THE RELEVANCE OF ACTORS' RISK KNOWLEDGE AND ITS INTEGRATION INTO FLOOD RISK MANAGEMENT

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The last two decades have shown that despite the efforts made to control river flooding for over a century, Switzerland is not safe from hydrological hazards. Extreme floods in 1987, 1993, 1999, 2000, and 2005 in different regions of the country represent only the most important national events. The costs of these disasters are considerable (more than 4 billion Euros since 1990), mainly due to intensive land use and the sophistication of the terrains concerned by flooding, especially in highly urbanised areas. Therefore, managing flood risks in an integral and appropriate way is of greater importance than ever.

During the last thirty years, the Swiss flood prevention system has experienced an intense change of paradigm in order to improve flood risk management. Having primarily been based on a pure hazard defence, the new public policy on flood protection, which was elaborated in the beginning of the 1990s follows a more pluralistic risk approach: protection against floods is no longer an exclusive field of hydraulic engineering, but includes a wide range of other topics, such as spatial planning, organisational measures, emergency planning, warning systems, etc. At the same time, ecological needs of river bodies have been defined as equally important as security purposes.

As a consequence of the diversification of the flood protection policy, the range of actors potentially concerned by it has been considerably enlarged, in terms of quantity and quality. These actors include members of the public administration (hydraulic engineering, spatial planning, emergency services, etc.) as well as private actors (population, farmers, NGOs, consulting engineers, entrepreneurs, etc.).
According to the federal strategy against natural hazards, all actors potentially concerned by the flood protection policy have to be considered when taking measures against hydrological hazards. Given the large range of actors, communication and coordination between these actors is of great importance. However, actors only can take part when they have some knowledge about the flood risks, their impacts and the way measures work. Thus, knowledge about hydrological risks has to be seen as a key-factor in risk management. Is it absent, sketchy or based on false assumptions, actors may not be able to manage the risk and to take appropriate measures.

Knowledge about flood risks is far from being trivial and one-dimensional. In fact, several recent studies (e.g. Barrué-Pastor & Barrué 1998, November et al. 2006, Reynard et al. 2006, Siegrist & Gutscher 2006) have shown that there are a lot of different facets: it may be precise or confuse, explicit or latent, objective or subjective, etc. In addition, the knowledge may vary fundamentally between different groups of actors and even within one single group. Personal experience, emotions and basic attitudes as well as education and information seem to play an important role. Often, a wide range of different forms of knowledge coexist in a relatively limited spatial area. Despite this great diversity of knowledge, there is frequently a lack of

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knowledge-transfer between the actors. Especially non-institutional actors like citizens and farmers do not actively share their knowledge, although this might be very valuable in risk management. In general, communication and information about flood risks are seen as a top-down task. That means that they are managed and centralised by public authorities. Private actors, such as the population, are considered as receivers of information, but they do not actively take part on risk communication.

This paper aims to analyse knowledge related to flood risks and its integration into risk management. Based on two case studies in the village of Saillon (canton of Valais, Switzerland) and the city of Berne (canton of Berne, Switzerland), three aspects are discussed: 1) In which way is knowledge similar or different from one actor to another? 2) How is the knowledge of different actors integrated into flood risk management? 3) How would it be possible to improve knowledge transfer between actors, especially between non-institutional ones?

Based on this discussion, three main conclusions can be drawn: 1) Although some literature leads us to assume that there is a dichotomy of experts (i.e., members of public administrations, scholars, etc.) and lay people (i.e., population having no particular knowledge about a specific topic), reality is different. So-called lay people may indeed have very precise knowledge about flood risks and past events. This knowledge is of great importance in risk management as well as in risk communication. 2) At the institutional actors' level, types and characteristics of knowledge vary a lot. This is especially due to the working field of the actor (hydraulic engineering, spatial planning, emergency planning, etc.) and the administrative level (commune, canton, Confederation). Thus, even "experts" do not share *one* general and global knowledge and, therefore, it is not possible to talk about *the* expert knowledge. 3) To improve knowledge transfer, so-called lay people with some knowledge about flood risks may play a role of an intermediary between the authorities and the population. The advantage is that they have some knowledge about flood risks, but, in contrary to the authorities, they are physically and psychologically closer to the population. They have personal contacts, they know the local circumstances and they are part of the civil society.

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