

## **The perils of human activity on South American deltas: lessons from Colombia's experience with soil erosion**

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**Abstract** The Andean drainage basins of Colombian deltas exhibit a very delicate variety of ecosystems and environments along its prolonged trajectory, which has made it particularly vulnerable to the onslaught of modernity and human activity. While the increasing intensity of natural disasters in tropical areas is often blamed on global warming, the causes might not be as intractable. Soil erosion and deforestation, both caused by unrestrained human activity, can affect deltas more profoundly. Many anthropogenic influences, including deforestation, an agriculture and pasture increase by 75%, poor soil conservation and mining practices, may have accounted for the overall increasing trends of sediment transport from rivers to Colombian deltas. According to our recent study of human activities in terms of deforestation, 32% of the observed variance in sediment transport from the Magdalena River to its delta could be explained by deforestation. Thus, the amount of sediment transported by the Magdalena to its delta plain, approximately 50 Mt annually, is probably due to deforestation. Also, the Patía River in the Pacific coast has witnessed an increase in sediment transport by 45% during the last decade, an increase mainly accounted for by deforestation. Drawing from Colombia's experience with man-made ecological modifications, this paper offers a preliminary discussion on the implications of human pressure on fluvial ecosystems and their deltas, with the hope that this information will better equip citizens and policymakers across the developing world.

**Key words** Colombia; drainage basins; erosion; sediment load; human activities; deforestation; Magdalena; Patía