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Master Thesis Defense

Entitled

ASSESSING THE IMPACTS OF SEA LEVEL RISE ON LAND-USE ACROSS THE NORTH-EASTERN PARTS OF THE UAE COASTAL AREAS USING REMOTE SENSING TECHNOLOGY

by

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Date & Venue

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Abstract

The consequences of global warming and climate change would result in a considerable rise in sea level. Other larger consequences on coastal lands, agriculture, buildings, and facilities are expected. The goal of this study is to assess the effects of sea-level rise (SLR) on various land uses in the UAE's North-Eastern coastal districts (Fujairah and Kalba cities). Four SLR scenarios will be developed through the QGIS platform and the Landsat images that have been acquired from the USGS Earth Explorer. The area will be observed over 20 years (2000 – 2020). The second goal of this study is to develop a coastal vulnerability index that can support policy-makers and stakeholders in developing strategic plans in order to be prepared for the effects of this phenomenon. The level of damages due to SLR in the year 2000 will rise to 21%, 27%, and 7% of the agricultural, built up, and open areas respectively. However, it will reach 29%, 28%, and 8% for the same areas in the year 2020. Around 15% of the study area in the year 2000 is considered to have high vulnerability to SLR where about 29% of the study area in the year 2020 is considered to have high vulnerability to SLR. The development projects in the study area have increased throughout 20 years and it is the most affected by SLR. It is widely assumed that any future actions and preparations to mitigate the impact of SLR should focus on the vulnerable areas mentioned above. Proper early planning for long-term consequences will definitely save time, resources, and effort.

Keywords: sea-level rise, land use, climate change, global warming, GHG emission, Landsat images, remote sensing, QGIS software.