



Vulnerability and climate change fitness in mountain areas - an investigation of hazard zone planning in the Autonomous Province Bolzano South Tyrol

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Only 7% of the Autonomous Province Bolzano South Tyrol - in the centre of the Alps – are permanent settlement areas. These are steadily endangered by the pressure of temporarily occurring floods, avalanches or rock-falls, strongly varying in terms of intensity and frequency. To prevent them from natural hazards the regional government is currently introducing a Hazard Zone Plan (HZP). This flexible and binding instrument should contribute to reduce vulnerability in permanent settlement areas. Therein the protection of lives, settlements and economic areas represents the major pillars.

This paper introduces the results of the SWOT-analysis regarding the applicability and the appropriateness of the HZP for climate change (CC) adaptation. The study focuses on the consequences and impacts of the delineated hazard-zones for the municipalities and the affected proprietors.

Using guided interviews, quantitative evaluations and qualitative personal estimations from involved experts could be obtained. Therein aspects regarding awareness building among the society, technical and legislative possibilities for CC adaptation as well as the flexible applicability and the legal character of the HZP were assessed. Furthermore, it was intended to point out the synergetic effects of the HZP with other spatial planning instruments and its ability to manage upcoming conflicts. And finally the interviewees gave comments on its efficiency for reducing vulnerability and recommendations for improving its applicability. In combination with the already elaborated guidelines and principles for implementing the HZP, different statements could be derived regarding its strengths and weaknesses as well as its opportunities and threats.

It can be remarked positively that all relevant public institutions are involved and take responsibility in the implementation process. However, the main responsibility from the legal and financial point of view is carried by the municipalities, although they do not always have the appropriate personal capacities. Therefrom, the documentation, dataflow and data storage could also suffer in the long term. Despite this formally unfavourable constitution, the measures of the HZP are flexibly applicable. At any time the plan can be revised if basic parameters change. The hazard degree of any zone is indicated by the specific risk determined by simulations and terrestrial surveys. Due to the flexible handling of the HZP the degree of endangerment can be diminished, if adequate measures are set. Hence, CC adaptation is only indirectly considered and thus not mentioned.

Although the delineation of hazard zones may have a negative impact on individual proprietors and may cause conflicts, the HZP is a valuable instrument that forces authorities to think strategically and to apply an active risk management. As the degree of vulnerability is directly related to higher construction-costs, the municipalities benefit from this cost transparency in their decision-making.