

Challenges of Spatio-temporal Transformation of Urban Wetlands in Sri Lanka: A Case Study of Muthurajawela Marsh and Negombo Lagoon

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Urban wetlands are affected by both human activities and climate changes. The spatio-temporal transformation and seasonal inundation determine the structure and functions of tropical wetland ecosystems. The information on the spatial and temporal changeability of inundation is necessary to understand and manage these ecosystems. The western region of Sri Lanka represents one of the most emerging growth centers in the country. There is an extreme pressure on the natural environment and wetland ecosystems. Combination of methods of environmental history, urban ecology and wetland science based on geographical information system (GIS) and remote sensing (RS) have been applied. Moreover, this research focuses on understanding and assessing the current potential spatial stress on a regional wetland ecosystem due to human interference. This study uses remote sensing images of three time periods (during 1996-2016) to interpret the chronological spatial data of the wetland landscape changes over the 20-year time span. The result shows that the wetland system in this study area presents a trend of widely extended urban-rural situation with rapid land use changes, urban expansion, wetland degradation, rapid urban built-up land, and that different driving forces make complicated patterns of this wetland ecosystem.

Keywords: Wetland Science, Urban Ecology, Remote Sensing