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Developing a Composite Index for Vulnerability of Coastal Communities in Baler, Aurora, Philippines
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Introduction

- Coastal communities of today, around the world, are experiencing unprecedented rate of effects from hazards due to changes in social and environmental systems such as increasing population, anthropogenic disturbances and global climate variations.
- The effects of changes are placing communities at increasing vulnerability from hazards. However, their vulnerabilities vary according to factors inherent to them.
- The Philippines is among the areas in the world that are vulnerable to the effects of hazards because of social and environmental changes.
- 822 of its 1502 municipalities (55%) are coastal, accounting for >60% of the 90M population.

Overview of Study Area

- Baler is one of the seven coastal municipalities in the Province of Aurora, Philippines.
- Its coasts measure around 35 kilometers and shared by 5 villages (barangays).
- Characterized by social conditions shaped by factors such as unique geography with high natural ecology that is exposed to both natural and social hazards.

Objective:

- Determine the factors that moderate the vulnerability of coastal communities to propose measures for adaptation and mitigation.
- Establish vulnerability criteria from its determinants.
- Categorize communities based on vulnerability index.
- Propose measures for community adaptation and local government planning.

Methodological Concepts

- Two composite indices of vulnerability were designed: Coastal Community Vulnerability Index (CCVI) and Intergovernmental Panel for Climate Change-Coastal Community Vulnerability Index (IPCC-CCVI).

Steps in Data Collection:

- Indices of Major Factors, CCVI and IPCC-CCVI in Five Coastal Communities:
- The resulting CCVI showing Sabang (0.53) having the highest among coastal communities.
- The resulting IPCC-CCVI showing Sabang (0.62) having the highest among coastal communities.

Results and Conclusions

- Computing the CCVI: CCVI is computed based on the weighted average of the major factors.
- Computing the IPCC-CCVI: IPCC major factors (Environment, Security and Adaptive Capacity) were established as new factors categories computed based on the weighted average of all major factors.

Conclusion:

- Sabang is the most vulnerable coastal community based on the resulting CCVI and IPCC-CCVI.
- The CCVI values do not show much difference since the high value factors were cancelled out by low value factors during the combination process.
- The high contributing factors in CCVI include food security, economic, and policy and institutional factors.
- The high contributing factors in IPCC-CCVI include exposure and sensitivity.
- The method may be effective for rapid appraisal but its strength depends on the quality of data surveyed within a specific timeframe.
- Future study must focus on development of methods: for identifying suitable and objectively-set variables and indicators for data gathering and analysis of relevant indicators, and with the use of statistical tools (i.e. factor analysis, PCA, regression analysis, etc.)