

Challenges in Realization of the Nationally Determined Contributions under the Coastal Sector in Sri Lanka; a Surveyors Perspective.

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SUMMARY

The Paris Agreement is an international treaty on climate change that broadly addresses climate change mitigation, adaptation, and finance. The overall aim of this treaty is to maintain global warming below 1.5 °C and emissions need to be cut in half by 2030. For that, each nation must define, plan and report on its contributions, known as nationally determined contributions (NDCs). These NDCs should contain mitigation provisions, and also include initiatives on adaptation, finance, technology transfer, capacity building and transparency. One of the direct impact of the climate change is sea level rise (SLR) induced by the melting of the ice in the poles and thermal expansion of the seawater to the greater extent. The exact estimation of SLR is essential for any coastal state for the subsequent planning of adaptation measures. Being an island nation situated at the heart of the Indian Ocean, with a coastline extending about 1,600 kilometers, faces significant challenges in addressing climate change impacts on its coastal sector. There, the need is even demanding as majority of the socio-economic activities of Sri Lanka are focused around its coastline. Here, some of the challenging aspects related to the coastal sector are lacking of long term tidal data and non-availability of high resolution digital elevation models (DEMs) to simulate the inundation. However, the satellite altimetry and high resolution satellite images are the possible alternatives. The altimetry derived SLR estimated to be about +2.5 to 3 mm per year around Sri Lanka, which means about a 30 cm sea level rise is expected by 2100, if the current rates continue. Further, the initial verification results of the existing national leveling control network with the computed mean sea level from the recent tide data shows about 12-15 cm sinking due to SLR since it was initially established around 1920s. Additionally, the resolution of the existing DEM of the coastal area with the national mapping agency is inadequate, hindering effective planning and management measures. Therefore, to realize the coastal sector adaptation NDCs, Sri Lanka needs robust collaboration with regional and global agencies in exchanging the data and technology transfer.

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