

**IMPACT OF GLOBAL WARMING ON LANDSLIDES: A CASE
STUYDY IN WALAPANE DIVISIONAL SECRETARY DIVISION
IN NUWARAELIYA DISTRICT, SRI LANKA**

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ABSTRACT

Landslides are a great threat to human lives and environment, especially in the upland areas of Sri Lanka. Walapane Divisional Secretary's Division, has been identified as the highest landslide prone area of the Nuwara Eliya district. As an area with minute level of anthropogenic activities, its landslides are directly influenced by the climate and topography of the area.

The aim of this study was to identify the effect of global warming on temperature and rainfall of the Walapane Divisional Secretary's Division area. Rainfall and temperature data were analyzed using Mann-Kendal test and regression analysis to detect the trends. The topography of the area was analyzed using GIS packages. Integration of climate and topography was also done using GIS.

The study revealed that there is evidence of impacts of global warming in the study area. Both the annual and seasonal analysis showed a significantly increased temperature trend over the years. Annual and South-West monsoon rainfall revealed a declining trend while North-East monsoon rainfall revealed an increasing trend. To find out the effect of global warming on landslide occurrence in the study area, climatelandslide relationships were analyzed. Results revealed that landslides are highly triggered by the North-East monsoon. Most of the landslide events were observed to trigger after sudden, heavy, daily rainfall that prevailed for a short time period. Such rainfalls are observed to be consequences of global warming.

Topographical characteristics such as slope, hill shading and aspects of the land slide locations which mainly govern the amount of water that could be received in those areas also determine the amount of water that could be retained. Landslide locations at higher elevations with moderate hill shading and aspect face to the North-East monsoon showed an increasing trend of rainfall during the past decades.

Key words: Landslides, rainfall, topography, temperature