



## **Cartagena de Indias' Ecosystem-Inclusive Coastal Vulnerability Assessment and its relation to the city's adaptation plan**

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The assessment of vulnerability to climate change and to natural disasters has become a must for most coastal cities since the late 1990s. Most of published vulnerability assessments have focussed on climate change and very few on the general environmental changes and natural disturbances that although might be affected by climate change have been part of such cities' history and development. The assessment here is presented and applied to the city of Cartagena Colombia is innovative in the sense that falls within the known Coastal Zone Management and Climate Change Vulnerability Assessment (CVAs) frameworks, and is based in a methodology that integrates the physical characteristics of the bay, the changes it has shown over 500 years of history (man-made or natural), and the inclusion of coastal ecosystems resilience as a tool to diminish overall vulnerability; it considers as well as socio-economic, policy, institutional and physical conditions of the bay during the same period of time. More importantly, the method was designed to include information that is currently available for the city, diminishing assumptions related with other methods of assessment. In this sense this method can be repeated in areas and regions facing similar information constraints (i.e. detailed topography or bathymetry, broad socioeconomic data), as baseline information becomes available the results can also be refined. Furthermore, the method allows monitoring uncertainty related to information quality through time, an issue rarely considered by most vulnerability assessments.

Cartagena de Indias, a world heritage site is a fast growing city, where tourism, industry and port activities merge, sometimes in conflict. It is a city with a social gap and at the same time with many opportunities for its migrant population. Cartagena's vulnerability is not evenly distributed across the city and has varied with time, being the recent time one of the periods of greater vulnerability that can in part be attributed to its location, its physical and socio-economic conditions and the degradation of natural ecosystems. Hence, for the city to continue its development it is crucial to carefully understand the risks it phases, the current status of its population, its dependency on the natural environment (despite might not seem evident) and most important its vocation, as until now it has existed as an industrial port, a holiday destination, an industrial area, and a cultural centre. Furthermore, if the consequences of climate change and climate variability and sea level rise are considered, a strategic planning is imminent and urgent. This presentation also presents the integration of the results of this research to the proposed adaptation plan of Cartagena under current development.