**Spatial-Temporal Analysis of Urban Growth in the Suburban Area; Special Reference to the Homagama Divisional Secretariat Division from 1992 to 2022**

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***ABSTRACT***

Urban growth in suburban areas is characterized by the expansion of residential and commercial developments beyond city boundaries, often driven by the search for more affordable housing and better living conditions. This study aims to analyze the spatial and temporal urban growth in the Homagama Divisional Secretariat Division from 1992 to 2022. To achieve this, Landsat images in 1992, 2007, 2017, and 2022 were downloaded from USGS for analyzing the Normalized Difference Vegetation Index and Normalized Difference Building Index. Population density maps in 2000, 2007, 2017, and 2020 were downloaded from the "Worldpop" data source to analyze population density during these years. The study found that population density is a primary driver of urban growth, with a notable increase in population mainly due to migration to suburban areas rather than natural growth. This migration is often driven by middle- and low-income individuals who cannot afford to settle near the Central Business District and opt for areas with somewhat developed infrastructure located further from the Central Business District. Although increasing the number of buildings according to the Normalized Difference Building Index, apartment complexes are predominantly spread in the study area, including Panagoda, Homagama, and Kahathuduwa. Due to concerns about housing affordability, many people prefer purchasing apartments over constructing individual houses. In the Normalized Difference Vegetation Index, despite initially sparse vegetation cover, a significant increase in dense vegetation cover was observed in 2017. This increase is attributed to the surge in green building construction, the expansion of urban agriculture projects, and the proliferation of green infrastructures in the study area. Implementing a comprehensive sustainable urban development master plan is essential to address the various social, economic, and environmental challenges resulting from high automobile dependency and land acquisition competition in suburban areas.

**Keywords:** Geographic Information System, Remote Sensing, Spatial and Temporal, Suburban, Urban Growth.

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