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Forest and Natural Vegetation Cover Loss Over 2000 to 2020 in Sri Lanka; A Canopy Density Base Analysis

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Abstract

As one of the most important biodiversity hotspot, forest and natural vegetation areas play an essential role in the global ecosystem. It provides an uncountable number of ecosystem services while controlling the adverse impacts of climatic changes. With the expansion of civilization and fulfilling the infinite needs of man, forests and natural vegetation areas were destroyed, especially for agricultural purposes, development projects and timber. Due to this, the accelerated growth of deforestation and loss of natural vegetation can be observed in Sri Lanka in the past few decades. This study aimed to identify the forest and natural vegetation area loss from 2000 to 2020 with a particular focus on the Canopy Density (CD) of tree cover (>25%, >50% and >75%) in Sri Lanka. The satellite estimated data (30 mx30 m resolution) was downloaded from the 2000 to 2020 time period from the Global Forest Watch (GFW) online platform conducted by the World Resource Institute were used. Spatial and temporal changing patterns of the forest and natural vegetation areas have been identified using descriptive analysis methods (percentage) using MS Excel 2019 software. Results of the study found that in 2000, 61.38 percent of the country was covered with above 25% tree cover CD, while 53.86 percent and 39.76 percent of areas have covered with the tree cover CD above 50% and 75%, respectively. However, when it has come to 2020, these areas have decreased by 52.78 percent (>25% CD), 44.27 percent (>50% CD) and 28.65 percent (>75% CD). During this period, 8.6 percent (>25% CD), 9.59 percent (>50% CD) and 11.11 percent (>75% CD) of the forest and natural vegetation areas of Sri Lanka have lost the country. Throughout this period, 2016 can be identified as a year at risk for deforestation due to its annual deforestation rate (>8.8 percent). The total area of forest cover lost in 2016 is 17799 ha (>25% CD), 15583 ha (>50% CD) and 9865 ha (>75% CD). This is nearly 13 percent of forest cover loss for all three types of CD tree cover areas. According to the calculations of the forest areas that have >75% of CD, Anuradhapura (12.06%), Kurunegala (9.82%), and Monaragala (8.49%) districts are the areas that contributed to forest cover loss in the country during 2000 to 2020. According to the study, the annual deforestation rate is still very high. Hence should be needed to monitor and take action to stop deforestation and achieve sustainability in natural resource management in Sri Lanka.

Keywords: Deforestation, Canopy density, Tree cover, Natural resource management, Sri Lanka