

# **Making Communities Safer Participatory Mapping and PGIS in support of Community Risk Assessment**

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## **Abstract**

This paper assesses the effectiveness of local community information applied to disaster risk reduction management in a PGIS framework.

## **Background and Relevance**

This paper assesses the effectiveness of local community information applied to disaster risk reduction management in a PGIS framework. Local spatial knowledge has both positive values and drawbacks in CRA for understanding local hazard situations, for analysing their components, and designing community-based amelioration. The focus is on urban communities in developing countries, but includes pertinent rural examples, and from marginalized north cities. The hazards are mainly environmental – e.g. disasters, pollution, implications of rapid climate change, but they also include socio-economic risks.

## **Methods and Data**

This paper is a broad-based critical literature review of PGIS applied to community-level and participatory hazard/risk assessment, vulnerability analysis and coping strategies, resilience and adaptation, (cf. McCall 2008) with a strong focus on the critical functions of local spatial knowledge in PGIS in CRA. (Dekens 2007) To this is added specific findings from relevant recent research studies, such as Peters (2008).

## **Results**

Significant applications of PGIS are found in: mapping people's local knowledge of hazard characteristics; mapping vulnerability assessments; mapping coping strategies, resilience, and adaptation; mapping people's perceptions and priorities in overall risk assessment; spatial planning, such as planning the siting of hazardous materials and structures; spatial planning - the siting of warning systems, relief centres, shelters, escape routes, etc.; mapping urban risks based on LSK knowledge analysis; mapping slow onset hazards as a special category including mapping of experiences of climate change impacts.

Methodological problems include: the integration of local knowledge of frequent hazards with objective, but time-limited data from remote sensing images and other external surveys. How can local people's knowledge cross-check remotely-acquired data, and integrate historical spatial information? What are the appropriate measures of credibility, reliability and scale?

## **Conclusions**

PGIS for mapping direct experiences and historical 'folk memories' of natural and human-induced hazards is essential correlative to scientific assessments of risk. P-mapping & PGIS are functionally suited to extracting lay (local, community) knowledge, needs assessments & problem analysis, local perceptions & attitudes, prioritising, coping strategies, and communicating these to scientists. The clarity and conciseness of 'citizen maps' allows decision makers to take into account citizen inputs which used to be ignored.' (Forrester et al. 2003)

## **References**

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