



Assessment of Sea Level Rise and Vulnerability of the Coastal Zone of Bangladesh Considering Climate Change

Climate change is the greatest environmental challenge facing the world today. Rising global temperatures will bring changes in weather patterns, rising sea levels and increased frequency and intensity of extreme weather events. According to the global climate change risk index, Bangladesh has been identified as one of the most vulnerable countries to the impacts of global warming induced accelerated sea level rise (UNEP, 1989) in the world. The high degrees of vulnerability of Bangladesh are being mainly attributed to extensive low-lying coastal area, high population density, frequent occurrence of cyclones and storms, high storm-surge, high rate of coastal environmental degradation on account of pollution and non-sustainable development, etc. Most of the people residing in coastal zones are directly dependent on the natural resource bases of coastal ecosystems. Climate change induced potential rise in sea surface temperature, change in frequency, intensity or track of cyclone, and sea level rise may aggravate the potential risks to coastal zones. The coastal zone of Bangladesh is already experiencing adverse climate impacts. Catastrophic tropical cyclones with storm surges have taken place as recently as 2007 (SIDR) and 2009 (AILA). Salinity is increasing in the freshwater sources as well as in the soil, threatening drinking water security as well as crop production. Due to rough seas during fishing season, more and more fisher folk find their opportunities dwindling. Already, thousands of families have left their homes in search of better habitat. The risks from adverse climate change are projected to rise, increasing the risks of the already vulnerable population along the coast of Bangladesh. It is crucial that the people and the institutions which service their wellbeing understand, prepare and respond to these emerging challenges. Under the above mentioned circumstances, "Climate Change Cell" of Department of Environment has initiated this study. This study has been designed to facilitate the policy makers, planners and government in climate change related policy and program development, to integrate climate change considerations into existing development interventions and to support the Government in their role in coordination and negotiation efforts.





Goals & Objectives

The overall objective of this proposed project is to assess the potential sea-level rise and vulnerability of the coastal zone of Bangladesh through trend analysis and using suitable method. However, the specific objectives are to:

- To collect the available data, information and literature related to sea-level rise from different sources
- To review the existing information, literature and studies related to sea-level rise
- To review the exiting approaches and methods for sea-level rise estimation (e.g. existing models and process) at global and relative sea-level rise along the coast of Bangladesh.
- To evaluate the existing sea-level rise estimation approaches and methods
- To select suitable methods for assessing sea-level rise through trend analysis
- To asses and analyze the coastal accretion and erosion based on secondary data (e.g. model results, historical data on river and estuarine bathymetry and satellite images) in the coastal zone of Bangladesh
- To assess the potential sea-level rise using through trend analysis approaches and as well as to generate potential sea-level rise scenarios following the IPCC and UNFCCC guidelines in the coastal zone of Bangladesh considering both geostatic and relative mean sea-level rise
- To update the Digital Elevation Model (DEM) of the Coastal Areas using FINN maps and high resolution SRTM (satellite) data
- To assess the coastal vulnerability using existing available information, expert opinion and community participation and prepare the coastal vulnerability maps.

Project Partners

- Center for Environmental and Geographic Information Services (CEGIS)
- Institute of Water Modeling (IWM)

Research Team

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