

Spatial and Temporal Land Use Changes in South Western Coastal Belt in Sri Lanka with Special Reference to Hikkaduwa Divisional Secretariat

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Urbanization and globalization processes have changed many things worldwide. Especially when considering about environmental sustainability in the present situation, there are huge problems which can be identified without sustainable solutions. This research mainly focused on identifying coastal land use changes and how those changes affected coastal environment. It also aimed at identifying the main reasons behind these land use changes. Hikkaduwa Divisional Secretariat Division (DSD) was used as the study area for this research because the South Western coastal area is mainly affected by different human activities. But to ensure a deep analysis, the researcher selected the 300m buffer zone from Mean High Sea Level (MHSL) as the sampling area. It was selected based on the coastal line demarcated by the Coastal Conservation Department (CCD) in Sri Lanka. To identify the coastal land use changes, multi temporal and multi spatial data from 1990 to 2018 were used. To fulfill this purpose, the researcher used ArcGIS 10.3 software with different types of data. Different techniques were applied to those data to identify coastal land use changes. The techniques applied to achieve the mentioned objectives are Normal Difference Vegetation Index (NDVI) calculations, overlay analysis, and spatial and temporal analysis. Changes of coastal environment and coastal features, and temporal and spatial aspects were identified. Those identified factors directly or indirectly affected to change coastal morphology in the study area. As coastal environment is always a very sensitive area, it should be protected very carefully.

Keywords: Coastal, Land use change, GIS and RS