



Local structural protection for buildings within natural hazard risk management

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During the last decades, settlement activities increased in the alpine regions of Austria. Due to the scarceness of areas suitable for development, settlements were extended into areas which are endangered by natural hazards such as mass movements or avalanches. Integral risk management strategies, including hazard mapping, aim at the assessment of such endangered areas. Within the risk management framework, hazard maps serve as a basis for the implementation of mitigation measures.

Comprehensive protection concepts include structural measures in the catchment area and along the torrent. Typically these structures fulfill the functions of dosing and retending sediment. However, a residual risk of possible damage to buildings and infrastructure remains. Thus, methods of protection against natural hazards should not only influence the natural process but also reduce the impact at the values at risk. A possible way to reduce those impacts is to decrease the vulnerability of values at risk, above all by means of local protection measures.

According to different transport processes (flash floods with bedload transport, debris flows, rock falls and avalanches) and the structural elements of a house, local protection structures can be classified in terms of relevant impacts and protection objectives. Based on this classification, structural measures are suggested not only for new buildings but also for upgrading existing settlement structures. This will lead to a considerable decrease of damage to tangible assets.