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Analysis of Green Space Recovery of Post Forest Fire: A Case Study in Laggala, Wilgamuwa, Sri Lanka

DAPS Wasalathilaka[1#], NV Wikramathilaka [1], CP Ranawaka[1], and TATP Bandara[1]

[1]Faculty of Built Environment & Spatial Sciences, General Sir John Kotelawala Defence University, Sri Lanka

[#]37-sps-0001@kdu.ac.lk

Alongside human development, natural forests are being simultaneously destroyed. Meanwhile, fires appear to be a major cause of forest damage. Forest fires can result from both human activities and natural factors. Dedicated to delivering precise assistance and focused attention, this study aimed to analyse how to minimize damage and expedite recovery through a proactive approach. Thus, this study engaged in developing remote sensing approaches for forest fire detection. Developing strategies of remote sensing such as Normalized Different Vegetation Index (NDVI) and Normalized Burn Ratio Index (NBR) were used for forest fire assistance. Further, two-dimensional (2D) visualization of forest fires was embedded to improve the scope of this study. Moreover, this study conveyed a discussion using differential Normalized Burn Ratio (dNBR) to identify burn severity areas. Still, it is a challenge to detect the green space recovery rate through post-forest fires. However, this study tried to formulate an equation for the recovery rate of forest fires. Results indicated that the areas of fire severity and the changes in green areas were determined by calculating NDVI. These results can be utilized for forest fire management and fire mitigation. The study demonstrated that Geographic Information Systems (GIS) and Landsat data can effectively evaluate post-fire vegetation recovery over large areas. Human intervention, such as reseeding and controlled burning, plays a crucial role in enhancing recovery. The study recommends using advanced satellite imagery, comprehensive monitoring programs, and involving local communities in restoration efforts. These findings contribute to understanding vegetation recovery dynamics. They offer valuable insights for developing strategies for ecological restoration in fire-affected regions.

Keywords: *forest fire, remote sensing, NDVI, NBR, green space, GIS, Landsat*