ID 169

Mapping of Human-Elephant Conflict Risk Zones: A Case Study of Sooriyawewa Divisional Secretariat Division, Sri Lanka

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Abstract

With developments and population, people are facing hazards. But without identifying such hazardous areas, actions cannot be taken to prevent such incidents. The Human Elephant Conflict (HEC) is a main hazard that impacts rural society in Sri Lanka. HEC is the conflict between elephants and humans and causes deaths of elephants and humans. Increased populations of elephants and humans, habitat modification, rainfall, water bodies, and land use changes are vital for HEC. This study focuses on mapping the spatial distribution of HEC risk zones in Sooriyawewa Divisional Secretariat Division. Furthermore, this study develops a method to validate the accuracy of risk zones. Furthermore, the directions of the HEC hazard propagation are demonstrated over the risk zones. Embedding Geographic Information System (GIS) with spatial interpolation is vital to identify risk zones. Moreover, integrating GIS can greatly facilitate the classification of HEC risk zones into low risk, moderate risk, and high risk. Additionally, this study used Inverse Distance Weighted spatial interpolation to create its hazard risk validation approach. A comparison of spots with some interstitial buffers was made to determine the propagation of the HEC from the center of Sooriyawewa. Therefore, it is crucial to determine the directions of risk and take actions to reduce the risk of HEC hazards. This will help in generating an HEC scenario map for the future and formulating an action plan of mitigation measures to avoid damage, loss of life, and socio-economic impacts in the study area.

Keywords: *GIS, HEC, Hazard, Spatial distribution*