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# SWITZERLAND'S FOCUS IN DISASTER RISK REDUCTION

*Source: Philippe Gyarmati, FOEN*

**This paper summarises the key elements that Switzerland considers important in disaster risk reduction (DRR). It has been coordinated with the working group DRR[1]. It serves as a basis to inform a coherent Swiss position at the upcoming sub-national and global platforms for DRR[2].**

### Overall goal in DRR

In line with the global community and as depicted in the "Sendai Framework for Disaster Risk Reduction 2015 – 2030", Switzerland aims at a **substantial reduction of existing risks** as well as the **prevention of new risks** Furthermore, Switzerland is committed to strengthening the ability of its society, economy and environment to resist and adapt to hazards and recover from disasters and thus ensure human's welfare.

### Switzerland's approach

**Integrated risk management**[3] is a process to address and manage risks. This **systematic approach** identifies and assesses the risks (*what can happen?*), evaluates and prioritises them (*what is allowed to happen?*) and takes appropriate measures to reduce them (*what should be done?*). The broad range of measures and actions of prevention and mitigation, preparedness, response and recovery are seen as **complementary mechanisms**, which need to be combined in an appropriate and balanced way.

### DEFINITIONS

- **Disaster** is a serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources. Disasters are often described as a result of the combination of: the exposure to a hazard; the conditions of vulnerability that are present; and insufficient capacity or measures to reduce or cope with the potential negative consequences.

- **Hazard** is a dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage. It is defined based on its probability of occurrence and its intensity.

- **Vulnerability** depends on the characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard. There are many aspects of vulnerability, arising from various physical, social, economic, and environmental factors.

- **Risk** is defined as the potential loss of life, injury, or destroyed or damaged assets which could occur to a system, society or a community in a specific period of time, determined probabilistically as a function of hazard, exposure, vulnerability and capacity.

An integrated risk management **considers all types of hazards and their resulting risks** and assesses them in a comparable manner. It calls for **multi-stakeholder processes**, where decision-makers, experts and the affected communities agree on an acceptable risk level and appropriate risk reduction measures. A zero-risk society is not achievable; therefore, the objective is to keep the remaining risk at a level that is acceptable; one which can be borne by the people, communities and societies given existing social, economic, political, cultural and environmental conditions. The principle of subsidiarity is central in Switzerland. Responsibilities are shared between the local (main responsibility), sub-national and national levels. This principle has proven successful, therefore Switzerland advocates for sharing of responsibilities.

### Different frameworks – coherent approaches and objectives

Development is only sustainable when its economic, social and environmental aspects are protected from disasters which often threaten human life, people's health, livelihood and security and destroy development gains. **Embedding the principles of DRR in development planning** is a crucial and cost-effective measure to contribute to eradicating poverty and building resilient societies. DRR is therefore reflected in the **Sustainable Development Goals** of the Agenda 2030 as a crosscutting and multi-sectoral issue.

**DRR and climate change adaptation** (CCA) share common concerns and approaches. These challenges have also been recognised by both the international DRR and CCA communities. As a result, both the Paris Agreement on Climate Change and the Sendai Framework for Disaster Risk Reduction (SFDRR) recognise the strong synergies that exist in tackling the challenge of reducing the impacts of weather and climate-related hazards.

Switzerland is committed to these international frameworks and fully supports them. Regarding the Sendai Framework for DRR, Switzerland was not only strongly involved in the elaboration, but also actively implements the framework. Furthermore, Switzerland contributes to the annual progress monitoring. Information is gathered from the Federal Statistical Office and other federal agencies, universities and research institutions, insurance companies and associations.

### International cooperation

DRR is an important topic in Switzerland's international cooperation. Based on its experiences as a mountainous country, Switzerland promotes a systemic and integrated approach to risk management since decades. Switzerland supports partner countries in their efforts to understand disaster risks, to reduce existing risks and to prevent new risks, to prepare for and manage disasters and to build resilient communities in line with the SFDRR. Switzerland also engages actively in the integration of climate change in its international cooperation, as well as in multilateral processes, and supports various sub-national and international organisations and initiatives related to DRR.

### Structure of the paper

The integrated risk management is also reflected in the structure of this paper. The first two chapters are dedicated to risk governance and comprehensive risk assessment, which are seen as prerequisites for successfully dealing with risks. The subsequent three chapters – prevention and mitigation, preparedness and recovery – cover the three phases of the integrated risk management cycle. All areas call for action. The principles are illustrated with examples, best practices and experiences both from Switzerland and abroad in international cooperation.


*Source: Integrated risk management cycle, FOCP 2019*

The terminology on DRR used in this paper is largely based on the UNDRR's terminology[4].

1 The position paper was developed by the working group on DRR composed of representatives from the Federal Department of Foreign Affairs (FDFA), Federal Office of Civil Protection (FOCP), Federal Office of Environment (FOEN), Platform for Natural Hazards (PLANAT), State Secretariat for Economic Affairs (SECO), Steering Committee Intervention in Natural Hazards (LAINAT), Swiss Agency for Development and Cooperation (SDC), Swiss Federal Institute of Technology in Zürich (ETHZ), Swiss NGO DRR Platform, Zurich Insurance.

2 European Forum for DRR, 24.-26.11.2021, Global Platform 23.-28.5.2022

3 The term "integrated risk management" corresponds with the internationally used "disaster risk management" (UNDRR Terminology). See also: FOCP and FOEN

4 UNDRR Terminology

## 1. Enabling environment: Risk governance

- Make DRR a **policy priority**, provide a **legal framework** and strategic orientation
- Define **clear roles and responsibilities across all levels and functions**
- Ensure effective implementation and facilitate the **coordination among, and participation of all relevant stakeholders**
- Ensure that **adequate capacities** and **sufficient financial resources** are available
- Strengthen and give a **voice to communities**
- Systematically consider risk and risk reduction in all **relevant sectors (mainstreaming)** and integrate them in policy, strategies, programmes and project design

A **legal framework**, which considers disaster risk issues at all levels and in all relevant sectors, is a fundamental requirement for successful disaster risk reduction. For the past 150 years, Switzerland relied on a robust legislation governing forest and water management that puts emphasis on prevention: Measures like river training, reforestation, structural measures or the creation of early warning systems are subsidised by the state. Furthermore, **national strategies** on DRR, Climate Change Adaption, Sustainable Development or Civil Protection underline that DRR is a policy priority.

The definition of **clear roles and responsibilities** at all relevant administrative levels (national, sub-national, local) and for all stakeholders (state or local authorities, private sector institutions, academic sector, international and non-governmental organisations and civil society) is necessary to effectively address the prevailing and expected future risks and respond to disasters. Joint planning and coordination of DRR activities by all actors – governmental and non-governmental bodies – creates synergies and reduces duplication**. Decision making based on a participative approach** should be transparent and inclusive.

Considering that natural and other hazards impact first and foremost **local communities**, the reduction and management of the risks of such events needs to be well anchored at the sub-national and local level. Responsibilities and competencies have **to be delegated as far down** as necessary to ensure that local knowledge is valued, ownership guaranteed, and individual responsibility strengthened considering the limit of each administrative level's capacity. **Participatory multi-stakeholder partnerships at local level** including the active participation of communities are key to strengthen resilience of communities in a fast-changing, complex and uncertain risk environment.

**EXAMPLES**

**National Strategies**

Switzerland has **various strategies at the national level** that outline how to deal with risks. Most of them concern only one sector or policy area or have been formulated from a particular perspective. All have in common to focus on the prevention of new risks and to reduce existing risks.

- Strategy "Management of risks from natural hazards" (2018)
- Federal Council strategy for adaptation to climate change in Switzerland (2012)
- National strategy for Critical Infrastructure Protection 2018-2022

**Financing DRR**

In the context of the **reorganisation of the financial responsibilities and mechanism** between the Confederation and the cantons, the roles and responsibilities regarding gravitational hazards have been intensively discussed and clarified. The Confederation provides cantons with **appropriate financial support** in the form of subsidies on a four-year basis.

- Programme agreements of FOEN

**Stakeholder cooperation**

In Switzerland, several **multi-stakeholder committees and bodies** serve for coordination, alignment, strategic counselling or solution finding. Some examples:

**PLANAT, the National Platform for Natural Hazards**, is an extra-parliamentary commission with 18 members from national and cantonal authorities, universities, private sector and insurance companies:

- PLANAT

**Steering Committee Intervention in Natural Hazards (LAINAT)**

Six federal agencies are coordinated by the LAINAT to issue warnings on natural hazards for the public and cantonal and/or community authorities:

- LAINAT

The **National Centre for Climate Services** (NCCS) brings federal authorities together in a virtual network. Furthermore, it serves as a knowledge hub for climate services:

- NCCS

In order to ensure that each responsible individual or organisation can play its respective role it is essential that **suitable resources are allocated** accordingly and guaranteed in the long term. Resources cover capable individuals, sufficient financial means as well as – among others – transparent and inclusive decision-making and budgeting processes.

A prerequisite for successful DRR is an overall awareness and capacity for DRR issues at all administrative levels and among the population. Capacities include knowledge and skills as well as social relationships or leadership.

The use and **mainstreaming** of detailed risk assessments and cost-effectiveness considerations for risk reduction measures in all sectors (infrastructure, agriculture, land-use planning, others) will prevent future losses by **risk-informed planning**. As a large part of worldwide investments is of private nature, private businesses have to be included in DRR efforts. The private sector needs to include DRR efforts for protecting their assets, workforce, supply and distribution chains, in order to keep functioning.

**Swiss engagement abroad**

Recognising the importance, the Government of Tajikistan endorsed the **National DRR Strategy** 2019-2030, the **National CCA Strategy** 2019-2030 and appointed a **National Focal Point for DRR** at the level of the Deputy Prime Minister. Switzerland supported these processes through the United Nations Development Programme UNDP.

- UNDP in Tajikistan

In Bolivia and Haiti, local administrations have been strengthened or are being strengthened in their DRR governance with: Organisational development (creation of **local DRR officers** and offices); **tools** (hazard maps, land-use and construction regulations); training and **capacity building** as well as awareness raising for risks and DRR involving also civil society and private sector actors.

- SDC DRR Programme in Bolivia
- SDC Programme in Haiti
- Helvetas Project: Risk governance in Haiti

*Floods on Lake Lucerne in Alpnachstad (OW), July 2021.*
*Source: Philippe Gyarmati, FOEN*

## 2. Know your risk

- Consider all factors of risk: **hazard, exposure, vulnerability and capacities**
- **Identify** and **analyse hazards** stemming **from different origins**
- Bear in mind **small-scale and large-scale** disasters as well as direct and indirect losses
- **Revalidate** the risks periodically and **base them on scenarios** as **environmental, climate and development changes** influence the risk patterns
- Make **information** on risks **available to everyone**

A society can only deal effectively with shocks and stresses if it has an in-depth **understanding of its expected new, and prevailing risks,** their direct (e.g. building damage) and indirect (e.g. business interruptions due to infrastructure damages) consequences and complex interconnectedness. Comprehensive and broad analyses consider all type of hazards a society is facing be it from natural (e.g. earthquakes, floods, hurricanes, drought or environmental degradation), technical (e.g. toxic wastes, dam failures, transport accidents) or societal (e.g. pandemic, animal disease outbreak) origin and of all different scales of risks.

Even though **recurrent smaller scale disasters** are usually not included in risk inventories and do not make media headlines, they often cause most of the losses of people at risk, limit development opportunities and undermine state and household budgets. This is especially true for communities living in the global south. Also, in Switzerland, people have to deal with high losses in urban areas due to surface runoff after local thunderstorms.

The **character and severity of a hazardous event** depend not only on the **hazard** itself but also on the **exposure** to the hazard, **vulnerability** and insufficient **capacities** or measures to reduce or cope with the potential negative consequences. All factors are influenced by the effects of climate change, and socioeconomic development.

The current focus of the hazard and risk assessment is still on the changing pattern of the hazards expected to increase in frequency and in intensity due to climate change or environmental degradation. **More systematic attention needs to be paid to the changes in vulnerability and exposure of people and assets.** In many countries weak understanding of the risks, inappropriate land use planning, poor construction quality, increased disparity and the lack of enforcement of the rule of law are by far the main causes of the increase in negative impacts.

As the factors of risks are constantly changing, regular and **forward-looking assessments** are necessary**.**

**EXAMPLES**

**National- or sub-national risk overviews:**

The **national disaster risk assessment** "Disaster and Emergencies in Switzerland" applies a multi-hazard and whole-of-society-approach by analysing 44 hazards from the domains of nature, technology and society jointly with experts from the public and private sector as well as academia, insurance and associations. The results serve for national preparedness planning, exercises and strategy development.

- www.risk-ch.ch

**Sub-national risk assessments**

In a federal system, it is also relevant that the sub-national entities conduct their individual risk assessment and preparedness planning as they are the main responsible actors in the context of civil protection and disaster management. Furthermore, conducting risk assessment and preparedness planning on a community level is important too in order to tackle the risks as close to its source as possible.

- Kataplan guideline

**Risk overviews for gravitational natural hazards** are created by overlaying the hazard assessment with land-use plans, whereby the affected assets are identified. This shows, for example, whether a person, a building or a section of road is affected by a landslide or flood. If the possible consequences (deaths or damage to property) are estimated, the risk can be calculated.

- Risk overviews for natural hazards

**For some of the less known or even neglected natural hazards in Switzerland, sound hazard assessments have been carried out recently:**

**Hail climate Switzerland**

Hailstones cause great damage every year in Switzerland. More than one third of the building damage caused by natural events is related to hail. A uniform national reference on hail hazards, including information on hail frequency, hailstone sizes and return periods was developed in private-public-partnership with insurance companies.

- Hail climate Switzerland

**Surface runoff risk map**

The map shows where potential risk from surface runoff exists. It covers the whole of Switzerland, both developed and undeveloped regions, and is publicly accessible online.

- Surface runoff risk map

In addition to known events and statistics, possible extreme scenarios need to be considered. This applies in particular to hydro-meteorological risks.

The Intergovernmental Panel on Climate Change IPCC points out, that **climate change accelerates processes** and happens faster than expected.

Stakeholders and decision-makers at all state levels as well as the affected operators of critical infrastructure, communities and the population need to have **access to the relevant data and information**. Information about prevailing risks is a key for awareness. While in Switzerland detailed risk information is easily accessible and free of charge other countries only start to open the access.

Local knowledge as well as the perspectives of insurance companies may complement the risk assessments carried out on a scientific basis.

**Swiss Earthquake Risk Model**

What damage could earthquakes cause in Switzerland? At present, only a patchy answer can be given to this important question. Based on the seismic hazard, the risk model takes account of the influence of the local subsurface and of the vulnerability and value of buildings.

- Swiss Earthquake Risk Model

**Flood-Risk Research Initiative** offers different tools to assess damages to buildings due to floods (damage simulator) or to visualise the damage potential caused by flooding. The public can contribute their own photos of past events to a nationwide repository.

- Flood-Risk Research Initiative

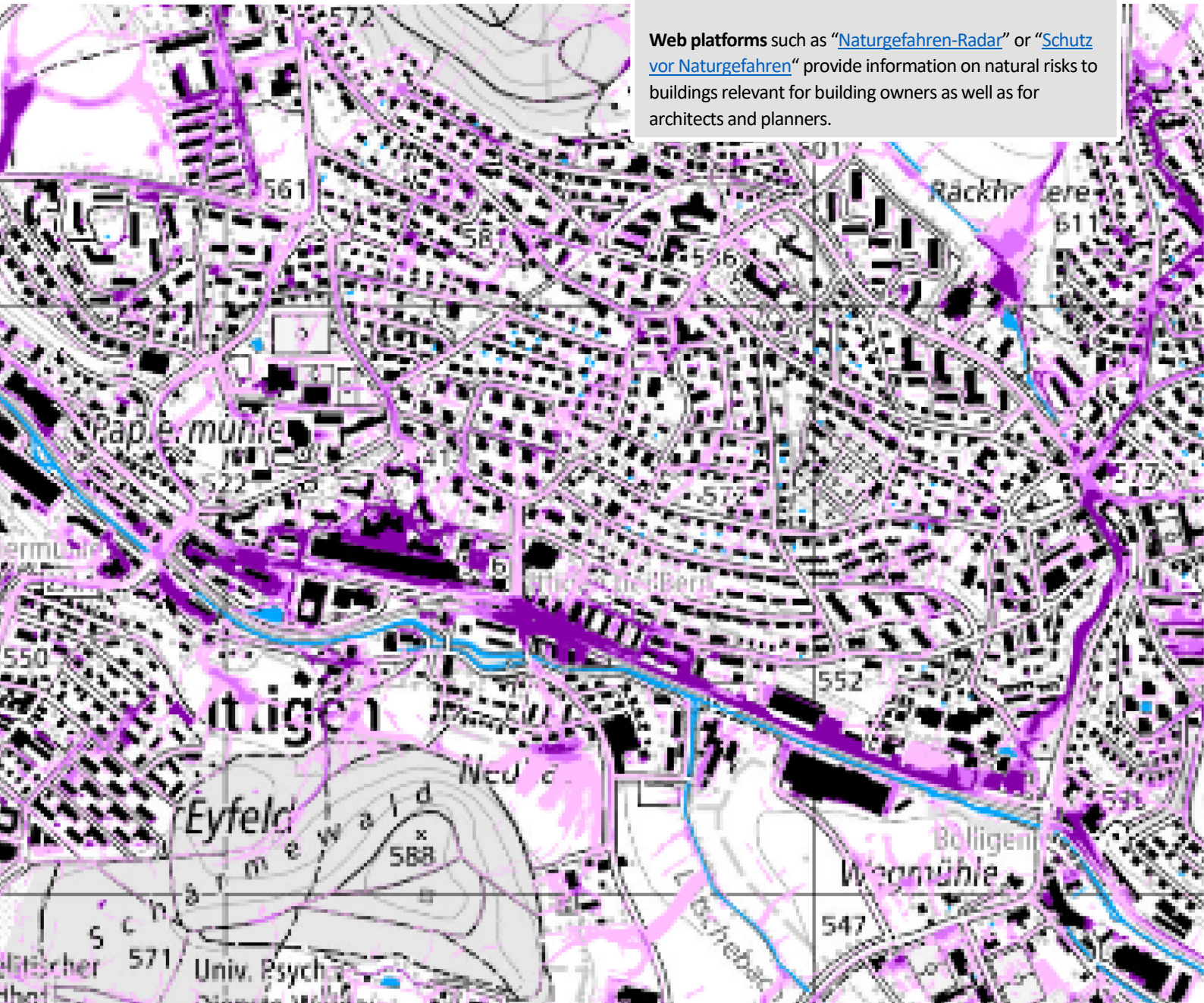
**Social learning videos - Strategies for building owners**

How can building owners be motivated to protect their properties from flooding? Social learning videos use specific learning moments and success factors to raise awareness of protective measures:

- Social learning videos

**Web platforms** such as "Naturgefahren-Radar" or "Schutz vor Naturgefahren" provide information on natural risks to buildings relevant for building owners as well as for architects and planners.

*Surface runoff risk map. Source: FOEN*



## 3. Prevent and mitigate the risks

- Consider **all factors of risk:** hazard, exposure, vulnerability, and capacities to plan for adequate **prevention and mitigation measures**
- Advocate for **avoidance or reduction of exposure** to risks
- **Reduce the root causes of vulnerabilities and build resilience**

Once the prevailing risks are known, the factors of the risk help to define the most appropriate mix of measures. The enforcement of risk-informed land-use regulations aims at avoiding hazard-prone areas for settlement and infrastructure, and thus **reducing exposure to hazards**. During heat waves in Switzerland, civil protection and health organisations visit elderly people at home to look after them and contribute to **reducing their (social) vulnerability**. Afforestation reduces the intensity and probability of soil erosion or flood protection dikes limit the extent of floods, both **reducing the hazard**.

In many cases, risks increase, and new risks appear as a result of misuse of natural resources and expansion of settlements and infrastructure in hazard-prone areas rather than due to a changing hazard situation. Therefore, preventive measures include laws, regulations and practices which **avoid the creation of new risks** like land use planning with the prohibition of settlements and other investments in disaster prone areas.

**Mitigation measures** attempt to limit and reduce the adverse impacts on people, livelihoods and infrastructure. They often overlap with prevention. Examples are the enforcement of building codes for hazard-resistant constructions and infrastructure, structural measures, such as flood protection dams, or rock-fall protection nets. Natural resource management or an integrated watershed management also contribute to risk reduction.

The **permanent or temporal reduction of exposure** is a cost-effective and efficient measure to avoid losses, in particular human losses, through people-centred early warning systems and early action as well as adapted land-use regulations, especially in urban settings.

When **addressing vulnerabilities**, Switzerland mainly focuses on the physical vulnerability e.g. of infrastructure or buildings. The social vulnerabilities stemming from the socio-economic status are largely covered by the social security system, e.g., mandatory health and building insurance, unemployment insurance or the old-age, survivors', and invalidity insurance programmes, or social welfare.

**EXAMPLES**

**Hazard maps as tool for land-use planning at the local level**

Almost every Swiss municipality disposes of hazard maps for flood, rockfalls, landslides and snow avalanches. They serve as a baseline for developing or adapting land use plans or zoning. The legislation specifies how the zones are to be used and if construction permissions can be given.

- Spatial planning and natural hazards

**Coordination of spatial planning and major accident prevention**

In recent years, the risks are rising as a result of settlement development in the periphery of establishments **with a major accident potential**. Careless construction activities and zoning changes can significantly influence the density of people around such installations (stationary chemical plants, railway lines, roads and high-pressure natural gas and petroleum pipelines) and lead to an increase in risk. The conflicts of interests should be prevented by **taking greater account of accident prevention in spatial planning**.

- Coordination of spatial planning and major accident prevention

**Proofing of buildings**

In addition to the legal and insurance requirements, building standards also define protection targets for new buildings and extensions. SIA standard 261 and 261/1 "Actions on load-bearing structures" and "Actions on load-bearing structures - supplementary specifications" include technical requirements for building protection against hail, snow pressure and all gravitational natural hazards (floods/surface runoff, landslides, rockfall, debris flow and avalanches) as well as against earthquakes.

- SIA standards 261 and 261/1

**Sponge-City**

This new urban construction model will be applied as pilot projects in Swiss cities. It aims at alleviating the city's waterlogging, water resources shortage, and urban heat island effect and improving the ecological environment and biodiversity by absorbing and capturing rainwater and utilizing it to reduce floods.

- Pilot project sponge-city

**Reducing the root causes of vulnerability** is well **anchored in the development agenda** of Switzerland: **Poor individuals, households or communities** are often disproportionately affected by disasters. High vulnerability and low capacities (e.g. as a result of poverty, poor governance, discrimination, inequality and inadequate access to resources and livelihoods) contribute to low resilience against shocks and stresses, and in the risk of falling into the poverty trap.

**Flood protection – a community project**

After a flood event, causing damage worth millions of Swiss francs, the city of Delémont has taken numerous steps to prevent flooding and created extra benefits for the environment and the local population at the same time. All measures were drawn up in a participative process and paved the way for similar initiatives.

- Community project in Delémont

**One million youth action challenge**

It aims at mobilizing youth (ages 10 to 30) from all over the world to implement over 1.000.000 individual and/or collective actions for a more sustainable planet Earth. All actions are related to one of the following four Sustainable Development Goals (SDGs): SDG 6 on "clean water and sanitation", SDG 12 on "responsible consumption and production", SDG 13 on "climate action" (climate change) and SDG 15 on 'life on land" (biodiversity).

- Join the challenge!

**Sustainable management of watersheds**

Flash floods and mudslides threaten the inhabitants of Muminabad district in Tajikistan. The project of Caritas Switzerland (completed in 2019) facilitated the establishment of inclusive civil society organizations such as pasture user unions and forestry guards, which in cooperation with government representatives developed integrated watershed action plans. These action plans laid the foundation for the scaling of sustainable land management techniques and livestock grazing, multipurpose afforestation to reduce disaster risk and to enhance livelihoods, as well as forest protection and energy efficiency measures for cooking and heating.

- Sustainable management of watersheds

*The project is creating plenty of extra benefits for the local population: natural spaces are enhanced and the River Sorne integrated into the socio-economic life of the town.*
*Source: Markus Forte, Ex-Press, FOEN*

## 4. Prepare for better response

- **Strengthen preparedness at all levels** with a **multi-risk** approach
- Establish **(early) warning systems** and mechanisms that allow for an effective response
- Strengthen **individual** as well as **institutional preparedness**
- Promote **risk transfer mechanisms and emphasise the active role of** insurances **in** risk reduction
- Support **anticipatory humanitarian actions**

**Preparedness aims at ensuring an effective response to disasters.** It refers to the capacity of people and institutions to anticipate hazardous events, and then to cope effectively with disasters. **Preparedness measures** are most effective, when well-coordinated and combined. The successful implementation of measures such as early warning systems, contingency planning, stockpiling of equipment and supplies, the development of arrangements for coordination, evacuation and public information, and associated training and field exercises requires thoughtful planning a considerable time before an actual event happens. **Response actions** include saving lives, reducing negative health impacts, ensuring public safety and meeting the basic subsistence needs of the people affected.

After the devastating floods in Switzerland in 2005, the **"warning, alerting and response chain"** has been be significantly improved. The different responsible federal offices harmonised their data collection, forecasting and warnings. Today, the national authorities issues high quality and timely warnings and alerts. Cantonal authorities lead the emergency operations based on their civil protection system consisting of the five partner organisations police, fire service, healthcare system, technical services and the civil protection organisation. App-based push-warnings and alerts are able to target the population effectively. Based on the recommendations and instructions given, individuals can protect themselves or contribute to minimise the losses.

The required capacities of emergency units or fire brigades are often the same for different disasters. **Training programmes** take into account multiple threats (e.g. floods, earthquakes, chemical accidents). Additionally, ordinary people and communities are often first responders to hazardous events; they have to be enabled, trained and adequately equipped to cope with such events.

**EXAMPLES**

**Local natural hazard advisors**

Analysis of major flood events in Switzerland in the recent past has shown that local expertise is a crucial prerequisite for dealing successfully with such incidents. Civil staff units and emergency services are particularly reliant on local expert advice. Since 2010, local natural hazard advisors have been trained by the Cantons to serve the municipal authorities or communities.

- Local natural hazards advisors (article on p. 24)

**Natural Hazards Portal**

The relevant federal agencies are constantly monitoring the natural hazard situation and are responsible for **issuing warnings** to the cantonal and communal authorities and the public. Warnings on severe and very severe hazards may be subject to a broadcast obligation; in which case they will be issued as "Government Warnings" including instructions for action by public and private radio and television stations.

- Current natural hazards situation

**Joint information platform natural hazards GIN**

The password-protected expert tool combines all available data on natural hazards in Switzerland in a user-friendly map application. It provides a solid foundation for identifying natural hazards early and mastering them successfully.

- GIN platform

**Swiss warning and alert system – Alertswiss**

Switzerland has a nationwide **network of sirens** that can be used to alert the population in case of disasters and emergencies. **Alertswiss** was put in place to enable **rapid warning** of the general population via a mobile app and website and to directly provide information on important behavioural recommendations. Alertswiss is in use throughout Switzerland among the responsible civil protection authorities. Alertswiss also offer information about various hazards as well as **specific behavioural recommendations to raise awareness** and to conduct and facilitate emergency planning.

- Alertswiss

**Preparedness planning** is a comprehensive, yet pragmatic concept for a risk-informed approach to systematically reduce identified risks. It connects preventive and emergency provisions. Preparedness plans create conditions for dealing with disasters and emergencies as quickly and efficiently as possible. Well-organised preparedness enables damage to be limited and impacts to be reduced in the event of an incident.

- Hazard analysis and emergency provisions

An important element of the individual, household or community preparedness are **insurances and other financial protection schemes**. They provide the financial resources to recover swiftly from the losses through disasters, and also give an economic price signal to the risk (the insurance premium). Besides insurance coverage, social protection provided by the government as well as solidarity mechanisms at community level (e.g. emergency funds in-cash or in-kind) are common forms of risk transfer.

While **risk transfer** is an important measure and has consistently shown to increase recovery speed and completeness compared to those not insured, a risk transferred is not yet a risk reduced or eliminated. Research also shows that many insurance products are not specifically designed to be pro-poor or gender neutral, and do not reach those that suffer the most from the consequences of extreme weather events.

In the global south, one in three people are still not adequately covered by early warning systems related to hydro-metrological hazards. Therefore, Switzerland is committed to strengthen **anticipatory humanitarian actions** for providing early warnings, as well as critical support to communities before hazards turn into disasters. **Early actions** include, for instance, transporting people at risk to shelters, protecting assets and livelihoods by early cash transfers, early harvesting, or reinforcing housing or classrooms.

**Emergency meeting points**

The cantonal and communal authorities are planning and establishing **emergency meeting points** all over Switzerland. At the emergency meeting points, during disasters and emergencies information and support (food, first aid, shelter) are provided to the population and – if necessary – they are also used as meeting points to organise a collective evacuation. The authorities provide information via radio and television and Alertswiss, when the emergency meeting points are in operation.

- Emergency meeting points

**Earthquake Claims Organisation**

This broad-based organisation supports the response management in the case of severe earthquakes. With the information provided authorities can assess the buildings for further use and insurers are able to quickly estimate the damage caused. This ensures that financial resources from insurance benefits and relief funds can be distributed quickly in order to start reconstruction. The organisation was founded in mid-2021 by cantons and the insurance industry.

- Earthquake Claims Organisation

**International initiatives**

Switzerland contributes to **international initiatives** that support the most at risk countries to be better prepared and be able to act early in anticipation of disasters, such as the **Climate Risk and Early Warning Systems (CREWS) Initiative**, an innovative pooled financing mechanism. CREWS' objective is to significantly increasing access to early warnings and risk information in least-developed countries (LDC) and small island developing states (SIDS). CREWS projects build community response capability by strengthening preparedness and awareness. To date, CREWS projects have assisted 57 countries around the globe.

- CREWS initiative

*The civil defence service informs residents of Bern's Matte district about flooding. Source: FOEN*

## 5. Build-back better and more resilient

- **Learn from** past **events**
- Use the **window of opportunity** to not reproduce the risks and to contribute to **sustainable long-term development**
- **Invest** in preparedness and prevention

The aftermath of an event is seen as a **continuing process**, **reaching from early recovery** that aims at restoring basic services and facilities (electricity, water, sewage, food supply, hygiene, hospitals, schools) for the functioning of a community towards recovery that contribute **to long-term development**. In other words, recovery interventions aim at restoring or improving of livelihoods and assets, systems and activities to avoid or reduce future disaster risk. That means, they should not simply recreate the existing risk.

Organisations, (financial) mechanisms and structures for recovery have to be in place and responsibilities clarified in order to successfully recover from an event. **Recovery involves many and a great variety of stakeholders;** their interactions have to be formed well before an event. Common training or simulation exercises allow the stakeholders to know each other and their competencies.

DRR measures, and prevention activities in particular, are difficult to communicate, as they only prove valuable during or after an event. Therefore, the opportunity should be taken to analyse the DRR efforts in the light of the past event. Such an **event analysis or after-action report provides lessons learnt** and indications for potential adjusting. They may cover the functioning of mitigation measures, the level of preparedness or the functioning of the crisis management.

In the aftermath of an event, the **political will** to invest in DRR measures often is high. This opportunity should be used to foster a resilient reconstruction, risk-based land use planning or the implementation of environment friendly measures. The reconstruction phase also must be used to proactively address social disparities and differentiated vulnerabilities.

Despite escalating economic losses due to disasters, the **international aid community** continues to focus on responding to disasters and their aftermath with more than 95% of humanitarian finance spent on recovery, and less than 5% spent on reducing the underlying risk factors. However, there is clear evidence that the benefits of prevention and preparedness measures are substantial in terms of tangible savings: **prevention and preparedness do pay off!** Without a significant increase in prevention investments, the spending on relief and reconstruction is likely to become even more unsustainable in future than it is today.

**EXAMPLES**

**Event analyses**

The **flood of august 2005** represents one of the most cost-intensive events in the recent history of Switzerland. In an in-depth event analysis, the hydro-meteorological processes, the impacts as well as the coping mechanisms have been examined. The recommendations point at deficiencies in the flood protection policy and propose strategies for improvement.

- Synthesis report: Floods 2005

One of the recommendations of the event analysis 2005 called for an **improvement of the inter-institutional collaboration**. This resulted in the project OWARNA (Optimisation of Early Warning and Alerting of Natural Hazards) and the creation of Steering Committee Intervention in Natural Hazards (LAINAT).

- Project OWARNA

The 2005 flooding caused massive deposits of debris in the lower reach of a torrent in Brienz (BE). Two people lost their lives, more than 300 people had to be evacuated, several houses were destroyed, others severely damaged (see images below). A **local, solution-oriented event analysis** documented the event and outlined a concept for future measures. For ensuring protection, a considerably larger corridor was realised. Therefore, the streets on either side had to be **re-located and the buildings** close to the channel, which were partially or completely destroyed during the event, were **not allowed to be rebuilt** but the plots were acquired for this project.

- Project Brienz

In summer 2018, Switzerland had to deal with **water shortages, heatwaves and droughts** with its various impacts on the health of the population and livestock as well as on the infrastructure (in particular river freight transport, road and rail transport as well as energy supply).

- Event analysis: Summer 2018

A **scientific analysis of the COVID-19-pandemic crisis management** revealed that the DRR principles and a risk-informed approach is a fundamental for health risks as well. It showed, however, that the links between health and disaster (risk) management entities have to be strengthened.

- Study of the Centre for Security Studies (CSS), ETH Zurich

The **Post-Event Review Capability (PERC)** is a flexible method that provides research and independent **reviews of large flood and wildfire events**. It seeks to answer questions related to aspects of flood resilience, flood risk management, and disaster intervention. It looks at what went well, as well as opportunities for improvement, and results in a set of actionable recommendations to build back better and to reduce future risk.

- PERC method

**Event cadastre - StorMe**

It is the central database throughout Switzerland for the standardised recording and documentation of natural events like flooding, landslide, rock fall and avalanche.

- StorMe

*The 2005 flooding caused massive deposits of debris in the lower reach of a torrent in Brienz (BE).*

*Left: The new channel during the construction phase.*

*Below: The debris fan of Glyssibach after the 2005 event. Red: buildings that were destroyed, blue: buildings with severe damage, yellow: buildings with light damage.*