How can European rural areas collaborate to strengthen strategic autonomy?

The need of resilience for rural societies and economies in Alpine regions to profit from emerging opportunities in the course of climate change adaptation

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What are the impacts of climate change?

For alpine valleys like the Diemtigtal in the Canton of Bern we expect, that the impacts are negative.

Yes, they are negative – in terms of an already lived reality with daily observations and confirmed with the results of a system modelling based on the CH2018 Climate Scenarios for Switzerland, but... Schweizerische Eidgenossenschaft Confédération suisse Confederazione Svizzera Confederaziun svizra

Swiss Confederation

Adaptation to climate change

Pilot programme phase II

Swiss Federal Office for the Environment

2 phases: 2013 – 2017 and 2019 - 2022



The project context: 2nd phase with 50 projects focusing on 6 topics¹):

- Strategy and action plan of the Swiss Federal council: Solutions for adaption to changed environmental conditions due to climate change
- Objective: Minimize risks maximize the use of opportunities
- The Case of the valley Diemtigtal:
 Successful climate adaptation in alpine habitats as a collaborative joint task

1)https://www.bafu.admin.ch/bafu/en/home/topics/climate/i 3 nfo-specialists/adaptation/pilot-programme.html

Today's observations and experiences of the population in the Diemtig Valley:

- decreasing slope stabilities caused by heavy rainfall (e.g. rain on snow)
- drought periods leading to water and feed shortage for cows and cattle (2018)
- forest succession (spruce to beech), more parasites (bark beetle) and increasing tree mortality, decreasing wood quality, decreasing forest protection of infrastructure and settlements
- increasing economic and environmental pressure on alpine agriculture and forestry





Results of the model-based scenarios:

Slope stability

Increasing risk for shallow landslides and debris flows due to intense local rainfall events

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Results of the model-based scenarios:

Droughts

60-day precipitation sum: Number of days within the 5% percentile of the reference scenario (1981 – 2010) = for the driest days in spring, summer and fall

dss⁺ Protect. Transform. Sustain.





Results of the model-based scenarios: Forestry

- Decreasing tree growth
- Increasing tree mortality
- Increasing risk of forest fires





7

Results of the model-based scenarios: Alpine agriculture Increasing food range over time and altitude for grazing



With climate change a growing potential and thus opportunities for alpine habitats are emerging: In the medium and long term, alpine farming will have a greater supply of fodder available over a longer growing season up to higher altitudes.





Risks can be confirmed.

Opportunities too!



Achievements:

- Common comprehension and understanding
- Joint definition and set up of a system image
- Affirmation and acceptance of complexity
- Knowledge integration / Knowledge building
- Enabling of active participation
- Building of trust

Despite the achievements, identified measures and the joint tasks for the various actors, the road to realize concrete actions appears too much of a challenge for the rural society and economy.

A concept of resilience is needed

There is a **gap between the opportunities and capabilities**. Today the rural society and economy operate at the limit of their capacities.

- What is needed to overcome the gap to become resilient, allowing to avoid risks and to make use of opportunities?
- And what is needed for a successful adaptation and transformation process once the gap has been overcome?

Therefore, **resilience means more than just reaching a critical level** for climate adaptation capacities for protecting, transforming and sustaining rural living habitats.



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Protect. Transform. Sustain.



Community/Social Resilience

- Coping Capacities to be re-active (ex-post) and absorptive.
- Adaptive capacities to be pro-active (ex-ante), "preventive" and anticipating.
- Transformative and participative capacities to encompass the people's ability to access assets and assistance from the wider socio-economic context (e.g. governmental organizations, civil society, NGOs)
- Social relations and network structures
- Institutions and power relations: Empowerment as the sum of equity, justice and power
- Knowledge, innovation and culture



Resilience in Natural Resource Management

- Ecological resilience: Magnitude of disturbance to be tolerated before a system is shifting to a new state: Speed, time, persistence, unpredictability
- Social-ecological system resilience: absorption capacity to remain stable, capacity of self-organization, capacity to increase learning and adaptation, common understanding of the system (key variables, fore-casting for improved decision-making)
- Disaster resilience: Robustness and managing capacities of responding to "Shocks" and slow and long-term changes

Economic Resilience

- Macroeconomic stability depending on e.g. interest rates, ability to mobilize financial and technical resources to rebuild, ripple-effects of sudden production losses, redundance of infrastructure, ability of firms' ability to cope with shocks.
- Microeconomic Market Efficiency: market size and stability, internal / external dependencies (i.e. vulnerabilities), ability to anticipate risks and to build responsive capacities.
- Good governance and social development: Political stability, quality/integrity of the legal/ administrative/educational/health systems



Financial Resilience

- Economic resources: Saving capacities, dept management, ability to meet costs of living expenses, ability to raise funds (short and long term), income
- Financial knowledge and behavior: Knowledge of financial services and products, confidence of using those, willingness to seek financial advice, proactive and anticipating financing.
- **Financial resources**: Access to banking systems, credits, subsidies, compensation funds, insurances.
- **Social capital**: Social connections, access to social support in times of crises, access to support from communities, governments, organizations.



How can European rural areas collaborate to strengthen strategic autonomy?



3 theses for a resilience-based collaboration between rural societies and economies

- Identify and exchange the needs regarding resilience for reaching a common understanding by using the 4 key resilience components and linking them with the SDG framework.
- Connect resilience with knowledge building/ transfer/exchange for becoming a network of learning societies and economies.
- Adapt governance structures/models to better connect (horizontally and vertically) activity fields, collaborative joint tasks and responsibilities for climate change adaptation.



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