

Interreg



Co-funded by
the European Union

BeyondSnow



Allianz in den Alpen
Das Gemeindeforum

Alpine Space

Climate Resilience Tool

Elaborated by the BeyondSnow project

08.05.2025; Katharina Gasteiger

BeyondSnow in a few words

A project dedicated to destinations lacking snow

Alpine Space Program – Priority 1.1.

- Promoting adaptation to climate change, natural disaster risk prevention and resilience, taking account of ecosystem-based approaches

Project's objective and outcome

- Strengthen the resilience of mid-altitude snow tourism destinations and communities faced with the consequences of climate change
- Transitions strategies in 10 pilot sites
- Vulnerability Map under <https://maps.eurac.edu/catalogue/#/map/1667>
- **Climate Resilience Tool**



Interreg



Co-funded by
the European Union

Alpine Space

BeyondSnow



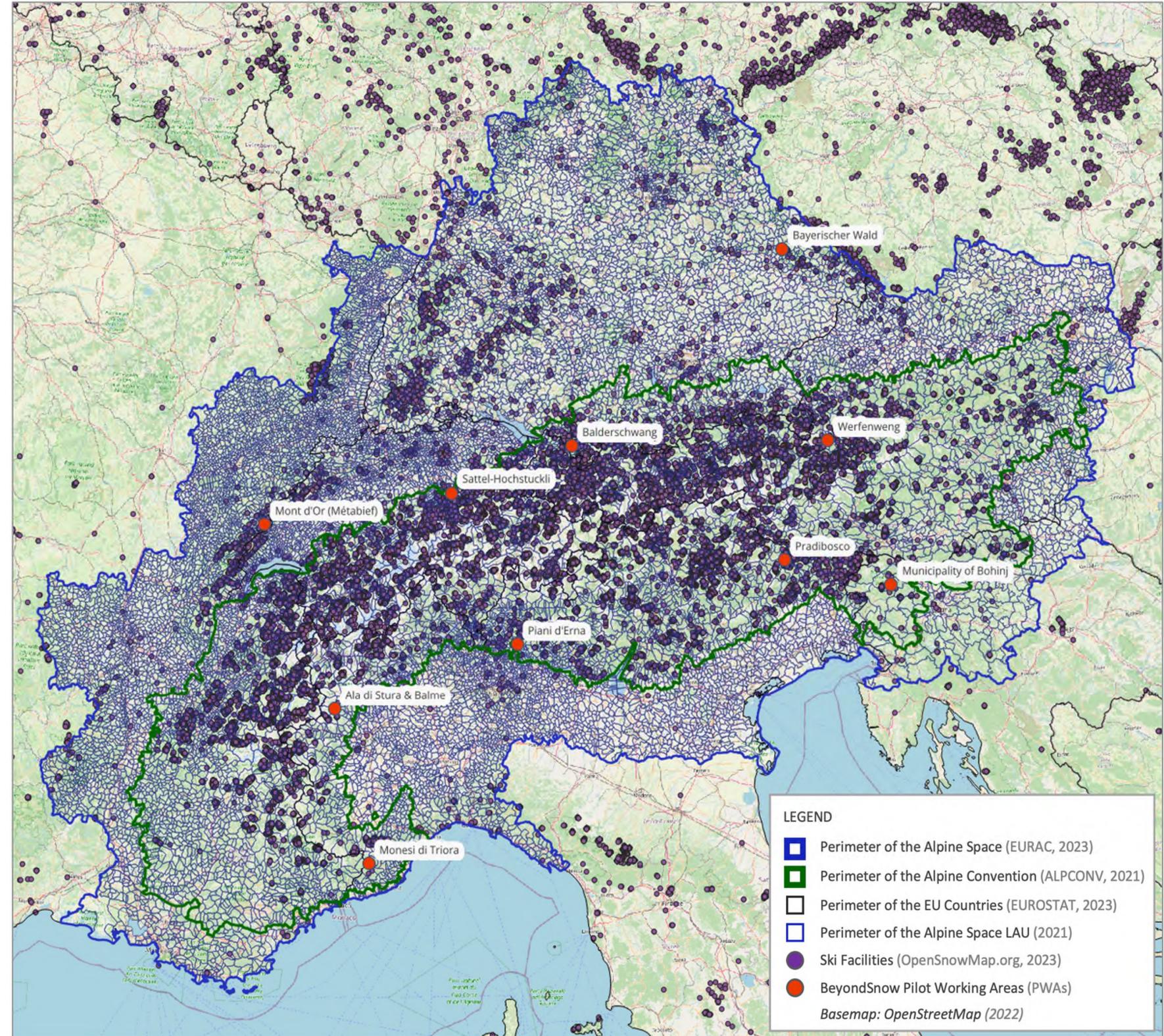
Allianz in den Alpen
Das Gemeindeforum

6 different countries

13 partners &
10 pilot sites (PWAs)

very different in characteristics, height and current status

Nr.	NAME	LAND
PP01	Eurac Research (Lead Partner)	Italy
PP02	Legambiente Lombardia	Italy
PP03	Polytechnic of Turin	Italy
PP04	Metropolitan City of Turin	Italy
PP05	Mountain Community of Carnia	Italy
PP06	EVTZ Alpine Pearls	Austria
PP07	Development Agency Upper Gorjenska	Slovenia
PP08	Arctur Computer Engineering d.o.o.	Slovenia
PP09	Deggendorf Institute of Technology	Germany
PP10	METABIEF ski resort	France
PP11	Swiss Center for Mountain Regions SAB	Switzerland
PP12	Community Network „Alliance in the Alps“	Germany
PP13	Fabrique des Transitions	France



Starting point: Climate change challenges

1. Declining Snow Cover and Glacier Retreat

- Snow cover in the European Alps has decreased by 18% between 1971 and 2019, with a 34% reduction at lower altitudes and 11% at higher altitudes.
- The snowline is shifting upwards by 300–600 meters, significantly impacting ski resorts at lower altitudes.
- Glaciers in the Alps have lost over 50% of their total area since the mid-19th century, with some glaciers losing up to 3% of their volume annually. Many could disappear by the end of the century if warming continues.

Starting point: Climate change challenges

2. Economic and Tourism Sector Impacts

- The Alps are the second most popular holiday destination in Europe, drawing over 100 million tourists annually.
- Snow & winter tourism contributes approximately €50 billion annually to the economy of the Alpine region.
- Ski resorts below 1,500 meters are at high risk due to shorter ski seasons, with some facing potential closure if artificial snowmaking becomes too costly or unsustainable.
- 15% of the Alpine workforce is directly or indirectly dependent on tourism, making climate change a serious economic concern.

Starting point: Climate change challenges

3. Rising Costs and Challenges of Artificial Snowmaking

- 28,500 hectares of ski slopes rely on artificial snow, requiring an estimated 17–43 million cubic meters of water annually.
- Snow production increases energy consumption and water use, contributing to ecological issues and potential conflicts with drinking water supply, agriculture, and hydropower.

Starting point: Climate change challenges

4. Increased Risks and Hazards in Alpine Tourism

- Climate change is leading to an increased risk of landslides, rockfalls, and avalanches, making tourism infrastructure more vulnerable.
- Thawing permafrost destabilizes rock formations, increasing risks for hiking, climbing, and mountaineering activities.
- Melting glaciers and lack of snow, contribute to flooding or water shortages, further complicating tourism management.

Starting point: Climate change challenges

5. The Need for Diversification and Adaptation

- Many ski resorts are investing in non-snow-dependent activities such as hiking, mountain biking, and wellness tourism to compensate for the shrinking winter season.
- Four-season tourism development is being considered as a potential long-term adaptation strategy.
- Some regions are testing snow farming, a method of storing snow from previous winters to extend ski seasons, though its effectiveness varies.

Looking for solutions...

Climate Resilience Tool

Assessment of internal capacity for adaptation!

The tool enables destinations to analyse their strengths and weaknesses in climate change adaptation, including infrastructure, governance and community resilience.



<https://www.youtube.com/watch?v=NJcUsY7niDI>

Looking for solutions...

Climate Resilience Tool

FOR WHO:

For destinations managers/ tourism strategy makers / tourism boards / tourism associations / communities



<https://www.youtube.com/watch?v=NJcUsY7niDI>

Looking for solutions...

Climate Resilience Tool

INPUT:

Quantitative and qualitative data that responsible person(s) fill into the online tool manually.



<https://www.youtube.com/watch?v=NJcUsY7niDI>

Looking for solutions...

Climate Resilience Tool

OUTPUT:

Your destination's foundation to start a transition strategy process!

Data assessment: what data the destination has and what it is lacking

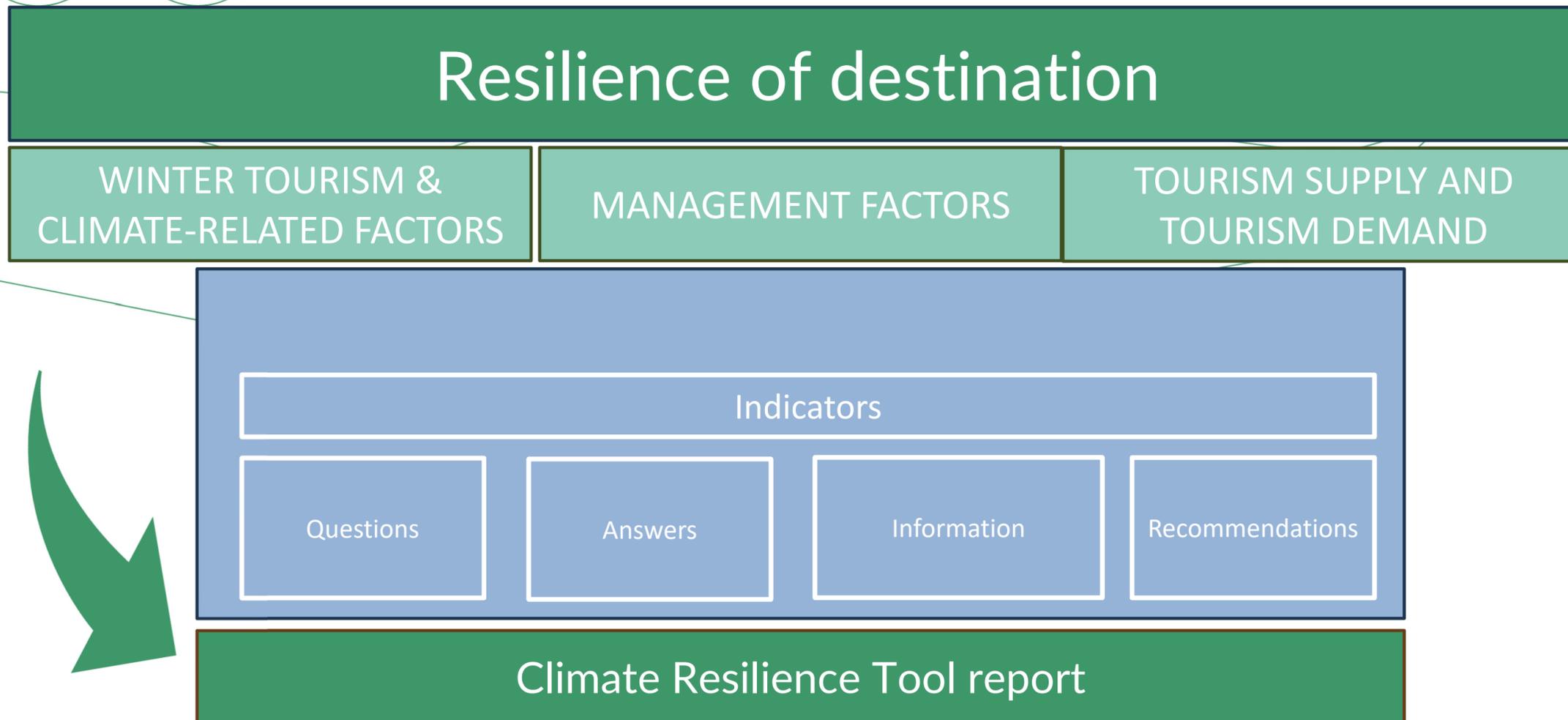
General assessment: where you are and what are suggested next steps and good practices. Ways for your destination to improve.



<https://www.youtube.com/watch?v=NJcUsY7niDI>

Looking for solutions...

Climate Resilience Tool



What to expect...

Key points about the Climate Resilience Tools

Assess Climate Risks & Impacts

- The tool helps destinations evaluate current and future climate risks affecting tourism. It gets destination started to work with climate data at all.

Evaluate Internal Adaptive Capacity

- It allows destinations to analyze their strengths and weaknesses in adapting to climate challenges, including infrastructure, governance, and community resilience. It gives you ideas to improve internal processes.

Strategic Decision-Making Support

- The tool provides data-driven insights to help destinations develop long-term transition strategies and identify opportunities for sustainable tourism growth.

Interreg



Co-funded by
the European Union

Alpine Space

BeyondSnow



Allianz in den Alpen
Das Gemeindeforum

What to expect...

Key points about the Climate Resilience Tools

User-Friendly

- The tool is designed to be intuitive, requiring no advanced technical skills. It offers reports tailored to each destination's specific context.

Turn Challenges into Opportunities

- By using the tool, destinations can proactively adapt to climate change, diversify their tourism offerings, and build resilience, ensuring long-term economic and environmental sustainability.

What NOT to expect...

Key points about the Climate Resilience Tools

No cookie cutter

- The tool is not designed to provide solutions that will fit every destination like a glove. It is a starting point for a participative process including tourism stakeholders.

Time is of the essence

- It will require some time to do the initial data collection. This can be done step by step as a desk research.

Interreg
Alpine Space



Co-funded by
the European Union

BeyondSnow

eurac
research



Politecnico
di Torino



UNIVERSITÀ
DEGLI STUDI
DI TORINO

Interuniversity Department of Regional and Urban Studies and Planning
Excellence MIUR 2010-2022



**ALPINE
PEARLS**
eco-friendly escapes



ARCOTUR



Alliance in the Alps
The Community Network



BeyondSnow is an Interreg - Alpine Space project co-funded by the European Union. It aims at decreasing the snow-dependency of Alpine Space snow tourism destinations, strengthen their resilience to climate change and retain/increase the viability for residents and their attractiveness for tourists.