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## **IMPACT OF VULNERABILITY ON FLOOD RISK IN THE NILWALA RIVER BASIN IN SRI LANKA**

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Flooding has been one of the most costly disasters in terms of both property damage and human casualties in Sri Lanka. Floods are observed frequently along the Nilwala river in southern Sri Lanka and thus the government is compelled to spend a large amount of national funding for relief work during such floods. Population density, dependency, building conditions, economy, road network and land use are considered to be important vulnerability factors that contribute to the risk due to floods in the Nilwala river basin. Usually, decisions on the mitigation of impacts due to floods before, during and after flood events are taken at the lowest administrative level in the country, which is the Grama Niladari Division (GND) level. This study investigates the impact of vulnerability factors on the risk due to floods at the GND level. Software HEC-GeoRAS and HEC-RAS were used in the determination of flood hazards at the GND level. Inundation area and inundation depth were taken as hazard factors. Flood risks (Equation 1) were calculated and risk level maps were prepared at the GND level using the hazard factors and vulnerability factors mentioned above.

$$\text{Risk} = \text{Hazard} \times \text{Vulnerability} \quad (1)$$

The maximum vulnerability value is found to be associated with the economy, followed by land use and road network. Identification of the most effective vulnerability factor using the proposed methodology will be very useful for decision makers to make correct decisions on the allocation of funds for flood mitigation work.

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