13 — Future perspectives

The intention of the CH2014-Impacts initiative in producing the present pilot report is to stimulate an ongoing process toward the consolidation of quantitative scenarios of climate change impacts in Switzerland.

The contributions to the CH2014-Impacts report consistently apply the approach of linking quantitative impact models with the common data basis of the Swiss Climate Change Scenarios CH2011 (and the climate simulations from which the CH2011 data are derived). This common approach lends coherence to the set of results presented. However, limitations exist due to gaps in the treatment of climate and due to the incomplete coverage of potential impacts (Chapter 12). These gaps may be closed by applying the CH2014-Impacts approach systematically to a representative set of potential climate changes and associated impacts in Switzerland. This will yield "impact scenarios", which depict potential impacts of climate change in Switzerland quantitatively in a multidisciplinary and comprehensive way. Impact scenarios conceptually extend the scenario framework by the dimension of climate change impacts, in addition to the dimensions of greenhouse gases and climate change.

Further steps toward the goal of impact scenarios need to address more potential impacts and to consider the complete range of CH2011 climate change scenarios, i.e., the full "scenario cube" (Figure 2.2). The uncertainty analysis of impact modeling must be strengthened by using a richer set of models and by exhaustively testing the robustness of each model's results. This also requires further evaluation of models and acquisition of new observational and paleoclimatic proxy data needed for this purpose. Finally, the scientific understanding of impact processes and important facets of climate change in Switzerland needs to be improved, in particular with regard to extreme events.

A good understanding of potential impacts is necessary for cost-effective adaptation to climate change. Finding the existing knowledge of most potential climate change impacts insufficient to start with the planning and implementation of adaptation measures and to justify the potentially large investments involved, the first part of the Federal Council's adaptation strategy on adaptation to climate change in Switzerland refrains from proposing a catalogue of measures (FOEN, 2012a). The majority of efforts proposed in this stage of the adaption strategy aim to improve the knowledge base of how natural, social and economic systems will be affected and of what measures can be taken.

A chief impediment to progress in adaptation has been the scarcity of quantitative data, and the necessity to rely on qualitative information (e.g., from OcCC, 2007) for key elements of the federal adaptation strategy. Quantitative information facilitates many aspects of assessment. Analyzing the costs and benefits of impacts and adaptation measures, objectively comparing impact levels, setting priorities for action, are all tasks that call for quantitative information. Similarly, the quantification of uncertainty is an inherent feature of the CH2014-Impacts approach and supports risk analysis, which is essential to adaptation planning (Holthausen et al., 2011).

CH2014-Impacts advances the quantitative basis for the next steps in adaptation planning. The results, despite their patchiness, will support decision making in some policy fields and collectively enhance confidence in the adaptation process. In this way, the

‹ Thawing of permafrost can increase the risk of rockfall and affect infrastructure at high elevations (rockfall interrupts the Gotthard railway line in Gurtnellen on June 5, 2012; photo: SBB).

CH2014-Impacts report contributes to closing the knowledge gaps identified in FOEN (2012a). It provides input for the implementation and further development of the national adaptation strategy, and for other public and private adaptation efforts.

With the foreseen evolution of balanced and representative impact scenarios, much more comprehensive assessments will come within reach. The instrument of impact scenarios promises to enhance objectivity, balance, and detail of the adaptation discourse. In order to realize these benefits, a sustained commitment to the development of impact scenarios and the supporting basic research is needed. Future efforts in continuation of this pilot report will play an essential role in this process.