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Adapting Civil Protection to a Changing Climate

The increasing frequency and scale of climate-exacerbated hazards require civil protection systems to adapt. Mitigation measures initiated following recent disasters in neighboring countries provide valuable lessons for Switzerland.

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From extensive heat waves, drought, and forest fires to devastating floods, climate-exacerbated hazards have left an indelible mark on recent summers. For many Europeans, climate change is now a felt reality. This reality comes with a daunting realization: Human-induced climate change can no longer be reversed. Yet, if society acts now, mitigation measures can significantly stem the impact and increase the capacity of society to cope.[1] This includes civil protection entities' ability to prepare and respond. Natural hazards' propensity to expose social vulnerability has over time been a driver for the improvement of disaster management. The 2005 floods in Switzerland, for example, created incentives for the Federal Council to improve hazard monitoring, forecasting, and alerts, and to strengthen coordination via a new "natural hazards crisis committee." While Swiss Civil Protection has implemented (e.g., flood prevention) or acknowledged (e.g., forest firefighting) necessary climate mitigation measures, it is clear from the increasing frequency, intensity, and scale of climate-exacerbated hazards that more adaptation and better inter-cantonal and international cooperation are needed. This Policy Perspective examines mitigation measures recently initiated in response to climate-exacerbated hazards in neighboring countries to identify lessons for Swiss Civil Protection.

Civil Protection Developments in Switzerland

Climate change directly and indirectly affects a number of the 44 risks listed in Switzerland's National Risk Analysis.[2] The changing hazardscape requires Swiss Civil Protection's five partner organizations (police, fire, healthcare, technical services, and *Zivilschutz*[3]) to adapt to the impact on their areas of responsibility and to maintain the integrated system that protects lives, livelihoods, and assets during emergencies. The 26 cantons are responsible for these five organizations within their respective municipal, regional, and cantonal boundaries. Only if a canton is unable to cope with an event is subsidiary support called upon.

Key Points

- Mitigation measures can stem the impact of climate change and increase societal coping capacity. This includes civil protection entities' ability to prepare, adapt, and respond.
- Recent disasters in Germany, Austria, and France have resulted in extensive changes to civil protection systems.
- Key lessons include the value of international cooperation, mandatory training and specialized equipment, and closer integration of municipal, cantonal, and federal crisis management.

A firetruck amid a burned forest in Hostens in the Gironde region, France, on September 1, 2022. *Stephane Mahe / Reuters*

Since 2012, the Federal Council's action plan for climate change adaptation has strategically sought to mitigate climate change risks and to increase socioeconomic adaptability. Switzerland has also for the past 40 years had bilateral agreements with all neighboring countries that provide the legal basis for mutual disaster aid, joint preparedness measures, and the integration of cross-border emergency services. While these bilateral agreements have been beneficial, they need updating due to the changing hazardscape and broader developments related to the EU Civil Protection Mechanism (UCPM) to which all neighboring countries, except Liechtenstein, belong.

The EU created the UCPM in 2001 to increase cross-border collaboration in preparing for and responding to disasters, for example, through knowledge exchanges, shared resources, and coordinated responses. Since its inception, the UCPM has made concerted efforts to adapt to the changing hazardscape in Europe through lessons learned during deployments and by increasing response capacity. This has led to a gradual harmonization of civil protection services, capability and training requirements, and common standards within EU member states. Switzerland has not been a part of this process, and multilateral exchange within the UCPM has largely supplanted the need for Switzerland's neighboring countries to invest in institutionalized exchange at a bilateral level.

Swiss Civil Protection is therefore increasingly on the sidelines when it comes to tapping into the disaster management experiences of other European countries. Several recent Federal Council reports – from assessments of security policy to forest firefighting capacities – highlight the importance of collaborating with the UCPM.[4] Participation in the UCPM is open to non-EU member states for an annual fee. Since 2017, Switzerland has had an Administrative Arrangement with the UCPM that facilitates dialogue and grants observational status during exercises. However, as a non-participating state, Switzerland does not have access to the UCPM's full range of benefits. Reaching the required political agreement for participation will likely take time. It therefore makes sense to look across the border at recent developments in neighboring countries to identify lessons learned.

Lessons from Across the Border

Germany and Austria, with a high degree of decentralization and a largely volunteer-based system, share strong similarities with Swiss Civil Protection. They predominantly rely on a bottom-up response, where trained volunteers are supplemented by professional forces. Local authorities can request federal assistance through the armed forces, the federal police, or, in Germany, the Technical Relief Agency (THW). As a result, operations are largely in the hands of local governments, and national crisis management organizations are either non-existent (Austria) or function as a reactive coordination platform for local and regional government levels (Germany). Climate-exacerbated hazards severely tested these structural set-ups in 2021, reinforcing the need for structural reforms that incorporate climate mitigation measures.

In July 2021, the impact of the floods in western Germany was exacerbated by climate change and a poorly coordinated response that was marked by a lack of preparedness, spotty public warnings, and chaotic deployment of local resources. Many affected municipalities did not have disaster preparedness plans, and public information and warning systems, a task shared between municipalities and counties, slipped between bureaucratic cracks.[5] The lack of *Länder* control and sanctions had also led to expensive municipal civil protection measures being postponed. Although the heavy precipitation that caused the flooding was accurately forecasted, this forecast was incompletely disseminated to lower levels of government where it was misinterpreted by some municipal actors. The federal public warning system disseminated contradictory warnings that failed to reflect the seriousness of the situation. When the extent of the floods became apparent, collapsed telecommunication infrastructures and radio incompatibilities hampered a coordinated response. Destroyed bridges, a lack of amphibious vehicles and helicopters, and an influx of spontaneous helpers slowed access to the affected areas. Supporting units from other *Länder* had different equipment and technical skills, and struggled due to the lack of on-the-ground command structures. As a result, existing structures did not receive needed backup, work was duplicated, and some tasks were neglected, such as the failure to clear mud before it dried and caused additional damage.

Unlike Belgium, which faced the same weather conditions, Germany did not call on the UCPM for help.

In response to the 2021 floods, Germany accelerated the reform of its civil protection system initiated during the COVID-19 pandemic. It increased the material and human resources of the Federal Office of Civil Protection and Disaster Assistance (BBK) and the THW and established a new joint situation center to bring together federal actors, the interior ministries of the *Länder,* and other relevant actors.[6] Investments are being made in shared digital situational images, forecasting capacities, and more support for crisis management teams at both federal and *Länder* levels to improve coordination. A cross-departmental resilience strategy was adopted in July 2022. Two months after the disaster, a federal siren support program was established to fill gaps in the alerting network and to accelerate the dissemination of electronic sirens that can also be activated by federal authorities. The modernization of the hazards warning app NINA, the introduction of Cell Broadcast, and an information campaign on how to respond in a crisis further aim to improve public preparedness. A new BBK Development and Testing Center and a second branch of the Federal Academy for Civil Protection and Civil Defence aim to modernize the civil protection system through innovation, mandatory training, and regular exercises. There are also proposals for the recruitment of civil protection volunteers and to better involve spontaneous volunteers. Germany has arguably also changed its position regarding the UCPM. When a forest fire in September 2022 rapidly grew out of control, Germany requested UCPM assistance.

In October 2021, efforts to contain the Rax forest fire in Lower Austria quickly lost control due to the unusually dry and steep alpine terrain, which made it difficult to deploy firefighters on the ground, and few helicopters with high-capacity water tanks were available. The intensity and scale of the fire also caused coordination difficulties between emergency service units that were unaccustomed to collaborating with other municipalities and organizations. When the fire threatened an area central to Vienna's water supply, Austria requested assistance from the UCPM. Slovakia, Germany, and Italy responded to the call with firefighting helicopters and planes the next day. Specially trained Austrian wildland firefighters also played a central role in controlling the spread of the fire. This small group had acquired practical forest fire experience through training in Portugal and Spain, as well as during UCPM deployments. They served as "knowledge multipliers" in a civil protection system unprepared for climate-exacerbated forest fires. Following the Rax fire, the number of trained wildland firefighters and the special vehicles at their disposal have increased, in line with Austria's new national forest fire action plan. The plan outlines further civil protection adaptation measures, such as promoting international knowledge transfer and improving cooperation between prevention and response actors nationally.

In France, this summer's forest fires have burned the biggest annual area since the change towards fire suppression policies in the 1990s, marking a new reliance on both volunteer firefighters and UCPM assistance, and triggering calls for national reforms.[7] French Civil Protection is structured around professionalization and centralization, with municipal mayors initiating local disaster management responses. If local structures prove insufficient, or if more than one municipality is affected, prefects take over, acting as government representatives with executive power delegated by the Ministry of the Interior. If the situation worsens, one of France's seven Defense and Security zones steps in with the capacity to invoke civil-military cooperation. Despite the decentralized regional coordination responsibilities of each zone's prefect, policy formulation and delegation are done in a top-down manner from a General Directorate within the Ministry of the Interior. Capacity spans professional fire and emergency services and civil security units, which are supported by a comparatively small volunteer base. In response to the extraordinary extent of the forest fires, unprecedented drought, and water scarcity, the Ministry of the Interior is proposing a range of measures, such as a strengthened role for prefects during large-scale crises, an improved inter-ministerial crisis center with better forecasting capacities, an updated aerial firefighting fleet, and the joint financing of equipment shared between fire and rescue services.[8]

Further Reading

Christine Eriksen et al., ***An Evaluation of Switzerland becoming a Participating State of the European Union Civil Protection Mechanism,*** CSS Risk and Resilience Report (Zurich: CSS/ETH, 2021).
An independent evaluation of the benefits, costs, opportunities, and risks for Switzerland in becoming a Participating State of the UCPM.

Michael Szönyi et al., **"PERC Flood event review 'Bernd',"** *Zurich Insurance Group,* 2022.
Insights and recommendations derived from a post event capability review of the 2021 floods in Germany.

Bundesministerium für Land- und Forstwirtschaft, Regionen und Wasserwirtschaft Österreich, ***Brennpunkt Wald Aktionsprogramm Waldbrand: Wahrnehmen – Vermeiden – Bekämpfen,*** 2022.
Official steps and proposed solutions to minimize the risk of forest fires in Austria.

Considerations for Swiss Civil Protection

A closer look at recent disasters in Germany, Austria, and France, and the range of consequent changes to civil protection structures provide valuable lessons at a time when Swiss Civil Protection is evaluating its capacity to cope with climate-exacerbated hazards. Measures for consideration can broadly be divided into three areas.

First, hard-won lessons demonstrate the critical value of full participation in the UCPM: from institutionalized training and knowledge exchange, and valuable hands-on experience during deployment, to the coordination of rapid assessments, and assistance from shared resources and trained first responders in times of need. This summer, several European countries responded to calls for help at the same time as the UCPM's rescEU firefighting fleet was deployed in response to forest fires that raged simultaneously or in quick succession across Europe. The threat of forest fires is increasing with climate change in Switzerland, and the ability to rely on bilateral agreements is not a given if a number of forest fires increasingly burn simultaneously in several countries. The socioeconomic cost of a catastrophic forest fire burning across several cantons is also likely to far exceed the annual fee for Swiss participation in the UCPM, and in the longer term it would be cheaper to rely on the UCPM's capacities through full participation than to independently purchase equipment. The UCPM recently announced a doubling of its aerial firefighting capacities and plans to strategically position forest firefighting resources in central and northern Europe from next summer, alongside the development of an action plan for fire prevention and preparedness.

Second, the frequency, intensity, and scale of climate-exacerbated hazards prove the need for upskilled training systems and first-hand experience for first responders and crisis management units on all government levels. For example, trained wildland firefighters can multiply knowledge during deployments and in professional networks, while mandatory and certified training and regular exercises for crisis units enhance preparedness and response across municipal, cantonal, and federal levels. This includes access to more specialized and multi-purpose equipment, such as helicopters or amphibious vehicles, which could be subsidized by the federal level and hosted at purpose-designed inter-cantonal *Zivilschutz* bases.

Third, different government levels should be better aligned to alleviate the strain that climate-exacerbated hazards put on, for example, forecasting, warning systems, the scale of resource deployment, and the length and frequency of response and recovery. Such measures include enhanced community engagement and local plans for the incorporation of spontaneous volunteers, an integrated Swiss warning strategy, and the inclusion of impact assessments and scenarios in situational reports of the National Emergency Operations Centre, so that they become more actionable for regional and local crisis units. Federal, cantonal, and municipal levels need to improve coordination to avoid ad-hoc arrangements that deviate from planned processes. When clear lines of communication and responsibilities are established and crisis situations are practiced regularly, they are more robust and reliable when activated.

Selected sources

1. Intergovernmental Panel on Climate Change, "Climate Change 2022: Impacts, Adaptation, and Vulnerability," *Cambridge University Press,* 2022.
2. Christine Eriksen / Andrin Hauri, "Climate Change in the Swiss Alps," *CSS Analyses in Security Policy* 290 (2021); Christine Eriksen / Andrin Hauri, "When Crises Collide: Energy, Security, Climate Change," *CSS Policy Perspectives* 10:8 (2022).
3. To distinguish between *Bevölkerungsschutz* (the integrated civil protection system) and *Zivilschutz* (a distinct organization), which are both translated in English as civil protection, we use the German word *Zivilschutz* to refer to the latter.
4. VBS, *Zusatzbericht zum Sicherheitspolitischen Bericht 2021 über die Folgen des Krieges in der Ukraine,* 2022; Bundesrat, *Bericht des Bundesrates zum Postulat «Zeitgemässe, effiziente Waldbrandprävention und -bekämpfung»,* 2022.
5. Cordula Dittmer, "Forschung der KFS zu den Starkregenereignissen in Nordrhein-Westfalen und Rheinland-Pfalz 2021 – 1 Jahr danach," *FU Berlin, Disaster Research Unit,* 2022.
6. For details about BBK initiatives and reports, see: bbk.bund.de.
7. Thomas Curt / Thibaut Frejaville, "Wildfire Policy in Mediterranean France," *Risk Analysis* 38:3 (2017), 472–488; Cécile Prudhomme et al., "Wildfires: Companies answer the call to release their volunteer firefighters," *Le Monde,* 13.08.2022.
8. Ministère de l'Intérieur et des Outre-mer, *Projet de loi d'orientation et de programmation du Ministère de l'Intérieur, 2022-2027,* 07.09.2022.

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