

# Abstract

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## **Sea Level Rise Impact Assessment of Alexandria Shoreline, Egypt**

The destruction from environmental disasters is well known from ancient history people are facing environmental problems natural disasters like tsunamis, hurricanes, storms, earthquakes and floods, manmade disasters like ozone depletion, sea water pollution, and global warming from greenhouse gases (Awour et al., 2008). Egypt's coastal cities are severely threatened with exodus of two million Capita and loss of 214000 jobs due to 50 cm sea level rise causing land and real estate losses worth US\$ 35 billion (Soliman and Reeve, 2009). In addition, Egypt is considered one of the top five countries expected to be mostly impacted by a 1.0 m Sea Level Rise in the world (Elsharkawy et al., 2009). Egypt is also considered one of the countries with the largest number of people living in the low elevation coastal zone (Mcgranahan et al., 2007). This paper discusses the risks that Alexandria city, Egypt, is facing from the direct impacts of climate change. The effect of the SLR in Alexandria shoreline in the period from 1990 to 2009 is studied using four different satellite images for the years 1990, 2000, 2006, and 2009 which were collected from the National Authority of Remote Sensing and Space Sciences, Egypt. The critical areas are highlighted using the ArcView which is a Geographical Informational system (GIS) software. These critical zones of study area from Abo Kir east to El-Hammam west are determined and classified. Based on these results, future scenarios for the years 2030, 2050, and 2100 are calculated using the Digital Shoreline Analysis System (DSAS). For these years, the position of the estimated shorelines is ascertained and the expected area loss are calculated and presented. Keywords: Alexandria shoreline (Egypt) Climate change, Impacts of Sea Level Rise Digital Shoreline Analysis System Geographical Informational System.