



## **A participatory approach of flood vulnerability assessment in the Banat Plain, Romania**

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The Banat Plain (western Romania) is a low, alluvial plain affected by neotectonic subsidence movements, being a critical region in terms of exposure to floods. The latest extreme event was the historic floods occurred in the spring of 2005, which caused significant economic damage in several rural communities. The response to 2005 floods has highlighted a number of weaknesses in the management of hazards, such as the deficiencies of the early warning system, people awareness or the inefficiency of some mitigation measures, besides the past structural measures which are obsolete.

For a better understanding of the local context of vulnerability and communities resilience to floods, the quantitative assessment of human vulnerability to floods was supplemented with a participatory research, in which there were involved five rural settlements from the Banat Plain (comprising 15 villages and a population of over 12,000 inhabitants). Thus, in the spring of 2013, a questionnaire-based survey was conducted in approx. 100 households of the affected communities and structured interviews were held with local authorities, in the framework of VULMIN project, funded by the Ministry of National Education.

The questionnaire was designed based on a pilot survey conducted in 2005, several months after the flood, and was focused on two major issues: a) perception of the local context of vulnerability to environmental change and extreme events; b) perception of human vulnerability to floods (personal experience, post-disaster rehabilitation, awareness, worrying and opinion on the measures aimed to prevent and mitigate the effects of flooding).

The results were correlated with a number of specific variables of the households included in the sample, such as: household structure; income source; income level; location of the dwelling in relation to floodplains. In this way, we were able to draw general conclusions about the way in which local people perceive the extreme events, such as floods, on the one hand. On the other hand, there were highlighted differences in perception between the respondents, caused by their different degree of socio-economic vulnerability.

Although exposure to floods remains a significant problem in the Banat Plain, statistical analysis of the results revealed that respondents tended to relate mainly to newly produced extreme climatic events (droughts, heat waves, storms), when being asked to mention natural hazards threatening the studied region. Moreover, the comparison of the results of the two surveys conducted in the region (in 2005 and 2013) indicated that the relationship between the components of risk perception has changed over time. Thus, the directly proportional relationship between awareness, worry and preparedness, emphasized in 2005, is currently absent. The implementation of flood mitigation measures appears to be only the result of mechanisms put into service at the institutional level, after the events of 2005. Although currently there may be an improvement in flood response and mitigation in the region, compared to 2005, the low level of awareness and the fact that exposure to floods is not yet perceived as a threat can jeopardize the resilience and adaptation of rural communities to floods in the Banat Plain.