

Vulnerability of People to Climate Change: Influence of Methods and Computation Approaches on Assessment Outcomes

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Abstract : Climate change has become a major concern globally, particularly in rural communities that have to find rapid coping solutions. Several vulnerability assessment approaches have been developed in the last decades. This comes along with a higher risk for different methods to result in different conclusions, thereby making comparisons difficult and decision-making non-consistent across areas. The effect of methods and computational approaches on estimates of people's vulnerability was assessed using data collected from the Gambia. Twenty-four indicators reflecting vulnerability components: (exposure, sensitivity, and adaptive capacity) were selected for this purpose. Data were collected through household surveys and key informant interviews. One hundred and fifteen respondents were surveyed across six communities and two administrative districts. Results were compared over three computational approaches: the maximum value transformation normalization, the z-score transformation normalization, and simple averaging. Regardless of the approaches used, communities that have high exposure to climate change and extreme events were the most vulnerable. Furthermore, the vulnerability was strongly related to the socio-economic characteristics of farmers. The survey evidenced variability in vulnerability among communities and administrative districts. Comparing output across approaches, overall, people in the study area were found to be highly vulnerable using the simple average and maximum value transformation, whereas they were only moderately vulnerable using the z-score transformation approach. It is suggested that assessment approach-induced discrepancies be accounted for in international debates to harmonize/standardize assessment approaches to the end of making outputs comparable across regions. This will also likely increase the relevance of decision-making for adaptation policies.

Keywords : maximum value transformation, simple averaging, vulnerability assessment, West Africa, z-score transformation

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