Interreg Alpine Space

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BeyondSnow

Resilience Adaptation Model Compendium in reference to Snow Tourism Destination Climate Change Resilience

D.1.4.1 – April 2024

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Mission Statements

Compendium illustrating the methodological basis of the RAM, its development, and its potential for positively influencing the socio-ecological CC resilience of Alpine STDs, targeting academia.

Disclaimer

The data and information in this document refer to and have been proposed specifically for the purposes and activities in the Pilot Working Areas of the BeyondSnow project. Some concepts are of course generalisable to all STDs in the Alps, but with due caution and precautions. The information and perspectives set out in this publication are those of the authors and do not necessarily reflect the official opinion of the European Commission or the Project Partners' regions. Neither the European Commission institutions and bodies nor any person acting on their behalf may be held responsible for the use that may be made of the information contained therein. Reproduction is authorized, provided the source is acknowledged (BeyondSnow (2023). D.1.4.1 – Resilience Adaptation Model compendium in reference to STD CC resilience) unless otherwise stated. For use/reproduction of third-party material specified as such, permission must be obtained from the copyright. To learn more and to download additional resources please refer to the Project website https://www.alpine-space.eu/project/beyondsnow/. The information is provided without assuming any legal responsibility for correctness or completeness.

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1 Introduction

This document encompasses an explanation of the development, methods used and overall purpose of the Resilience Adaptation Model (RAM) – BeyondSnow Project Output 1.1. The RAM represents the theoretical basis for the Resilience Decision-Making Digital Tool (RDMDT), which is developed as Project Output 2.1 and will be designed to provide Snow Tourism Destinations (hereinafter STDs) with an automated assessment tool for aware decision-making. The RDMDT will provide local stakeholders & decision-makers with an understanding of the respective STD's (tourism) resources, current level of vulnerability to climate change and potential resilience enhancement regarding the impacts of climate change. The document covers the steps taken to develop the RAM, including the references to the project deliverables comprising the theoretical and scientific baseline contents, the involvement of the local Pilot Working Area (hereinafter PWA) stakeholders, the analysis of different scenarios, and the creation of adaptive management strategies. These steps were deemed essential for the development of transition strategies aimed at increasing STD resilience, which will subsequently also be generalized in order to be available for other Alpine destinations and regions facing similar challenges.

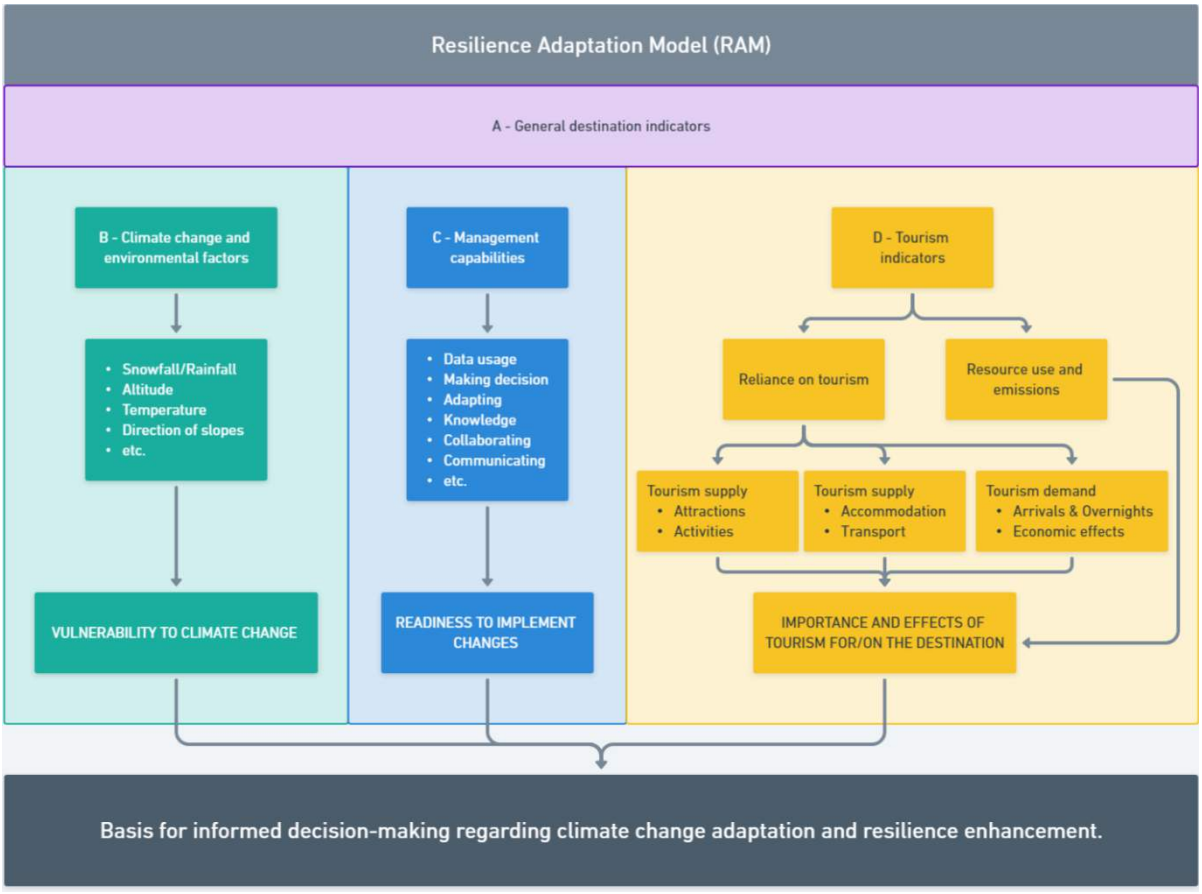

Figure 1: The structure of the Resilience Adaptation Model (RAM)

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2 Purpose and Scope of RAM

2.1 Goals of the RAM

The goal of the "Resilience Adaptation Model" is to help STDs to face climate related challenges by offering a conceptual model. The model aims at supporting STDs for:

- Measuring their vulnerability regarding the effects of climate change, based also on additional environmental factors.
- Measuring the aptitude of destination managers to embrace change, develop adaptation scenarios as well as implement the best strategies and solutions.
- Creating a general overview of the overall STD system, including the visualisation and measurement the tourism supply and demand.

The RAM aims at providing general guidance for STDs regarding what to focus on and is not an in-depth assessment. When STD authorities take into account the RAM and additionally go through the digital assessment of the RDMDT, they will obtain a general overview of the level of vulnerability and resilience of the destination regarding climate change, the presence/absence of essential data, the potential next steps to take, and their implementation possibilities.

The aim of the RDMDT is to be a user-friendly digital tool for STDs, which will be enabled to insert all necessary data between 30 and 60 minutes assuming that the data is already available to them, and it should not take them more than one week to gather any missing data.

2.2 Importance for STDs in the project and beyond

There are 3 crucial reasons why RAM can be an important tool for STDs.

1. **Understanding STD vulnerability and resilience regarding Climate Change:** The RAM is crucial for helping STDs understand their vulnerability to climate change, based on this insight, address specific issues which hinder the enhancement of their resilience (for further information regarding vulnerability and resilience of STDs, please refer to the deliverable D.1.2.1 (BeyondSnow, 2023c). By identifying weaknesses and developing specific strategies, the STDs can better withstand and adapt to environmental changes, ideally also by resorting to sustainable tourism practices.

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2. **Improved Management Capabilities:** The RAM supports STDs in the assessment of their management's effectiveness. By evaluating how ready and knowledgeable their management is, their adaptive capacity for making changes increases, ensuring they can address more efficiently new challenges when they arise.
3. **Understanding Tourism Reliance and Tourism Systems:** The RAM helps destinations to understand just how much they (economically) depend on the tourism sector, especially winter tourism. By assessing their tourism supply (e.g. number of accommodation structures & beds, etc.) and demand (e.g. overnight stays, seasonal tourism flows etc.), destinations gain a clearer understanding of their reliance on tourism and their overall tourism system, enabling them to develop adequate sustainable and resilient strategies, based also on local resources.

3 Sources for RAM

The RAM relies on a variety of sources to ensure comprehensive as well as accurate information and outputs. These sources can be divided into four main areas:

- General destination indicators,
- Climate change and environmental factors,
- Management capabilities,
- Tourism indicators.

General destination indicators:

The specific definition of the geographic, social, and economic boundary conditions of the destinations is an essential prerequisite for their subsequent assessment. This area comprises indicators regarding the geographic size, population and demographic development as well as GDP and employment (both general and tourism specific).

Climate Change and Environmental factors:

The resources regarding this area are mainly located within previous deliverables of the BeyondSnow project, as well as within the scientific literature and expert interviews. The aforementioned deliverables comprise information related to climate change and environmental factors and encompass:

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- BeyondSnow Deliverable D.1.1.1 – Report on the effects of Climate Change on the Alpine Space Snow Tourism Destinations (BeyondSnow, 2023a)
- BeyondSnow Deliverable D.1.1.2 – Vulnerability Map of Alpine STDs (BeyondSnow, 2023b)

Management capabilities:

For management capabilities, the RAM draws on existing projects and studies. These include COSME projects like Tourbit and their DRI tool (Tourbit, 2024), the Horizon 2020 project PROSNOW (PROSNOW, 2024); the Slovenian tool for measuring the digital readiness of companies created by the Digital Innovation Hub of Slovenia (DIH Slovenia, 2024) and other similar tools.

Tourism indicators:

These indicators of the RAM are derived from project external and internal reports and studies. These include among others:

- European Tourism Indicators System (ETIS) (European Commission, 2016)
- EU Tourism Dashboard (European Commission, 2024)
- UNWTO Tourism Dashboard (UNWTO, 2024a)
- UNWTO Tourism International Network of Sustainable Tourism Observatories (UNWTO, 2024b)
- Interreg Alpine Space Project ClimAlpTour (Alber et al., 2011)
- BeyondSnow Deliverable D.1.3.1 – Report and database of PWAs tourism systems (BeyondSnow, 2023d)

4 Use of RAM in RDMDT

The RAM will serve as the foundation for the Resilience Decision-Making Digital Tool (RDMDT). RDMDT is an upcoming online tool, developed within the BeyondSnow project (O2.1), that will utilise advanced Automated Assessment Technology (hereinafter AAT) to streamline the assessment process for its users (Arctur, 2024). This tool will allow STD managers and decision-makers to register, input their data, and receive an automated report encompassing an assessment and personalised recommendations for each of the three main areas: climate change and environmental factors, management capabilities, and tourism indicators.

AAT is an advanced tool designed to objectively measure and monitor various parameters using both quantitative and qualitative data. It supports multi-language input and employs multi-attribute decision

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modelling to provide comprehensive, bias-free analytics and personalised recommendations. This technology ensures that users receive a tailored report with actionable insights based on their specific data.

With the RDMDT, STDs can quickly and efficiently understand their vulnerabilities, assess their management effectiveness, and gauge their reliance on tourism. The automated reports generated by AAT will include an analysis of the current situation, future scenarios, and personalised next steps for improvement. This process not only aids in decision-making but also supports strategic planning aligned with sustainable development goals.

The STD manager using the RDMDT will be required to insert the data for the current situation as well as for the future scenario. This enables a comprehensive assessment of STDs. By providing insights regarding the resources of destinations, the knowledge to enhance destination resilience and anticipated challenges, the RDMDT helps prioritise efforts and resources effectively.

Furthermore, a decision-making model will be developed from the RAM, enabling the RDMDT to evaluate the users through the best strategies for building resilience against climate change challenges. By leveraging the robust analytical features of AAT, the RDMDT will empower STDs to make informed, data-driven decisions to ensure their long-term sustainability and resilience.

The data gathered through RDMDT will be useful as it will enable a macro-view into the destinations and help identify areas where destinations need the most assistance. This can serve as a reference for future projects to focus on specific areas where the destinations need support in general and specifically for the enhancement of their resilience and sustainability.

Based on the RAM, the structure, content and indicators of the assessment is presented in the BeyondSnow project **Output 1.1**.

5 Conclusion

The Resilience Adaptation Model (RAM) and the forthcoming Resilience Decision-Making Digital Tool (RDMDT) represent an attempt to significantly advance the support for STDs for enhancing their resilience against climate change. By providing a structured framework to assess vulnerabilities, management capabilities, and tourism reliance, the RAM offers destinations an essential first steps toward achieving long-term resilience and sustainability.

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The RDMDT, leveraging the robust features of Automated Assessment Technology (AAT), will further enhance this process by offering an automated, user-friendly platform for comprehensive assessments. Through this digital tool, destinations will be able to quickly input data and receive detailed reports that include assessments and personalised recommendations for future development plans. This streamlined approach will not only facilitate immediate improvements but also encourage a culture of proactive and informed decision-making.

The RAM's versatility extends beyond immediate assessments. It can serve as the foundational basis for developing more intricate tools and models tailored to specific needs and challenges. This ensures the flexibility and adaptability of the tools as new challenges and data emerge, providing evolving knowledge as well as relevant and effective solutions also in the future.

On a project scale, the RAM and RDMDT will enable the project consortium to maintain an overview of the current and projected states of the PWAs and additional STDs. This holistic insight is essential for designing information which can be used for guiding further developments at regional, national, and EU levels. By understanding the level of vulnerability and resilience as well as the issues and needs of various STDs, policymakers and stakeholders can devise more efficient strategies and policies that support adaptive tourism development across diverse geographic and socio-economic contexts.

In conclusion, the implementation of the RAM and the development of RDMDT mark pivotal steps toward building a resilient future for STDs. These tools not only empower individual destinations to take informed actions but contribute also to a collective understanding and approach for tackling climate change challenges within the tourism sector.

By fostering resilience at multiple levels, this project sets a precedent for sustainable development and strategic planning, ensuring that STDs can thrive in the face of changing environmental conditions.

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La FABRIQUE des TRANSITIONS

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.