

Protect the world's deltas

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WHOI Geologist Liviu Giosan and colleagues call for maintenance efforts to be started now to avert the loss of vast expanses of coastline, and the consequent losses of ecological services, economic and social crises, and large-scale migrations. Credit: Tom Kleindinst, Woods Hole Oceanographic Institution

Extensive areas of the world's deltas—which accommodate major cities such as Shanghai, Dhaka and Bangkok—will be drowned in the next century by rising sea levels, according to a Comment piece in this week's *Nature*.

In the article, Dr. Liviu Giosan, a geologist with the Woods Hole Oceanographic Institution (WHOI), and colleagues call for maintenance efforts to be started now to avert the loss of vast expanses of coastline, and the consequent losses of ecological services, economic and social crises, and large-scale migrations.

Problems start upstream: deltas are built from sediments deposited at the mouths of rivers, but dams and river engineering have lowered rates of [sediment flow](#). The Nile and the Indus, for example, carry 98 percent and 94 percent less mud respectively than they did 100 years ago. At the coast, rising seas resulting from warmer global temperatures are eroding delta plains, increasing the chance of flooding. Coastal lands lower than a meter in elevation will be inundated within a century.

Lack of quantitative knowledge of basic delta processes is hindering efforts to develop maintenance strategies for deltas, the authors say. The retention of sand and mud as well as the role of healthy marshes and vegetation in holding on to sediment and forming organic soils remains to be fully understood. Giosan and colleagues call for monitoring programs to be set up worldwide, coordinated and guided by United Nations committee of experts. River sediment flows must be restored, and natural land-building methods should be exploited in [delta](#) plains.

More information: Protect the world's deltas, *Nature*, 2014.

Provided by Woods Hole Oceanographic Institution

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