Small country, big challenges. Switzerland has a long tradition concerning fundamental research as well as practice- and implementation-oriented research in hazard management and there is an important number of research institutions being active in this domain. The findings of these research activities will further improve the management of natural hazards and, taking into account environmental aspects, climate change and settlement densification. The «Research Concept Environment » (FOEN 2020b) describes the implementation of environmental policies in 18 research areas and thus the priority fields of research from the perspective of FOEN in the near- and future-term. FOEN's focus on central research themes in hazard prevention of gravitational and tectonical hazards for 2021 – 2024 is listed below. The order does not express any prioritisation. The Research Concept itself is adjusted every 4 years, but measures and research goals in hazard prevention are only adjusted if knowledge gaps are identified or existing ones are closed.

Research themes in hazard prevention 2021 – 20241

1. Know hazards and risks comprehensively

- Generation of basic scientific knowledge for hazard processes like e.g. lateral erosion of watercourses, hillslope debris flows, rockfall, snow gliding avalanches, impulse waves in Swiss lakes triggered by mass movements or earthquakes (tsunamis on lake shores) and of the influence of climate change on such processes
- Development of methods to record natural hazard processes, e.g. sediment and driftwood transport, to register indirect damages due to natural hazard events and development of methods to assess future hazards and extreme events due to climate change. A good example for this topic is the recently completed WoodFlow research project (www.woodflow.ch), which improves the understanding of the processes governing large wood dynamics in watercourses and provides practitioners with suitable tools to help assess and manage large wood related hazards.
- Development of a methodology for risk overviews at different spatial scales
- Investigation of the impact of climate change on the risk landscape in Switzerland and analysis of combinations and concatenations of different processes
- Elaboration of fundamentals to quantify the vulnerability and the risk for infrastructural systems in the event of earthquakes and gravitational natural hazards

2. Identify events at an early stage

- Investigation of precipitation thresholds and analysis of the disposition to slope processes in-depth. The FOEN is currently developing a warning system for landslides and hillslope debris flows. These disposition warnings provide indications at various warning levels as to the areas and probability of slopes becoming unstable due to the current