

# Security level for natural hazards

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## INTRODUCTION

Complete security against natural hazards does not exist. This fact implies that certain risks have to be accepted. How are acceptable and unacceptable risks determined? Who defines the relevant threshold; the recommended security level? What happens in cases where risks exceed this level?

The strategy of PLANAT - the Swiss National Platform for Natural Hazards - „Protection against Natural Hazards in Switzerland“ (2005) aims to maintain an equivalent security level for all natural hazards throughout Switzerland through sustainable means that are environmentally friendly, economically viable and socially responsible. An extremely high security level is usually incompatible with the principle of sustainability, primarily because it conflicts with economic proportionality. Consequently, there are risks which need to be carried, for instance by proprietors, insurance companies and public authorities (the risk carriers). Defining the line between acceptable and unacceptable risks poses a major challenge, including a series of questions not easily answered: To what extent should decision makers engage in the avoidance and reduction of risks? Which risks are risk carriers willing to accept? Which risks does the community expect the risk carriers to accept? How can illegitimate risk transfers be avoided? The structure and capability of individual and collective risk carriers, as well as the risk they have to carry, are diverse. Hence, a numerical criterion specifying the acceptable risk cannot be considered universally valid. However, the acceptable risk needs to be defined by assessing the acceptability among all risk carriers. Parts of this security level based approach have been developed and are elaborated in „Security Level for Natural Hazards“ (2014). The PLANAT publication „Security Level for Natural Hazards“ (2014) is a recommendation that establishes a common understanding of the issues and provides strategic guidelines specifying how

the recommended security level is defined. This abstract focuses on the proposed cooperation between decision makers and risk carriers. PLANAT has explored these issues in more detail and supplemented their strategic recommendation with further explanations and examples which illustrate the framework conditions and provide suggestions for practical implementation (Sicherheitsniveau für Naturgefahren - Materialien 2015).

## ATTAINING THE RECOMMENDED SECURITY LEVEL - A JOINT TASK

The recommended security level should be attained by the cooperation of all decision makers and risk carriers responsible for the protection against natural hazards. In accordance with their legal mandate, public authorities are an important contributor to risk avoidance and risk reduction for natural hazards, particularly due to their responsibility for providing basic, area wide structural protection. Public authorities can furthermore make use of spatial planning, a major instrument to avoid new risks. It is the responsibility of each individual risk carrier to contribute to reaching the recommended security level. Hence, individual responsibility is very important in the protection against natural hazards.

## FUNCTION OF PROTECTION OBJECTIVE

By defining general protection objectives, the decision makers establish how much they are able and willing to invest. These protection objectives must be agreed by all decision makers and risk carriers. Overall, the combination of the protection objectives is meant to result in the recommended security level.

## INTEGRATED PLANNING OF MEASURES AND PROTECTION OBJECTIVES

For the planning of specific structural and non-structural measures against natural hazards, the decision makers translate the general protection

objectives into specific objectives. During the integrated planning of measures it is possible to challenge and adjust the specific objectives in a transparent process in order to reach an optimized outcome. Finally, the combination of the specific objectives is meant to lead to the recommended security level.

### PROCEDURE FOR ACHIEVING THE RECOMMENDED SECURITY LEVEL

Figure 1 shows how the security level of natural hazards may develop. In the initial state, neither the recommended security level nor the protection objective outlined by the decision makers and risk carriers have been attained. The risk exceeds the recommend level of security and there is need for action. All decision makers and risk carriers are then involved in the subsequent integrated planning of measures that take into account all aspects of sustainability.

In the procedure of managing risks according to Figure 1, three phases can be distinguished:

- Phase 1: Monitor and assess the present risk situation, prevent risk from increasing

- Phase 2: Reduce risk to the recommended security level
- Phase 3: Maintain the achieved security level on a long term basis

### OUTLOOK

In order to achieve and maintain the security level recommended by PLANAT, all decision makers involved are required to take action according to their responsibility. Protection against natural hazards is a long-term and joint task; all decision makers and risk carriers must jointly develop protection measures. The residual risk is borne in solidarity; however, all risk carriers must be made aware of their own roles and responsibilities as well as the roles of others involved.

Several guidelines for specific parts of the risk based concept have already been developed. They are based on several real cases or case studies in Switzerland. These cases show that it is possible to define and achieve a security level.

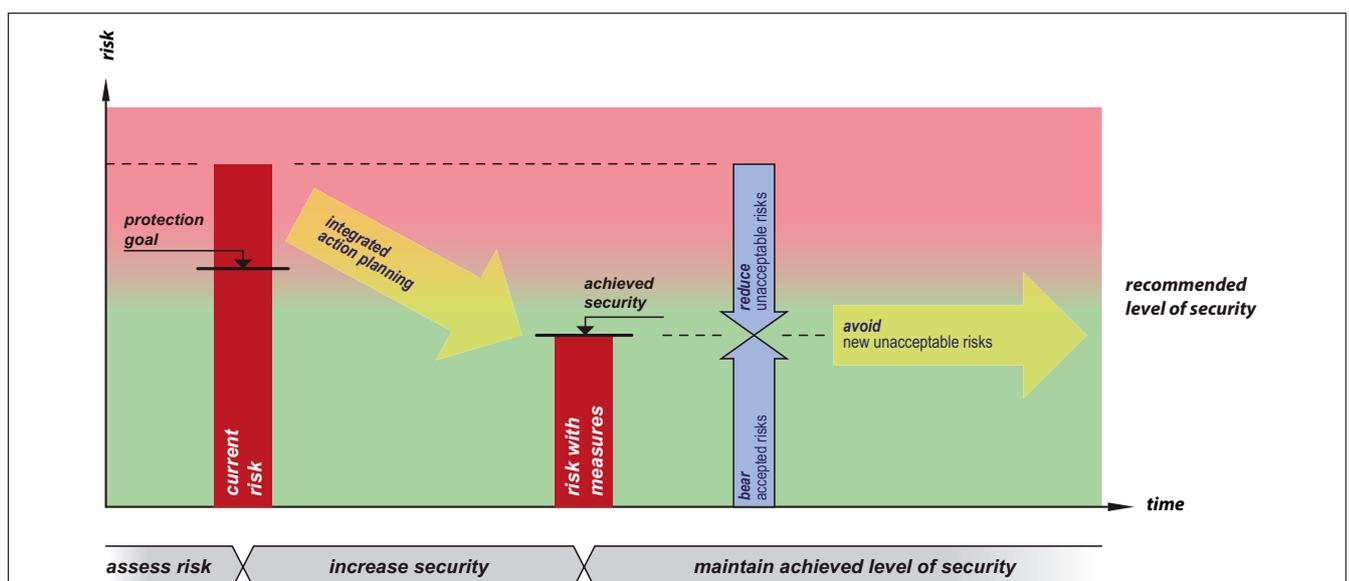


Figure 1. Procedure for achieving and maintaining the recommended security level

### KEYWORDS

integrated risk management; natural hazards; strategy; security level; Switzerland

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