



Science-Policy-Practice Interface from a geospatial perspective – Examples from European and African case studies

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The concept of vulnerability plays an essential role in the domain of risk reduction. Whereas one part of the risk equation, the hazard, may be addressed by specific physical intervention options, from the current understanding more emphasis should lie on activities in regard to vulnerability reduction. These actions may concern measures to reduce exposure and susceptibility and/or the strengthening of resilience at different dimensional levels (social, economic, physical etc.). However, how such a complex phenomenon can be communicated in an appropriate way to a wide range of decision makers within their policy setting and how it can be assessed integrating their knowledge in a domain, where no empirically based parameters are possible/available, remains a challenge.

We believe that a spatial visualisation of vulnerability is of utmost importance for moving from risk assessment towards risk reduction. Several applications have been developed which are usually limited to administrative boundaries or represent a pixel-based approach, which is in our sense perceived as not the ultimate approach to present and model complex and integrated concepts, such as vulnerability. To overcome this limitation the authors propose the 'geon' approach. Geons are constructed spatial objects; the word geon (from Greek *gé* = Earth and *on* = part, unit) is used as a generic term for conceptual fiat objects (Lang et al., in press). Geons are homogenous in terms of varying spatial phenomena *sensu* 'region', but with a strong link to policy intervention (Lang et al., 2008). The spatial construction of geons supports operational updates as a basic requirement for regular monitoring against a specific policy background. Geons are capable to reflect multidimensional problem spaces in real world representations, and by this, facilitate the modelling and mapping of systemic properties reflecting policy-relevant, conditioned information (ibid.).

Within this presentation the geon approach is applied and evaluated in the context of vulnerability assessments to floods in case studies in Europe and Africa. Here, geons represent homogenous regions of vulnerability which integrate a set of different spatial indicators which have been jointly identified and weighted through active stakeholder participation. In the European case study (river catchment in Austria) the possibilities and challenges are explored how stakeholders have been integrated into the modelling of the so called vulnerability units. Parallel to that, issues are identified in the same hazard context in a Mozambican case study, where local community members, district administrators and 'national experts' have been addressed through participatory approaches and where suitable representations of vulnerability have been developed for the community and district level.

Based on these case studies, learning and communication opportunities, challenges and achievements in a policy dialogue are identified, which on one hand aim at the spatial representation of risk/vulnerability and on the other hand address the specific settings in countries of the North and South.

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