they can manage their coastal systems. To sustain these, all sectors of the community must be engaged".

Notes for Edotors
The conference will be held from 27-29 June at Hotel Zuiderduin
Zeeweg 52, 1931 VL, Egmond aan Zee, Netherlands
Phone: +31-(0)72 7502000
Fax: +31-(0)720 7502001
e-mail: info@zuiderduin.nl
www.zuiderduin.nl

LOICZ operates as a core project of both the International Geosphere-Biosphere Programme and the International Human Dimensions Programme on Global Environmental Change.

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

Media assistance: Don Alcock, Communication Manager, Coastal CRC, Australia
email: don@keytext.com.au
phone: +61 7 3362 9373
mobile: 0418 882 063

Conference organisation: Martin Le-Tissier, Deputy Director, LOICZ, The Netherlands
email: m.le-tissier@envision.uk.com
phone: + 31 222 369404

Hartwig Kremer, Executive Director, LOICZ, The Netherlands

email: kremer@nioz.nl

phone: +31 222 369427

mobile +31 (6) 300 79 187

Don Alcock is a Brisbane-based science writer with the Cooperative Research Centre for Coastal Zone, Estuary and Waterway Management. Contact don@keytext.com.au