

Knowing the citizen to understand urban vulnerability

Coping with hydrological risk in megacities: Collaborative planning framework for the Mexico City Metropolitan Area (CRN 3108)

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Countries: United States and Mexico



<http://megadapt.weebly.com/>

<https://lancisapc.wordpress.com/>

Abstract:

Research based in the Mexico City Metropolitan Area, supported by the Inter-American Institute for Global Change Research (IAI), proposes a socio-hydrological perspective based on information, knowledge, and dialogue to counteract the risk of floods or lack of water.

Suppose that you are a decision-maker, and you have the challenge of making your city sustainable and resilient. Historically, some sectors have faced vulnerability to water scarcity and flood risks – including the public health issues associated with contaminated water. Political promises to provide seemingly magical solutions no longer work; action is required. But how best to proceed?

Tackling the problem from the perspective of ‘sustainability science’ may be useful. According to the project’s researchers, funded by the IAI, sustainability science offers tools, methods and strategies to identify, represent and deliver information to decision-makers from all levels about the social and political processes that they can put into practice for effective governance and risk and vulnerability management.

This means that even though it is important to think about ‘hard’ infrastructure – what you can see and touch, such as engineering, it is also necessary to take into account the ‘soft’ infrastructure - social relations, norms, values and customs of the people who inhabit the area. For this reason, the solution proposed by the biologist Luis A. Bojórquez-Tapia, the geographer Hallie Eakin and other researchers is to work within a socio-political infrastructure, which creates behavior patterns and actions to build a sustainable and resilient landscape.

Sustainability and resilience combine in this socio-political infrastructure. They are the basis for the development of urban planning which captures, quantifies and visualises the

preferences, social relations and political influences of its inhabitants. When the two interact they counteract urban vulnerabilities, allow these processes to become tangible public policies, and promote citizen action.

The participation of decision-makers and the inhabitants of the cities and their various interest groups is only possible if they understand the motivations, values, preferences and customs that affect the possibility of risks arising from hydrological problems.

Based on interviews, focus groups and participative workshops, the researchers identified 'mental models' about urban dynamics that show the different social actors in hydrological management, finding testimonies – such as narratives or discourses – that explain the possible causes and consequences associated with water dynamics in the cities. These mental models were the bases for the development of a computational platform for the simulation of urban vulnerability to hydrological problems. Through mathematical processes known as dynamic geospatial algorithms, the platform allowed the exploration of how certain actions and decisions could lead to the emergence and evolution of multiple vulnerability patterns. By juxtaposing simulation outputs with possible solutions, it shows how the narratives of social actors can germinate the seeds of a 'sustainable urban transformation'. The researchers say in one of their articles that "the narratives and discourse that structure the decisions must change in order to unveil paths of alternative solutions that would otherwise be discarded".

This approach may help to form better communication channels between society and the government in order to better face the threats to megacities arising from the combination of rainfall increase, severe droughts, and water scarcity, for instance.

"This framework could help decision-makers to navigate through the complexities of urban management", conclude the IAI researchers.