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Risk of intensified storm surges: High stakes for coastal zone of Morocco

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Scientific evidence suggests that more intense storm surges and sea-level rise from climate change are serious global threats for the coastal areas and human society. Although the science is not yet conclusive regarding the link between the increase of the intensity and frequency of storms and the global warming, the consensus among projections by the global scientific community points to the need for greater disaster preparedness in countries vulnerable to storm surges.

The coastal zone of Morocco, which extends for nearly 3500 km, along the Mediterranean Sea and Atlantic Ocean forms one of the main socioeconomic areas of the country with more than 60% of the population inhabiting the coastal cities, as well as incorporating 90% of the industry. However, due to diverse human pressures, the natural and socio-economic capacity of many parts of this coast, to adapt to change has been reduced, thereby, increasing their vulnerability to future sea-level rise and intensified storms surges. In this regard, the World Bank (2009) classified the Coastal GDP in Morocco within the Top 10 countries at risk with intensification of storm surges.

Furthermore, current Moroccan development plans identify coastal tourism as one of the country's top priorities for further economic growth. The initiative, labeled "Plan Azur" is a large scale project for creating six coastal resorts for holiday-home owners and tourists. Simultaneously, investments in the tourism sector boomed and the pace of building in these coastal areas reached a peak. In these conditions, and if climate change is not addressed, the development could prove to be not secure to live in, too expensive to run and maintain, and unprofitable at the long-tem for the investors, thus not sustainable. Therefore, preparing Morocco coast for the unavoidable impacts of climate change is imperative. In this prospect, the most valuable set of tools that may have direct application in coastal development programs in both the short and long term, and can assist the decision-makers in the implementation of preventive management strategies in the most sensitive areas, are the maps of areas at risk of flooding.

This paper will present the assessment of the potential land loss by inundation and erosion, and the socioeconomic sectors that are most at risk to accelerated sea-level rise and storm surges in four locations of the Moroccan coast, based on a modeling approach and GIS.

The analysis of adaptive capacity undertaken highlighted a variety of anthropogenic and climate-induced drivers of coastal change that need to be overcome in order to strengthen the resiliency of the coastal system to climate change.

Potential adaptation strategies to cope with the adverse effects of sea-level rise and storm surges highlighted the urgent need of an ICZM plan which should include building regulation, urban growth planning, development of institutional capacity, and increasing public awareness.