

MAINSTREAMING LOCAL PERCEPTIONS OF HURRICANE RISK INTO POLICYMAKING

-A Case Study of Community-Based Vulnerability Mapping in Mexico-

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Increased Coastal Vulnerability

The occurrence of disasters, in particular cyclones, affects coastal livelihoods. Models show that hurricane intensity in the North Atlantic is likely to increase (i.e. the hazard impact likelihood will be higher). Social vulnerability is also increasing as populations continue to settle in coastal zones.



Hazards are most detrimental at the local level, so this project focuses on community impacts to tackle specific vulnerabilities.

Methods and Data Collection

A focus group of 38 community members was organised. The participants were asked to identify and rank the factors that lead to their vulnerability.

RISK	Exposure <i>Proximity to river</i>	Economic <i>Source of income</i>	Social <i>Household composition</i>	Physical <i>House type</i>
WEIGHT	5	4	2	3

One third (n=54) of all households were then surveyed according to these risks and were integrated on a GIS.

The Case of Veracruz, Mexico

The State of Veracruz, located in the Southeast of the Republic of Mexico (Fig. 1), is considered to be an area of high vulnerability to hurricane risk and the Northern and Central parts of the State are the most vulnerable (Fig. 2). The community of El Zapotito, shown in



Figure 1. The geographic location of Mexico (light green) and Veracruz (dark green).

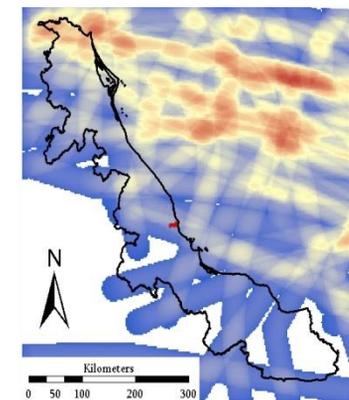


Figure 2. Hurricane impact likelihood. Warmer colours indicate higher hurricane impact probability.

red in Fig. 2, serves as the case study for this project. It is a disaster-prone area. The community depends solely on agriculture (so livelihoods are heavily affected by hurricane events). Evacuation is difficult as the community lies on a floodplain.

Mapping Household Vulnerability

Based on community discussions, the interaction between different factors leading to vulnerability (and their relative importance) is explained by:

$$Vulnerability = \left(\sum_{i=1}^m a_i E_i \right) \times \left(\sum_{j=1}^n b_j ER_j \right) \times \left(\sum_{k=1}^p c_k SR_k \right) \times \left(\sum_{l=1}^q d_l PR_l \right)$$

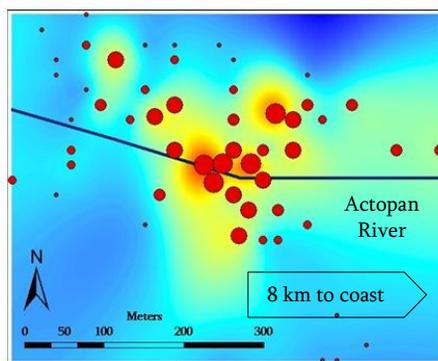


Figure 3. Household vulnerability map.

where a , b , c , and d represent the weights associated with the variables, and E is exposure, ER is economic risk, SR is social risk and PR is physical risk. The final output is shown in Fig. 3

The circles show households according to their vulnerability and the surface colours show the relative vulnerability of the area (the warmer colours are more vulnerable). Such mapping processes can:

- (i) communicate local knowledge through a visual medium,
- (ii) identify households which require prioritisation, and
- (iii) provide a compelling visual for policymakers to target very specific (household-level) risks.

Key References

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"There's no disaster that can't become a blessing, and no blessing that can't become a disaster." (Richard Bach)