

Socio-Hydrological Influence of Floods in Kelani River Basin Due to Southwest Monsoon: A Comparative Study

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The relationship between life and water is as old as time itself. Ancient civilizations settled near riverine regions to access water easily which was essential for survival. Though access to water was easy, settlements near low-lying riverine areas frequently suffered from floods. Recent climate changes and increase in urbanization have resulted in rise of flood events and the damages caused by it. The Kelani River Basin in Sri Lanka experiences annual floods with the onset of the Southwest monsoon and damages caused by floods in the region incur substantial losses to the lives and economy while impacting the social status of lives. This study investigated the rainfall, flood levels, and impacts of flood events occurred in two different years in the Kelani River Basin utilizing a holistic approach to evaluate the socio-hydrological status of the region. Through investigations carried out in the domains of hydrology, the study found that the current rainfall trend indicates the possibility of increased flood events in the future. By integrating hydrological data with socio-economic indicators, the study examined how floods during the Southwest monsoon trigger cascading effects on socio hydrology with respect to livelihoods, infrastructure, and environmental sustainability. Key aspects explored include flood frequency, magnitude, duration, and their differential impacts on vulnerable communities due to floods occurred in the two years. Insights from this comparative study contribute to a deeper understanding of socio-hydrological dynamics, while facilitating informed decision-making for sustainable flood management and disaster resilience in the Kelani River Basin and similar environments globally.

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