

Visualisation of Sea Level Rise Impact on GCC Countries Land Area using Python for GIS

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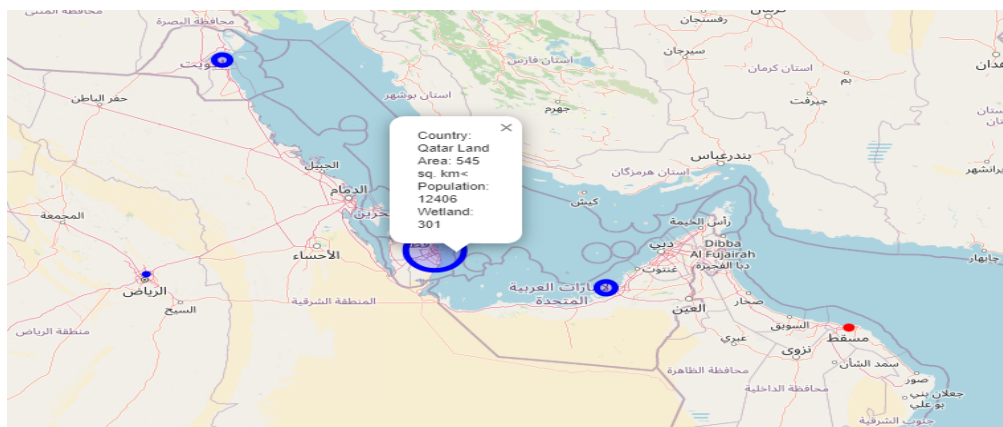
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The project addresses challenges faced by the Global warming causing melting of glaciers and thereby increasing the sea level to rise particular to Gulf Cooperation Council (GCC) Countries such as Oman, Qatar, UAE, Saudi Arabia and Kuwait. Bahrain is not considered due to unavailability of data.

By leveraging Geospatial Technology and open-source tools, this project aims to create a web-based mapping application for depicting a buffer based on land area lost due to rise in sea level by a particular amount. Using Python libraries like Folium and Pandas, the system reads the data from a Comma Separated Value (CSV) file, stores the attributes for each country such as Country Name, Land area, population, wetland loss and land area loss in a List. Then a buffer is created along the capital region of each country based on its Latitude and Longitude. Larger the buffer size means high loss in land area. The application is developed in an interactive Google Colaboratory environment, ensuring accessibility without the need for software installation.

The study revealed that:

- Qatar is at most risk because of being an island country.
- Oman is losing less land area as compared to other GCC countries however it is to be noted that most of the human settlement in Oman is along the coast and thus they are at major risk.
- Saudi Arabia is losing least land as compared to its geographic area. It is to be noted that the circle around capital city is just a depiction and capital region is at no risk of sea level rise.



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