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Megacities in the coastal zone: Using a driver-pressure-state-impact-response framework to address complex environmental problems

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Abstract

The purpose of this study was to elaborate on the role of coastal megacities in environmental degradation and their contribution to global climate change. Although only less than 4 percent of the total world's population resides in coastal megacities, their impact on environment is significant due to their rapid development, high population densities and high consumption rate of their residents. This study was carried out by implementing a Drivers-Pressures-States-Impacts-Responses (DPSIR) framework. This analytical framework was chosen because of its potential to link the existing data, gathered from various previous studies, in causal relationship. In this text,

coastal megacities have been defined as cities exceeding 10 million inhabitants, situated in "near-coastal zone". Their high rates of the consumption of food, water, space and energy were observed and linked to the high performance rates of related economic activities (industry, transportation, power generation, agriculture and water extraction). In many of the studied coastal megacities, deteriorated quality of air and water was perceived, which can, in combination with global warming, lead to health problems and economic and social disturbance among residents. The extent of problems varied between developing and developed countries, showing higher rates of population growth and certain harmful emissions in megacities of developing countries, as well as more problems regarding food and water shortages, sanitation, and health care support. Although certain projections predict slowdown of growth in most coastal megacities, their future impact on environment is still unclear due to the uncertainties regarding future climate change and trajectories of consumption patterns.



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Keywords

coastal megacities; DPSIR; climatic changes; coastal zone management; urbanization; environmental effects

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- 1 Currently no institution-paper developed from dissertation made when studying at University of Algarve, Portugal.

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