

Flood risk perceptions in the Dutch province of Zeeland: Does the public still support current policies?

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The conventional method of risk analysis (with risk as a product of probability and consequences) does not allow for a pluralistic approach that includes the various risk perceptions of stakeholders or lay people within a community or region. In river basins, it is often an expert-based economic analysis of land use values that serves as the underlying estimation of costs of risk mitigation. Intangibles such as nature development, biodiversity and cultural heritage are difficult to include in this calculation. Yet, local or domain knowledge can be used to develop a realistic approach for including tangibles and intangibles in the assessment of land use values, as well as developing new approaches to risk management. This can be an important link in developing appropriate solutions for the mitigation of risk.

Risk perception is derived from the psychometric paradigm that distinguishes a variety of risk characteristics. Due to a number of similarities among these risk perceptions all known risk characteristics can be condensed into three higher order risk characteristics—*awareness*, *worry* and *preparedness*.

Risk perception information may be collected with the help of knowledge elicitation methods. These methods comprise interview, questionnaire and survey approaches that belong to the consultation level of participatory methods. The role of public and stakeholder participation is often underestimated, and not always wisely applied. Furthermore, experts such as planners, engineers and ecologists may have difficulty in accepting and incorporating domain knowledge in their projects. However, public and stakeholder opinion can help to improve the flood protection policy in a river basin or even at the level of province or country. European directives such as the Water Framework Directive and the Flood Risk Directive emphasize the active participation of involved people and organisations in policy processes.

On the Dutch side of the Scheld estuary, the authors conducted a number of personal interviews, which were followed up by a survey sent to 3000 households within the province of Zeeland (The Netherlands). The questions addressed flood perceptions as well as opinions about current and desired flood policy, evacuation and early warning systems and the perceived role of responsible authorities.

The flood perception approach used here assumes a particular level of ‘voluntariness’ where risk outweighs benefit within a flood-prone area. The example of the Ebro delta (Spain) demonstrates that stakeholders may be able to decide by themselves whether or not to invest in flood protection measures such as land-use change. This delta shore is not generally protected. In contrast, the Dutch coastal area is completely protected by dykes. Most of the so-called polders are low-lying lands between 0 and about 6 meters below sea level. This implies well-organised water management authorities (‘Waterschappen’, ‘Rijkswaterstaat’), who are able to maintain the flood protection of the low-lying areas. Individual trade-offs between risk and benefit of flood protection is virtually not possible. However, the implementation of auxiliary measures such as compartments, additional flood plains, evacuation plans, nature protection and similar responses may be issues for discussion among the public, stakeholders, water managers and policy makers.

Despite reduced levels of voluntariness in the polders, the variety of public opinions is remarkable, and helps to enrich or strengthen current flood protection policy.

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