

Popular Scientific Summary:

Integration of a Technological Tool in an Early Warning System within its Social Context: A Case Study from Durazno, Uruguay

To be effective, an early warning system needs to be viewed as a social process with a strong focus on the people at risk, and therefore the technological component of an early warning should be embedded within its social context. This thesis aims to contribute to the understanding of the integration of a technological tool in an early warning system within its social context through a case study from Durazno in Uruguay.

The last decades technology for successful disaster risk reduction has gained prominence all around the world. Examples of risk reduction efforts that integrate technological components such as forecast models and geographic information systems for risk and vulnerability mapping have shown that technology can contribute to the resilience of people at risk. Although technology thus plays an important role in reducing risks, it is widely acknowledged that technological enterprises are insufficient in themselves to reduce disaster risk since a disaster is not just natural but also of social and political origin. The conventional view of an early warning system is that is a pure technological solution of a monitoring and warning service, following a linear chain from observation through warning generation to the dissemination of the warning to the people at risk. This contrasts with most disaster risk reduction literature which calls for a shift towards a people-centred view on an early warning system that comprises four elements: risk knowledge, monitoring and warning service, dissemination and communication, and response capability.

In 2011, a flood early warning system was implemented in Durazno in Uruguay based on a hydrological-hydrodynamic model. Final project reports on the implementation and further development of the early warning system introduce the system as a pure technological support tool for local decision-makers to improve emergency planning. From the perspective of the authorities and the scientific developers of the technological decision-making tool for the early warning system, it was examined in how far the technological tool is included in its social context.

The results of the study showed that although the term ‘early warning system’ generally is used to refer to the technological tool, the early warning system is included in its social context to some degree. Firstly, the technological tool does not trigger evacuation due to the presence of a political-social decision-making component in terms of certainty of the information from the tool and

furthermore in minimizing the time that people spend outside their houses while being evacuated. Secondly, all of the elements of a people-centred early warning system are present, although the focus on the dissemination and communication element and the response capability element has been very limited so far.

The study provides several recommendations for the local and national authorities to develop the social aspect of the early warning system further in order to make it truly people-centred. For example, a participatory bottom-up approach to early warning is suggested to maintain the trust of the people in the authorities. Being selected as a representative case rather than for its uniqueness, the learning outcomes from this case on the flood early warning system in Durazno can be extended to other cases. Specifically, the lessons learned represent an opportunity to inform the development of other similar flood early warning systems in other cities in Uruguay.