

A Multi-scale Risk Assessment of Social Vulnerability to Flood Hazard Based on the Lower Catchment Area of the Aththanagalla River Basin, Sri Lanka

M.K. Anuruddhika*

University of Peradeniya, Peradeniya, 20400, Sri Lanka
**anuruddika231@gmail.com*

Flood is the most frequent and destructive disaster in Sri Lanka. Most of the people's lives and property are affected by the flood drastically and have seen significant growth of vulnerability in recent decades. The social vulnerability of the flood is vital however most responsible institutions consider the physical impact of them. Therefore investigating the social vulnerability to flood hazards is significant to realize the root causes of social vulnerability and achieve efficient preparedness, response, and recovery. The study's primary aim is to create a Multi-Facet Social Vulnerability Index to assess social vulnerability to flood inundation. The assessment is based on selected 6 local administrative units in the Gampaha District and covered 56 flood-affected households through a survey. The different vulnerability indexes on 5 main components including social-demographic, physical, financial, health, and social connectedness relate to social capital factors and considered 34 variables under the key components. Furthermore, the study applied the AHP weight method to compare the survey data highlighting the preciousness of this assessment. The results demonstrate households in rural areas are significantly vulnerable to inundation among financial vulnerability critically impacts their livelihood. Moreover, all administrative units have the same effect on the physical vulnerability index. Social connectedness related to social capital is crucial in all HHs of urban areas. The study combined vulnerability maps to imply the index results that are significant to efficient and speedy recovery. The study is worth reducing the impact of the flood on people and their property furthermore building up the sustainable city and society of future Sri Lanka.

Keywords: Flood, Social vulnerability, Multi-facet composite social vulnerability index, Vulnerability mapping