

# Common template for risk assessment and management operational tools and best practices identification (Action B1)

Title: Operational Tools and Best Practices for Risk Assessment and Management

The identification of tools and best practices on risk assessment and management helps providing an idea of the state of the art in the field. By completing this form, the best practice will be included in the knowledge repository platforms and available for the practioner community to use. We encourage the user to complete as many fields as possible from the template in order to provide the most relevant information needed to apply the best practice to other practitioners.

Instructions:

- Blue boxes are mandatory fields
- More than one item can be selected in multiple choice boxes

## Document classification

<b>Title</b>	<b>Avalanche risk mapping – SilvaProtect-CH</b>
<b>Description</b>	<b>Avalanche risk vulnerability mapping</b>
<b>Country, location</b>	<b>Switzerland</b>
<b>Date</b>	
<b>Contact e-mail</b>	<b>gefahrenpraevention@bafu.admin.ch</b>
<b>Institution</b>	<b>Environmental Federal Office (OFEV), Switzerland Federal Council</b>
<b>Net Risk Work Partner</b>	<b>CTFC</b>
<b>Document type</b>	<b>Website or portal</b>
<b>Language</b>	<input type="checkbox"/> Catalan <input checked="" type="checkbox"/> English <input checked="" type="checkbox"/> French <input checked="" type="checkbox"/> German <input checked="" type="checkbox"/> Italian <input type="checkbox"/> Spanish <input checked="" type="checkbox"/> Romance
<b>Source/origin</b>	<input type="checkbox"/> Partner's expertise <input checked="" type="checkbox"/> Expertise from the network <input type="checkbox"/> Other (internet)

## Topic

Area	<input type="checkbox"/> Risk assessment	<input checked="" type="checkbox"/> Risk Planning	<input type="checkbox"/> Risk Management
<b>Risk</b>	<input type="checkbox"/> <b>Wildfires</b>	<input type="checkbox"/> Fire behaviour patterns and typologies <input type="checkbox"/> Fire ignition and spread models <input type="checkbox"/> Wildland urban interface	<input type="checkbox"/> Fuel management <input type="checkbox"/> Fire service needs <input type="checkbox"/> Prescribed burning <input type="checkbox"/> Other <i>[Introduce which ones]</i>
	<input type="checkbox"/> <b>Storms</b>	<input type="checkbox"/> First measures after storm <input type="checkbox"/> Work safety during salvage logging <input type="checkbox"/> Timber storage and cost containment <input type="checkbox"/> Forest protection and pest control	<input type="checkbox"/> Regeneration and afforestation <input type="checkbox"/> Preventive silvicultural measures <input type="checkbox"/> Other <i>[Introduce which ones]</i>
	<input checked="" type="checkbox"/> <b>Avalanches</b>	<input type="checkbox"/> Technical protective measures <input type="checkbox"/> Maintenance of protection forests	<input checked="" type="checkbox"/> Other <i>[Hazard zones assessment]</i>
	<input type="checkbox"/> <b>Floods</b>	<input type="checkbox"/> Prevention through land use management <input type="checkbox"/> Technical protective measures	<input type="checkbox"/> Other <i>[Introduce which ones]</i>
	<input type="checkbox"/> <b>Other</b>		<i>[Introduce which ones]</i>
<b>Cross-sectoral topics</b>	<input checked="" type="checkbox"/> Risk and vulnerability assessment and mitigation <input type="checkbox"/> Cost-effectiveness assessment	<input type="checkbox"/> Risk planning, governance and policy framework <input type="checkbox"/> Community involvement and risk	

	<input type="checkbox"/> Civil protection, emergency and post-disaster management <input type="checkbox"/> communication <input type="checkbox"/> Other: [Introduce which ones]
<b>Level</b>	<input checked="" type="checkbox"/> Local <input type="checkbox"/> Regional <input checked="" type="checkbox"/> National <input type="checkbox"/> Cross-border <input type="checkbox"/> EU <input type="checkbox"/> Global
<b>DRM cycle phase</b>	<input checked="" type="checkbox"/> Prevention <input type="checkbox"/> Preparedness <input type="checkbox"/> Response <input type="checkbox"/> Recovery
<b>DRM domain</b>	<input checked="" type="checkbox"/> Policy making <input type="checkbox"/> Early warning system <input type="checkbox"/> Disaster response
<b>Sendai priorities</b>	<input checked="" type="checkbox"/> Priority 1: Understanding disaster risk <input type="checkbox"/> Priority 2: Strengthening disaster risk governance to manage disaster risk <input checked="" type="checkbox"/> Priority 3: Investing in disaster risk reduction for resilience <input type="checkbox"/> Priority 4: Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation and reconstruction
<b>Contribution to Sendai Targets</b>	<input type="checkbox"/> Reduce global disaster mortality <input checked="" type="checkbox"/> Reduce the number of affected people <input checked="" type="checkbox"/> Reduce the direct disaster economic loss <input checked="" type="checkbox"/> Reduce disaster damage to critical infrastructure <input checked="" type="checkbox"/> Increase the number of national and local disaster risk reduction strategies <input type="checkbox"/> Enhance international cooperation to developing countries <input type="checkbox"/> Increase availability of and access to multi-hazard early warning systems and disaster risk information and assessment

## Description and analysis

<b>Summary: quick presentation of the Good Practice</b> [ <i>Objective: summarize in a few lines the key elements of the good practice</i> ]
<b>Place in national/regional policy</b> <i>National avalanche risk cartography related with land and urban planning.</i>
<b>Goals and achievements</b> <i>Identifying and classifying the avalanche risk vulnerability of the urban land and life lines according to the avalanche risk intensity (high, medium, mild). To link the risk cartography with the urban land planning at the regional level (canton).</i>
<b>Actors involved</b> <i>Municipalities, “canton” and national environmental administration.</i>
<b>Implementation stage</b> <i>For each dangerous zone, there is a specific regulation according to the infrastructure type and its vulnerability degree. In this sense those areas affected by avalanche risk without any human infrastructure exposed are minimally considered in this cartography.</i>
<b>State of technical knowledge</b> <i>During the second half of XIX century, the Switzerland’s national administration began to gather a deep avalanche risk knowledge. Nowadays it becomes one of the countries with more influence in avalanche risk knowledge and assessment across Europe.</i>
<b>Context</b> <i>Switzerland is a central-Europe country located in the middle of the Alps mountains. This particular mountainous environment with all human infrastructures concentrated mainly at the bottom of the valleys, implies a high social exposition to all natural hazards dominated by gravitational dynamics with special attention at the snow avalanches. Therefore, there is a need to have an avalanche risk cartography to identify the spatial vulnerability of settlements in order to interact with the required protection and prevention measures which will minimize future catastrophic events. The inflection point was in 1961, after many avalanche events and more than 100 deaths at the</i>



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*national level. This situation evidenced the need of increase the avalanche knowledge with regards the urban planning.*

**Detailed Characteristics** [Objective: detail the implementation conditions of the Good Practice]

**Description of the implementation steps**

*Generation and updating of an official national cartography of avalanche risk linked with specific reglamentation and regulations.*

**Governance**

*Environmental federal office.*

**Necessary means to implement the Good Practice in efficient conditions**

*Knowledge of (zoning) avalanche, preventive infrastructure (kiddle, rakes, etc.), assessment of forest cover with a potential protective role as a natural preventive measure and relation with other natural hazards.*

**Challenges encountered during implementation and solutions incurred**

**Priorities identified for successful implementation of the Good Practice**

*Identification of the dangerous avalanche zones. Make compatible urban development and natural risks and define each agent and her responsibility. Consider the protective function of the forest for avalanche risk and locate it in the official cartography.*

**Impact of the Good Practice** [Objective: evaluate the impact of the Good Practice].

*A shared responsibility is established between all stakeholders directly or indirectly involved in the origin or the consequences of avalanche risk. Therefore, citizens and public administrations take part of the risk management.*

**Future developments** [Objective: understand the follow-up perspectives]

**External resources** [Objective: provide further information]

**Attached materials**

- 1.(Website) Natural risk and hazard intensities cartography
2. (Website) Avalanche national cartography
- 3.(Website) Avalanche canton cartography (Cantone du Valais)

**Web links**

1. <https://www.bafu.admin.ch/bafu/fr/home/themes/dangers-naturels/info-specialistes/situation-de-danger-et-utilisation-du-territoire/donnees-de-base-sur-les-dangers/cartes-de-dangers--cartes-d-intensite-et-cartes-indicatives-des-.html>
2. <https://s.geo.admin.ch/73b2fc8ffb>
3. [https://sitonline.vs.ch/dangers/danger\\_avalanches/fr/](https://sitonline.vs.ch/dangers/danger_avalanches/fr/)

**Contacts**

**[Additional information - optional]**



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<b>Lessons learnt</b> [ <i>Objective: compare the results obtained to the objectives set at the start of the Good Practice</i> ]
Evaluation process, if exists (internal or external) <i>Official cartography and associated normative at national/regional level.</i>
Assessment of results (quantitative and qualitative) and comparison with main goals
Negative aspects identified
Unexpected consequences (short / mid / long term) and corrective measures implemented

<b>Durability and transferability</b> [ <i>Objective: evaluate the integration of the Good Practice and its sustainability, give recommendations for transferability</i> ]			
<b>Is this information:</b>	<b>Replicable</b> <input type="checkbox"/>	<b>Measurable</b> <input type="checkbox"/>	
Regulatory Framework			
Stability of the human environment			
Financial requirements			
Success factors <i>This tool emerged from the result of years of experience about avalanche risk. That is an indispensable tool to haven't goods, services and people highly vulnerable to the physical environment in which they are.</i>			
Risk factors			
Additional and non-formal experiences contributing to the implementation of Good Practice			