Moragahakanda Resettlement Program with Small Tank System and its Impact on Regional Land Use: A Gis Based Geospatial Analysis

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Resettlement programs have a significant impact on land use changes in an area. The Moragahakanda resettlement program in Sri Lanka is connected with a newly established tank system to fulfill the resettlement policy requirements relevant to the regional livelihood system. Accordingly, 13 small tanks were constructed by changing the original landscape of the region. So, the current study focused on investigating the impacts of this newly constructed small tank system under the Moragahakanda resettlement program on entire land use. To achieve this objective, GIS-based geospatial analysis was used to find the land use changes. Primary data was collected through semi-structured interviews with key stakeholders and direct field observations. As secondary data sources, Landsat 5 and Landsat 8 satellite images were used for land-use classification using supervised classification techniques. Accuracy assessment was completed using a confusion matrix, Google earth and ArcGIS. The findings of this study showed that there have been significant land use changes between 2009 and 2024. The analysis revealed a decrease in forest cover from 62% to 51%, as well as a decrease in grassland and scrubland uses due to reforestation programs and perennial crop development by 6%, were also identified. The Chena land decline coincides with the significant expansion of the resettlement area and agricultural lands by 12%. The construction of 13 new small tanks and irrigation canals, under the resettlement project appears to have contributed to an increase in water bodies by 4%. Further, 13% increase in built-up areas during this period. The observed land use changes may have both positive and negative impacts on the environment, livelihoods, and overall sustainability of the region. The growth of built-up areas and road networks has led to habitat fragmentation and increased pressure on natural resources. However, increased water bodies enhanced water security and groundwater availability, with the increase of seasonal and perennial crop production.

Keywords: Land Use Changes, Resettlement, Tanks, GIS, Geospatial Analysis.