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Understanding Social Vulnerability to Climate Change-Modified Water Hazards in the Vietnamese Mekong Delta Coastal Zone

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Concern for climate change impacts to the Vietnamese Mekong Delta is rapidly increasing due to the compound risks of a changing climate, environmental change and sensitivity and social-economic transformation. The Delta, located in the downstream section of the Mekong River is considered globally as one of the three most vulnerable deltas to climate change. Variations in precipitation, temperature changes, sea-level rise, progressive saline intrusions, riverbank erosion, flooding and extreme weather events all aggravate the risk to the existing socio-ecological system.

Using Ben Tre Province as an in-depth case study, this paper develops a social vulnerability index (SVI) to understand the water hazards-modified by climate change in terms of their association between vulnerability, existing infrastructures and socio-economic patterns. A mix-method of qualitative and quantitative approaches was framed to procure and analyse data. This consisted of group discussions, individual surveys and key informant panel interview. Spatially mapped results of cluster analysis showed a strong spatial trend of SVI increasing from upstream to the downstream areas. The multivariate regression model found linear correlations between the SVI and the proximity to the dike system and waterways. Additionally, the Moran's I autocorrelation indicated the statistically significant difference between the SVI spatially of various household clusters. These findings contribute to the understanding of the array of biophysical and socio-ecological impacts, their variability and their interlinkages.