LAND USE / LAND COVER DYNAMICS USING GEOSPATIAL TECHNIQUES: A STUDY IN *MALWATHU OYA* RIVER BASIN

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Land use / land cover (LULC) change has become an important topic worldwide because of the high population growth rate and urbanization. Several studies explored that LULC changes directly impact *Malwathu Oya* river basin degradation. The *Malwathu Oya* river basin is the second-largest river basin in Sri Lanka, consisting of diverse forest ecosystems, archaeological sites, and geographical features. It spreads over the North Central and Northern provinces, and it is one of the most widely used water sources for irrigation and water supply. Therefore, it is vital to assess the LULC changes during the past decades to manage it sustainably. Hence, this study aimed to identify and quantify the spatial pattern of LULC changes. Landsat 8 image was used to develop a land use map for 2020, while Landsat 5 images were used to produce land use maps of 1994 and 2007. Based on the accuracy assessment, the user accuracy, producer accuracy, and overall accuracy of each classification were >85%. The study showed a forest cover gain (187.2 km^2) from 1994 to 2007 and a forest cover loss (149.3 km^2) during the 2007 to 2020, respectively. Agricultural lands were decreased in both periods while built-up areas and other land areas increased rapidly during the 2007 to 2020 time periods. The results confirmed that the LULC changes occurred during the study period, which coincides with the post-war period and urbanization, and higher population growth rate. Therefore, it is essential to prioritize the conservation activities for the identified most susceptible areas for LULC changes that affect the sustainability of the *Malwathu Oya* river basin. Furthermore, immediate actions as law enforcement and regulatory measures must be enforced in the most vulnerable areas of the protected areas to minimize the risk enhanced by the LULC changes.

Keywords: Accuracy assessment, Forest cover, Landsat images, LULC changes, Spatial pattern