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**Mapping the Spatial Distribution of Drought Vulnerability in the North Central Province of Sri Lanka**

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**Abstract**

Drought is a natural phenomenon imaged as the recurrent feature of the climate. The frequency of drought occurrence and its impacts have been increased, particularly in developing countries. Sri Lanka has experienced drought since ancient times with many losses, particularly for the farming sector. Though much research is available, there are still gaps in visualising drought vulnerability. The main objective of this research was to create a drought vulnerability map with particular reference to farming communities in the North Central Province (NCP) of Sri Lanka. Secondary data was used for this study collected from different sources such as 29 Divisional Secretariats Divisions (DSD) of the NCP and the USGS website. The Multi-Criteria Decision Making (MCDM) method and Analytic Hierarchy Process (AHP) were utilised to develop the hierarchical structure. Eight factors representing drought vulnerability and its subcomponents, i.e., exposure, sensitivity and adaptive capacity, were selected after an excessive literature review. Twenty experts' views were used to weigh the selected eight factors. Eight thematic map layers were created using Geographic Information System (GIS) Arc map 10.8 software. The weighted overlay technique was used to create the final drought vulnerability map for the NCP. The results found that 12%, 26%, 24%, 26% and 13% of the total land area of NCP belong to categories of very low, low, moderate, high and very high, respectively, in terms of drought vulnerability. Kahatagasdigilya Horowpothana DSD belongs to the very high drought vulnerability category. Palagala, Galenbindunuwewa, Rambewa, Medawachchiya, Kebithigollewa, Padaviya and Medirigiriya DSD are correlated with the high drought vulnerability category. Southern parts of the NCP belong to very low, low and moderate drought vulnerability classes. Selected eight factors have contributed to drought vulnerability in different proportions where rain-fed agricultural land areas, the number of dependents, and land use and land cover have become first (20%), second (18%) and third (14%) places, respectively, according to priority weight. These results will help decision-makers.

**Keywords:** Adaptive capacity, Drought, Exposure, Sensitivity, Vulnerability