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Dealing with risks from natural hazards Strategy 2018







We are a risk-competent company
- we deal with risks from natural
hazards in a conscious and forward-
looking manner.



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Foreword



A secure living and economic environment is a prerequisite for quality of life and prosperity. But safety cannot be taken for granted. Natural events can jeopardise people and property as well as a country's economic performance.

Switzerland is exposed to natural hazards. This is why we have a long tradition of consciously dealing with them. It is important for the development of our country and is reflected in the constitutional mandate to protect the population and preserve its livelihoods.

After taking note of the "Safety from Natural Hazards" strategy in 2003, the Federal Council set another milestone by adopting an action plan to promote the implementation of the strategy in 2005. This initiated the change from pure hazard defence to a comprehensive risk culture and integral risk management. This approach has become increasingly established among authorities, politicians and the general public - but it is not yet being implemented consistently in practice.

The increased utilisation of our living space and the increase in extreme weather events associated with climate change mean that risks from natural hazards are increasing despite previous protection efforts. At the same time, resources for dealing with natural hazards are limited. This realisation led to the conclusion of the Hyogo Framework Convention in 2005 and the Sendai Framework Convention in 2015. In Sendai, the international community adopted seven global goals and four priorities for action to reduce disaster risks. Since the publication of the "Safety from Natural Hazards" strategy, however, the national environment has also changed: Strategies have been developed in various policy areas (e.g. sustainable development, adaptation to climate change) that have an influence on how risks from natural hazards are dealt with. This has evolved since 2003 - not least due to the experience gained from natural events such as the floods of 2005.

Against this background, PLANAT has updated the "Safety from natural hazards" strategy. The updated 2018 strategy defines the objectives for dealing with risks from natural hazards and explains the principles according to which they can be achieved. Proven elements are to be continued and further developed, such as the integral risk management approach.

We want to continue to offer our society and our economy adequate protection against natural hazards in the future. To achieve this, we must not only further increase our resilience, but also quickly regain our ability to act after an event and also be willing and able to adapt to changing conditions. Achieving these goals requires personal responsibility at all levels and the cooperation of all stakeholders.

The report "Dealing with natural hazards in Switzerland" was compiled in 2016 as a comprehensive and broad-based assessment of the situation in Switzerland. The report identifies the measures required from the perspective of all stakeholders, and these contribute significantly to the implementation of the updated Strategy 2018. For this reason, no additional action plan is required to implement the 2018 strategy. However, PLANAT recommends priorities for achieving the objectives formulated in the strategy and specifies which stakeholders are addressed. The Strategy 2018 is aimed at all those whose activities and decisions influence the management of risks from natural hazards. It was approved in its present form by the Federal Council on 4 July 2018.

taken.

By implementing the strategy, Switzerland is securing its living and economic environment in the long term and strengthening its competitiveness.

A handwritten signature in black ink, appearing to be 'B. Spicher', written in a cursive style.

Bruno Spicher, President PLANAT



Introduction

The damage events of the recent past show it impressively: gravitational, tectonic or climatic-meteorological natural hazards pose a threat to people, property and the environment in Switzerland.

As a result of climate change, the frequency and intensity of events is likely to increase. Natural events such as droughts and heatwaves, which have received less attention to date, may affect Switzerland more frequently in the future. In addition, earthquakes are an underestimated natural hazard in Switzerland. At the same time, the population and the utilisation and networking of Switzerland as a living and economic space are increasing. This also increases the risks if their development is not consciously and proactively recognised, assessed and managed.

Switzerland offers adequate protection against natural hazards

There is no such thing as absolute safety. However, damage from natural disasters must be socially and economically acceptable. Only by thinking and acting in a risk-conscious manner is it possible to create an appropriate level of safety and to maintain it in the long term.

to receive.

Adequate security requires a resilient, regenerative and adaptable Switzerland. Everyone contributes to security and ensures that it is maintained.

Switzerland places risks from natural hazards in an overall context and prepares itself in such a way that potential damage and adverse effects from natural events are manageable. After an event, society and the economy should quickly regain their ability to act. Monitoring the development of hazards and risks and learning from events contribute to adaptability. Switzerland has set itself the following goals for dealing with the possible consequences of natural events:

- **Switzerland is resilient.** The effects of natural events are acceptable for society and the economy.
- **Switzerland is capable of regeneration.** Society and the economy quickly regain their ability to act after natural disasters.
- **Switzerland is adaptable.** Society and the economy adapt to changing conditions in good time.

A natural event that affects people, buildings and cultural assets as well as livelihoods, infrastructures or objects of considerable economic importance or scope can have a severe impact on society and the economy. PLANAT (2013) has therefore issued recommendations on the desired level of security for these protected assets. In addition to goods, services are also important from an economic perspective. The vital goods and services must be identified at the local, regional and national level, as a good or service does not necessarily have to be equally important for each level.

The more consciously and competently Switzerland deals with risks, the more resilient, regenerative and adaptable it is. As an expression of their responsibility towards the community, everyone must act responsibly within their sphere of influence by doing their part to prevent damage and minimise risks. The community accepts and bears the remaining risks in solidarity. Care must be taken to maintain solidarity and the balance between personal responsibility and solidarity.

Switzerland is resilient

Being resilient means taking measures to limit the damage caused by natural events to an acceptable level.

Avoiding new and minimising existing risks through preventive measures and intervening in the event of natural disasters aims to ensure that potential damage from natural disasters is bearable. We strengthen our resilience by ...

- **Avoid hazards:** Utilisations are preferably planned in low-risk areas. Buildings and infrastructures are constructed and utilised in a risk-conscious manner. People behave in a safe manner before and during incidents.
- **Create appropriate protection:** The frequency, intensity and impact of natural processes are reduced through measures to protect people and their livelihoods; buildings and facilities are constructed or designed in such a way that they are less vulnerable.
- **Provide redundancies where necessary:** Parallel systems ensure that important goods and services do not fail completely as a result of a natural disaster.

Resilience is primarily determined by an optimised combination of coordinated measures. To maintain resilience, all measures must therefore be regularly checked for reliability, maintained and renewed where necessary.

Because there is no absolute certainty, it would be wrong to focus solely on resilience. Efforts to achieve adequate resilience and a high regenerative capacity must be in balance with each other.



Switzerland is capable of regeneration

Being able to regenerate means being able to overcome the negative effects of natural events so that society and the economy can quickly regain their ability to act.

The purpose of preparing for possible incidents is to save lives and limit damage, as well as to quickly create a minimum level of safety after incidents in order to be able to act again. To ensure that incidents can be dealt with quickly, the human, financial and technical resources for repairs must be available and deployed in good time after an incident.

We strengthen our ability to regenerate by ...

- **Make preparations:** Appropriate preparation is a prerequisite for successfully coping with natural events; basic principles have been developed and are known; instruments, organisations and structures for cooperation are established, well-rehearsed and ready for use.
- **Provide sufficient resources:** The human resources and technical aids required to deal with the problem are defined and known, and the competences for their use are regulated. The provision, procurement and distribution of financial resources for maintenance are regulated and secured.
- **Provide mutual support:** In the event of natural disasters that exceed the resources of an affected area, support is provided in a spirit of solidarity and in accordance with the principle of subsidiarity.

The ability to regenerate is primarily determined by the organisational precautions, the available resources and the financial possibilities. The responsible parties must not be surprised by the nature and extent of an event. For this reason, they must also take very rare events and combinations of different events into consideration during the preparation phase.

An optimal balance between resilience and regenerative capacity is a basic prerequisite for safety. Developments and changes in the environment require adaptations in dealing with risks from natural hazards. The ability to adapt is therefore another basic prerequisite for maintaining safety in the long term.



Switzerland is adaptable

Being adaptable means recognising changes and developments at an early stage so that society and the economy can prepare for them in good time.

The purpose of observing and assessing changes is to recognise the need for action in good time and to implement the necessary measures. The value and spatial distribution of protected assets, the utilisation of space, the hazard situation and thus the risks change over time. The security requirements of society and its solidarity also change and must be monitored. In addition, adaptability requires knowledge, which must be newly created, made available and exchanged among the players. We strengthen our adaptability by ...

- **Recognising and responding to changes:** Developments in natural hazards and risks are monitored and regularly assessed; any need for action recognised as a result is taken into account in a timely and appropriate manner by all responsible stakeholders.
- **Creating and deepening knowledge:** Research into the sequence and impact of hazard processes, the effect of measures and, in particular on the social and economic impact of natural events closes recognised gaps and anticipates possible developments.
- **Imparting knowledge:** Research results and findings from analysing events are incorporated into the training and further education of experts. The exchange of knowledge between experts, authorities, private stakeholders and the population is promoted.

Adaptability is primarily determined by knowledge and the willingness to change. Developments must therefore be recognised, tracked and anticipated. It is important to think and act in a transdisciplinary and networked way.

Switzerland takes a risk-oriented approach to natural hazards

Only the risk-orientated handling of natural hazards ensures that different risks can be compared, that they are dealt with in a comparable way everywhere and that the security created is maintained in the long term.

An effective and efficient use of resources requires that the potential impacts of various natural hazards in different areas can be compared with each other and placed in the context of other risks. This is only possible if both the extent and the probability of possible damage are taken into account.

The "Safety from natural hazards" strategy called for a comparable approach to risks from natural hazards as the basis for comparable safety throughout Switzerland. A comparable approach is guaranteed if the safety to be achieved in a specific case is developed jointly by the responsible parties concerned and according to a standardised procedure. This procedure is based on the same principles and standardised principles. The responsible parties are guided by the recommendations for the desired safety level (PLANAT, 2013, Eckhardt et al., 2015) as well as the existing framework conditions in the specific case. The development of safety according to this standardised approach means that ...

- the stakeholders (responsible parties, risk carriers, affected parties) are identified,
- the objectives of the stakeholders are formulated and known to all,
- the solution variants and the planned measures are discussed with all stakeholders at an early stage and an optimised solution is developed,
- the decision to implement the programme is made and justified by those responsible in full knowledge of the risks and uncertainties.

The participation of the stakeholders ensures that an active risk dialogue takes place. The risk dialogue between the stakeholders involved is a prerequisite for the acceptability of the measures and the remaining risks and therefore for the definition of appropriate safety.

In order to achieve the goals of a resilient, regenerative and adaptable Switzerland, the management of natural hazards is based on the following proven principles:

- Switzerland has a comprehensive risk culture.
- Everyone is involved in integral risk management.
- Risks from natural hazards are dealt with in a spirit of solidarity.
- Knowledge about natural hazards and risks is up-to-date and accessible.
- Dealing with risks takes all aspects of sustainability into account.

Switzerland has a comprehensive risk culture

The risk culture in Switzerland is characterised by the perception of risks, the willingness to work to improve and maintain security and the ability to conduct an open and transparent dialogue on opportunities and risks.

Every society has conventions that specify which risks are accepted and which are to be avoided. Conventions also determine who is responsible for dealing with natural hazards, which rules apply, which resources are used and how the remaining risks are borne. The management of natural hazards must be developed in a social, economic and ecological context. The standardised and risk-oriented approach influences the conventions and legal foundations in the medium term.

- **Risks from natural hazards are known to all stakeholders:** Reliable and trustworthy information on natural hazards and risks are the basis for the awareness and acceptance of risks and the recognition of the need for action. Decision-making bases for comprehensive risk management must therefore be accessible and understandable for all stakeholders. This enables an active exchange and transfer of knowledge between research, authorities, society and the economy.
- **A continuous risk dialogue is a prerequisite for sustainable cooperation:** risk dialogue means an active and mutual exchange of knowledge and experience between the stakeholders. This includes analysing and constructively dealing with uncertainties and errors. This enables learning processes and leads to a continuous improvement in dealing with risks from natural hazards. All stakeholders must deal with possible conflicts of interest and work constructively towards solutions. The desired safety, the realisation or the deliberate renunciation of measures must be evaluated in the overall context.

- **Risks from natural hazards are taken into account when making decisions:** Settlement development, construction projects and intensive land use represent opportunities for society and the economy, but can also increase risks from natural hazards. Risks and opportunities must therefore be included in decision-making processes at an early stage. A timely and target group-specific information as well as participatory processes ensure that decisions are made and justified in the knowledge of the concerns of the stakeholders. A transparent and regulated procedure and broad-based consideration of the relevant aspects strengthens the commitment with which stakeholders implement and support jointly made decisions.

Everyone participates in integral risk management

Integral risk management considers all natural hazards, measures risks using comparable benchmarks, deals with all risks in a comparable manner, involves all stakeholders and affected parties and weighs up possible measures, taking all aspects of sustainability into account.

Integral risk management was postulated with the "Safety from natural hazards" strategy. Integral risk management means assessing risks as part of an overall assessment and prioritising the need for action. This involves answering three questions:

- **What can happen?** The risk analysis is based on scientifically supported procedures; the intensity and frequency of natural hazards and the expected damage are recorded.
- **What can happen?** The risk assessment clarifies which risks are acceptable and which are not.
- **What needs to be done?** Integral action planning weighs up risks and opportunities and defines the extent to which risks should be avoided, minimised and borne.

The periodic recording and assessment of risks from natural hazards requires up-to-date and standardised hazard and usage data. It must also include future developments - particularly with regard to utilisation. Risk assessments in individual areas must be combined into overall views. For infrastructures and properties with considerable economic impact, greater attention must be paid to the indirect consequences of damaging events such as operational and traffic disruptions.



Integral risk management is based on comprehensive and up-to-date hazard and risk fundamentals and requires an open and transparent risk dialogue.

The following elements are central to the integrated management of natural hazards:

- **Recording and assessing risks:** Risks from all hazard processes are recorded and periodically assessed.
- **A standardised approach:** The desired safety level is always developed jointly according to a standardised procedure.
- **Consider the general conditions:** The persons responsible and risk carriers are guided by the recommendations for the desired safety level. However, they also take into account the local framework conditions and the requirements of other areas.
- **Utilise options for action:** All options for improving and maintaining safety are assessed. They include planning, organisational, biological and technical measures. These are optimally combined as part of the integral planning of measures and analysed with regard to the following aspects: Effect, benefits, costs and proportionality. Synergies with other tasks and the acceptability of the remaining risks are also decisive for the selection of variants and the implementation decision. The measures are maintained and their effectiveness is reviewed periodically.
- **Take uncertainties into account:** Uncertainties are identified, quantified as far as possible, communicated and taken into account when making decisions.
- **Weigh up interests and set priorities:** Decisions on the implementation of measures define the extent to which risks are avoided, minimised or accepted. This requires a weighing up of interests and solutions as well as an objective justification of the corresponding decisions, as the overall optimal solution is not always the best solution for every aspect.

Integral risk management does not only take place at the operational management level in the context of specific projects. It is also the instrument for the integral handling of natural hazards at the strategic and normative management level. At the strategic management level, integral risk management includes risk overviews and overall planning over larger areas and longer time horizons. At the normative management level, the various responsible parties define harmonised objectives, principles, standards, laws and rules for dealing with risks from natural hazards.

Dealing with natural hazards in a spirit of solidarity

In Switzerland, everyone can be affected by natural hazards - which is why everyone must be involved in dealing with natural hazards.

Every person or institution bears risks from natural hazards - both for themselves and for the community. At the same time, everyone influences the risks through their actions and behaviour. Everyone is therefore a responsible stakeholder in dealing with natural hazards - albeit with different roles.

- Individuals **and companies** take responsibility for avoiding, minimising and accepting risks. They ensure that any remaining risks are acceptable.
- **The community** jointly bears risks that would require disproportionate individual or public investment to avoid or minimise.
- **Insurance companies** help to finance the reconstruction and support the insured with prevention services.
- The **authorities, organisations and emergency services** make a major contribution to reducing risks with their planning and investments. The federal government has a strategic leadership role in this; it supports the cantons financially and technically. The cantons, municipalities and organisations draw up basic principles, plan and implement measures.
- **Politicians** at all levels are responsible for regulations and for the provision of public funds for integral risk management.
- As part of their duty of care, **planners and engineers** point out risks and propose targeted solutions.
- **Research, education and training** create new knowledge and pass it on to practitioners.
- **Professional associations** ensure that cooperation between stakeholders is strengthened and quality standards are recognised.

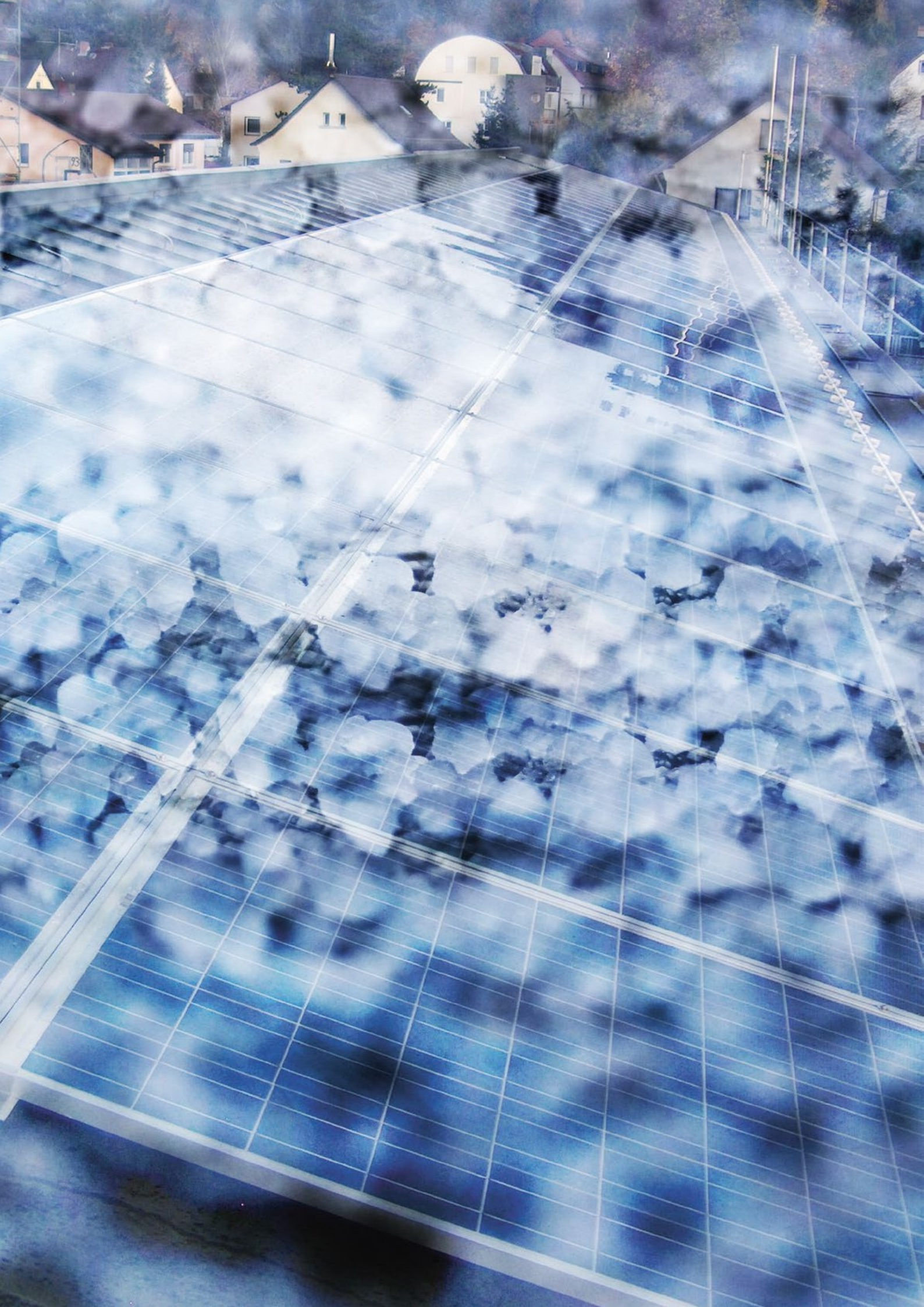
Dealing with natural hazards is often a joint endeavour and requires the cooperation of different stakeholders. Coordinated and institutionalised cooperation, open exchange and transparency strengthen the ability to act. They enable the utilisation of synergies, ensure the optimal use of funds and help to use resources sustainably. In line with the principle of subsidiarity, the larger community helps when the resources of the individual stakeholders are insufficient.

Knowledge of natural hazards and risks is up-to-date and accessible

A sound scientific basis and its translation into practice-orientated information are the prerequisites for dealing competently with natural hazards.

Our understanding of natural hazards has improved significantly in recent decades. However, it must be consistently developed further and expanded in terms of risk perception and risk management. In addition to technical and natural science expertise, this also requires social science and economic expertise and more interdisciplinary and transdisciplinary research.

Research specifically addresses the concerns of society. Research and practice identify gaps in knowledge. New research findings are made available to practitioners, just as practical experience is channelled into research. Basic and further training is geared towards the needs of practitioners. The sensitisation of the general public by various actors is coordinated.



Dealing with risks takes all aspects of sustainability into account

The aim is to achieve a level of safety that is ecologically justifiable, economically proportionate and socially acceptable.

Sustainable development satisfies the needs of the present generation without compromising the opportunities of future generations. The impact of measures must therefore be assessed at an early stage and conflicting objectives must be transparently presented and weighed up. In this way, good solutions can be achieved that will also benefit future generations. Organisational measures generally restrict the future scope for action less than technical and structural measures, for example.

Dealing with natural hazards ties up considerable resources. For this reason, an optimum must be sought between the demands on the level of safety and the affordability of the remaining risks.

The aim is to utilise private and public resources effectively and efficiently:

- **Acting effectively means setting risk-oriented priorities.** This requires long-term overall planning that identifies risk development and the need for action and enables transparent prioritisation. This also requires the cooperation of all stakeholders, a comparable basis and a standardised approach to quantifying and assessing risks.
- **Acting efficiently means achieving the optimum.** The risk-orientated approach is already largely standard in integrated action planning. Methods are available for quantifying risks and assessing the cost-benefit ratio of measures. In addition, the measures and their impact are optimised as part of the planning process, taking all aspects of sustainability into account.

It is more cost-effective to prevent risks from arising than to reduce them retrospectively. However, such a requirement would prevent any opportunities for development. It is therefore important to consciously manage risks. Consistently risk-orientated spatial planning and construction in line with natural hazards control the development of risks in a sustainable manner. They are a prerequisite for maintaining the level of safety achieved in the long term and avoiding new, unacceptable risks.

Switzerland sets priorities in dealing with natural hazards

Risk management is an ongoing task that requires resources and prioritisation.

From PLANAT's point of view, in order to achieve the objectives of the strategy "Dealing with risks from natural hazards" should be prioritised as follows:

- **Establish a comparable approach to dealing with risks:** The procedure for developing the appropriate security in a specific case must be introduced and consistently established everywhere. Structuring this process is a major challenge. At the same time, however, it is also an opportunity for risk dialogue and for viable and sustainable solutions. Involving the responsible parties and, in particular, the risk carriers is a prerequisite for the acceptability of the remaining risks and thus for the definition of appropriate security.
The authorities in particular are addressed.
- **Establish integrated risk management at all levels:** The integral handling of natural hazards must be established at all levels of management, particularly at strategic and normative level, which requires the implementation of forward-looking risk monitoring in all areas of responsibility, which also takes into account systemic risks and the indirect consequences of loss events.
The authorities, insurance companies, planners and engineers in particular are addressed.
- **Avoid new unacceptable risks:** Consistently risk-orientated land use and construction in line with natural hazards are necessary, to sustainably manage the development of risks and avoid new unacceptable risks.
In particular, the authorities, planners and engineers are addressed.
- **Clarify responsibilities:** Dealing with risks from natural hazards is a joint task that involves numerous stakeholders. Their responsibilities must be clear everywhere. Responsibility, knowledge and resources must be harmonised. Where necessary, responsibilities must be enshrined in law.
The authorities and insurance companies in particular are addressed.
- **Create awareness of responsibility:** All stakeholders are empowered to contribute to the desired safety on their own responsibility.
This enables them to act in a risk-competent manner and recognise the importance of their responsibility in conjunction with social solidarity. The authorities and organisations, insurance companies, planners and engineers are particularly addressed.

- **Expand and exchange knowledge:** Research into the effects of natural hazards, risk perception and risk management must be intensified and be transdisciplinary. Knowledge must be actively exchanged between all stakeholders.
Research, education and training, insurance companies and authorities are particularly addressed.
- **Promoting solidarity:** Society must become more risk-competent. Everyone needs to be willing to act in solidarity and accept risks. Everyone must be aware of their own responsibility and take it seriously. The stakeholders must be sensitised to the connection between personal responsibility and solidarity.
Politics, insurance companies and society in particular are addressed.

No separate action plan is required to implement the 2018 strategy. The broadly supported report "Dealing with natural hazards in Switzerland" published in 2016 (Federal Council report in fulfilment of postulate 12.4271 from former National Councillor Darbellay) outlines the measures required from the perspective of all stakeholders. Together with the priorities recommended by PLANAT, these measures contribute significantly to the implementation of the strategy.

With the implementation of the "Dealing with risks from natural hazards" strategy, Switzerland's living and economic environment will be adequately protected against the effects of natural hazards today and in the future. A standardised approach involving the responsible parties and risk carriers ensures that the available resources are used sustainably. Coordinated regulations and well-established management structures are a prerequisite for the fulfilment of this joint task.

With a view to the future, the integral management of natural hazards must be further developed and consistently orientated towards a resilient, regenerative and adaptable Switzerland. The management of risks is central to future development. Consistently risk-orientated spatial planning and land use as well as natural hazard-appropriate construction control the development of risks in a sustainable manner. They are a prerequisite for maintaining the level of safety achieved in the long term and avoiding new, unacceptable risks.

Related strategies and further reading

Strategies influencing the management of risks from natural hazards

- 2012 [Adaptation to climate change in Switzerland. Goals, challenges and courses of action fields](#). First part of the Federal Council's strategy of 2 March 2012 (available in DE, FR, IT, EN)
- 2012 [Spatial concept Switzerland](#). Revised version (available in DE, FR, IT)
- 2012 [Civil Protection and Civil Defence Strategy 2015+](#). Report of the Federal Council of 9 May 2012 (available in DE, FR, IT)
- 2012 [Swiss Biodiversity Strategy](#) (available in DE, FR, IT, EN)
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- 2014 [Adaptation to climate change in Switzerland. Action plan 2014 - 2019](#). second part of the Strategy of the Federal Council of 9 April 2014 (available in DE, FR, IT)
- 2015 [Sendai Framework for Disaster Risk Reduction 2015 - 2030](#) (available in EN)
- 2015 [Transforming our World: The 2030 Agenda for Sustainable Development](#) (available in EN)
- 2016 [Departmental strategy DETEC 2016](#) (available in DE, FR, IT)
- 2016 [Sustainable Development Strategy 2016 - 2019](#), 27 January 2016 (available in DE, FR, IT, EN)
- 2017 [Federal Council's National Strategy for Critical Infrastructure Protection 2018 - 2022](#) (available in DE, FR, IT)

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