

Advancement of Torrent and Avalanche Control in Austria – A Story of Success?

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INTRODUCTION

In 2002 Göttle & Loipersberger predicted in their speech at the INTERPRAEVENT session in the Pacific Rim that natural hazard management will further challenge our policy development and implementation efforts related to mitigating the impacts of natural hazards on our society, environment, economic development and welfare. They closed their speech with a positive outlook that there is a way to master the upcoming challenges successfully. Now 16 years later and considering the increasing number of natural disasters with adverse effects on our societies, economics and environments, together with all the changes and challenges that influencing our strategies and principal concepts in natural hazard management, I'm sorry to say that we're still far away from a business as usual situation in natural hazard management. This unemotional perspective of an (policy) issue that is on top of many political agendas around the world resulted from the experiences we have with regard to natural hazard management in Austria, and I guess there are similar situations in the countries represented in the framework of INTERPRAEVENT. Since 2002, we experienced every year natural disasters in Austria with to some extent disastrous consequences, and the point is: they still occur even though we invest hundreds of million Euro into natural hazard mitigation measures, concepts and strategies. Although floods, snow avalanches, debris flows or landslides are natural events, the disasters they trigger are not, because of increasing vulnerability and damage potential in areas at risk. Additionally, special attention must be given to the consequences of Global Warming and therefor Climate Change which have impacts on the frequency and magnitude of future hazardous events. The questions that inevitable arise are: Are our present natural hazard management concepts and strategies adequate enough to respond effectively to those challenges? And: Is time-tested tradition in natural hazard management a guarantor of a preventive future?

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Mitigating natural hazards in Austria (and the former monarchy) and more over in the Alps has an age-long tradition, which build the basis of services of public interest in these regions. Historical evidence for torrent control activities in Austria goes back to the 13th century (Talfer river near Bolzano), a systematic torrent control started in 1884 by both the establishment of the Forest Technical Service for Torrent and Avalanche Control and the law concerning torrent control. From this moment on several paradigmatic shifts in our mitigation strategies have been observed: Emanating from conventional mitigation concepts (like the system of forest-technical torrent and avalanche control) – which aimed at decreasing both, the intensity and the frequency of events by implementing permanent measures in the upper parts of the catchments to retain

sediments from erosion and in the release areas of avalanches (and supplemented by silvicultural efforts to afforest high altitudes) – a more sophisticated approach has been implemented since the 1970s aiming at the deflection of natural hazard processes into areas not used for settlements. A fundamental change in the mitigation strategy applied in Austria has been recognised in the last few years, depending on the evidence that conventional technical measures against natural hazards are not only very cost-intensive in construction and maintenance, and that the feasibility of technical structures is restricted due to a scarceness of financial resources provided by responsible authorities. Moreover, and considering an increasing number of catastrophic events that were not prevented by any incentives and efforts to improve the protection strategy system, it has to become clear that conventional technical measures do neither guarantee reliability nor complete safety and a residual risk of damage to buildings, infrastructure and harm to people still remains. To cover these restrictions and challenges, recent policy developments in Austria are applying risk governance principles. This approach which implies active involvement of all that are concerned by natural hazards is one result of a long-lasting debate on how and to which degree a privatization of risk can be accepted and accounted from both an individual and public point of view. The ultimate goal of sustainable development requires a holistic view on the management of natural hazards, taking account social and economic development and long-term change in the natural environment. This goal includes to find the balance between natural hazard control by physical structures and damage prevention by alternative means and options (e.g. planning, adaptation resilience, insurance, preparedness etc.) to alleviate natural hazards of different magnitudes and sources.

CONCLUSIONS

Answering the two questions in the beginning from an Austrian perspective is not simple. On one hand the future never survives by hold on the history but on the other hand we do need experiences to further improve our strategies and mitigation concepts. The advancement of torrent and avalanche control in Austria is a story of success, because we used several failures to learn from them and to build back better.

All the considerations above need further and appropriate evidence. I'm confident that R&D is key to help us live with natural hazards and risk in a changing climate and environment. Only evidence-based policy making can help us to bridge the gap between current demands and limitations to natural hazard management and further uncertainties that comes along with Climate Change and other future developments or changes. It is at the core of the International Research Society INTERPRAEVENT to further strengthen the link between academics, practitioners and policy-makers in natural hazard-related research in order to help optimising the output and outcome of research efforts. Torrent control will be for all of us a story of success, when all that are concerned with torrent-related hazards can take experiences and ideas from this symposium back home to continue significant advances in hazard mitigation.

Keywords: Torrent and avalanche control, risk governance, natural hazard management, policy