Abstract

Luzius Thomi, *Rôle des paramètres sociopolitiques et des connaissances dans la gestion des risques hydrologiques*. Thèse de doctorat, Université de Lausanne, Faculté des géosciences et de l'environnement, 2010.

The role of socio-political parameters and of knowledge in the management of hydrological risks

The purpose of the thesis is to analyse (1) the socio-political management of hydrological risks, (2) the knowledge about hydrological risks, and (3) the interaction between risk management and knowledge. Three case studies were carried out, two at a regional level (city of Berne, village of Saillon) and one about a specific stakeholder (the dyke corporations in the canton of Berne). Empirical data were collected by the means of semi-structured interviews and surveys.

The management of hydrological risks is highly influenced by socio-political issues, i.e. by interests and goals of stakeholders, by the balance of power between stakeholders, as well as by negotiations and decision-making processes. In practice, however, risk management is mainly constrained by physical, technical, and administrative aspects. The neglect of the socio-political dimension may thus be the source of conflicts which significantly delay the planning and implementation of flood protection measures, or even stop them. Furthermore, risk management mostly concentrates on hazard reduction. Discussions on vulnerability issues are less frequent although they are fundamental for treating risks in a holistic manner.

Because of the importance of the social-political dimension and of vulnerability issues, it is necessary that the common approach of managing hydrological risks is reconsidered and adapted. Moreover, the integration of all stakeholders that are concerned with hydrological risks is essential for finding solutions which are supported by a majority. For instance, the application of appropriate negotiation instruments is insufficient.

Knowledge about hydrological risks and their management can be classified into four categories (system knowledge, event knowledge, intervention knowledge, socio-political knowledge) which are all influencing the reduction of risks. Among the most important factors that are likely to trigger knowledge transformations, one can point out flood events, studies about risk parameters (hazards, vulnerability, protection measures, etc.), knowledge exchange between stakeholders, and the search for solutions during risk management.

The characteristics of knowledge vary considerably between stakeholders. The affiliation to a specific group is thus not a sufficient criterion to determine the quality of a stakeholder's knowledge: every stakeholder may have knowledge that is relevant for risk management. However, differences between stakeholders complicate the communication. This problem

could be attenuated by mediators which ensure the translation between stakeholders. In practice, such instances are generally lacking.

The management and knowledge of hydrological risks are highly interdependent. The state and the characteristics of the four categories of knowledge determine directly the quality of flood protection. Gaps and imprecison may thus lead to forms of management which are not adapted to the actual risks. This kind of situation can be avoided by updating regularly the knowledge about hydrological risks and about protection measures. However, knowledge must not be restricted to the experience of past floods. On the contrary, it is indispensable also to involve prospective reflections and new scenarios.

Risk management does not only require knowledge, it may also generate new knowledge and enlarge existing knowledge. The creation and the transfer of knowledge has thus to be seen as a central task in risk management.