

Developing a Composite Index for Vulnerability of Coastal Communities in Baler, Aurora, Philippines (フィリピン沿岸域の地域社会における脆弱性指標の開発)

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Global climate anomalies and various social trends bring along different sets of hazards, which put communities in nearby coastal areas at potential risks. Effects of these hazards vary according to the magnitude of natural hazards and the community's inherent social environment shaped by distinct causal structures and processes. By analyzing certain factors influenced by the interrelationship that exists between hazard occurrences and communities' social character, the overall state of vulnerability can be determined. In this study, two frameworks for analysis were designed followed by a case study conducted in five coastal communities (Buhangin, Pingit, Reserva, Sabang and Zabali) in the municipality of Baler, Province of Aurora, Philippines. A social survey with the use of questionnaire was employed to generate information, which was used for the development of composite indices of seven factors, namely: geographical, demographic, economic, food, environmental, institutional and capital goods. The indices of these factors were then used to estimate each community's vulnerability using a coastal community vulnerability index (CCVI). Aggregation and transposition of similar set of factors into the vulnerability elements identified by the Intergovernmental Panel for Climate Change (IPCC), namely: exposure, sensitivity and adaptive capacity, were conducted to determine vulnerability using IPCC-CCVI. Based on these indices, there were little differences observed on the overall vulnerability for all coastal communities. Despite each community showed that varying factors have different resulting values (e.g. 0.37 through 0.74 in Sabang), when combined, factors with low values were observed to cancel out factors with higher values. Using CCVI and IPCC-CCVI, Sabang was evaluated to be the most vulnerable coastal community. In CCVI, geographical, demographic, food, and environmental factors were found to influence Sabang's vulnerability, while in IPCC-CCVI sensitivity was the most effective in evaluating its vulnerability. The CCVI and IPCC-CCVI frameworks presented in this study helped in determining specific areas of vulnerability as depicted by the community's individual character. The use of different sets of factors for each framework aimed at facilitating the risk assessment process and decision making to aid better an adequate, community-specific risk reduction measure and mitigation planning.