



## **Deliverable 7.3.8**

# **Natural hazards and climate change: Cultural heritage as a pillar of resilience**

Transversal Spoke 7, Work Package 3, Task 3.4

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# Abstract

This contribution investigates the role of cultural heritage in fostering community resilience to natural hazards in Val Resia, a mountain valley within the Julian Alps Biosphere Reserve, in Italy. The research aims at unveiling the role that local knowledge, sense of place and community sense of belonging play in the aftermath of disaster, as well as coping mechanism for prevention and adaptation policies.

The research was developed using participatory methods, engaging local actors in a participatory workshop. Using temporal lenses - past, present and future- participants engaged in several workshop activities based on the future search conference approach. A critical dialogue on the role of cultural heritage and collective experiences in community resilience along time was developed among stakeholders from different sectors. The activities helped participants to identify which local practices, collective experiences and values need to be valorised to face future climate-related hazards and increase community adaptation capacities.

Findings revealed a strong connection between cultural heritage and the community's ability to cope with natural hazards, underscored by local traditions and knowledge. However, participants to the participatory workshop also noted socio-economic barriers that limit the implementation of disaster risk management and climate change adaptation strategies. This case study contributes to the validation and consolidation of a broader theoretical framework. The framework contributes to understanding how different forms of heritage can strengthen specific aspects of risk reduction and help communities better adapt to climate change challenges.

The findings from the workshop will be further developed into guidelines to help stakeholders better understand how to enhance the value of cultural heritage for community resilience and integrate it into adaptation strategies.

**Keywords:** cultural heritage, mountain communities, climate-related hazards, adaptation strategies, community resilience

## Table of Contents

<b>Abstract.....</b>	<b>3</b>
<b>Acronyms .....</b>	<b>6</b>
<b>1. Introduction.....</b>	<b>7</b>
<b>1.1 Scope of the project.....</b>	<b>8</b>
1.1.1 Scientific and Academic Level.....	9
1.1.2 Policy Level .....	9
1.1.3 Community Level .....	9
<b>1.2 Conceptual background .....</b>	<b>10</b>
1.2.1 Defining cultural heritage .....	10
1.2.2 Community definition .....	11
1.2.3 What is community resilience: concept in a nutshell.....	12
<b>1.3 Theoretical framework .....</b>	<b>13</b>
1.3.1 Cultural heritage contribution to spheres of community resilience .....	14
1.3.2 Outputs .....	15
1.3.3 Actions .....	15
<b>2. Research Design and Methodology.....</b>	<b>16</b>
<b>2.1 Preliminary field visit and interviews .....</b>	<b>16</b>
<b>2.2 Workshop.....</b>	<b>17</b>
2.2.1 Methodology .....	17
2.2.2 Participants.....	18
<b>2.3 Data analysis.....</b>	<b>19</b>
<b>3. Val Resia PoC.....</b>	<b>21</b>
<b>3.1 Geological and topographic characteristics.....</b>	<b>23</b>
<b>3.2 Climatic features .....</b>	<b>24</b>
<b>3.3 Natural Hazards.....</b>	<b>24</b>
<b>3.4 Socio-demographic characteristics .....</b>	<b>25</b>
3.4.1 History .....	25
3.4.2 Val Resia Today .....	26
<b>3.5 Cultural aspects .....</b>	<b>27</b>
3.5.1 Intangible heritage (Festivals, music, dance, fairy tales....) .....	27
3.5.2 Traditional architecture .....	29
3.5.3 Typical products of the land .....	30
<b>4. Results.....</b>	<b>30</b>
<b>4.1 Preliminary field visit and interviews .....</b>	<b>30</b>
<b>4.2 Participatory workshop .....</b>	<b>32</b>
4.2.1 Activity 1: Past .....	32

4.2.2 Activity 2: Present .....	37
4.2.3 Activity 3: Future.....	41
<b>5. Discussion.....</b>	<b>44</b>
<b>5.1 Sense of “community” in Val Resia and relevant stakeholders .....</b>	<b>44</b>
5.1.1 Community .....	45
5.1.2 Stakeholders .....	46
<b>5.2 Community resilience through resources, learning and actions .....</b>	<b>49</b>
i) Resources and capacities .....	49
ii) Action.....	50
iii) Learning.....	50
Final reflections on Val Resia community resilience .....	51
<b>5.3 The role of cultural assets to community resilience .....</b>	<b>51</b>
5.3.1 Social cohesion .....	53
5.3.2 Coping capacity .....	55
5.3.3 Wellbeing .....	57
5.3.4 Economic opportunities.....	57
<b>6. Conclusions: final considerations and limitations .....</b>	<b>59</b>
<b>References .....</b>	<b>62</b>
<b>Annexes.....</b>	<b>73</b>
<b>Annex 1: Transcribed results from Activity 1 .....</b>	<b>73</b>
<b>Annex 2: Transcribed results from Activity 2 .....</b>	<b>77</b>
<b>Annex 3: Transcribed results from Activity 3 .....</b>	<b>83</b>

# Acronyms

PoC – Proof of Concept

RETURN - Multi Risk Science for Resilient Communities under a Changing Climate

DRR – Disaster risk reduction

DRM – Disaster risk management

SDGs – Sustainable Development Goals

WNMBR - World Network of UNESCO Mountain Biosphere Reserves

emBRACE - Building Resilience Among Communities in Europe

CH – Cultural Heritage

# 1. Introduction

This document presents the results of the study conducted within Work Package (WP) 3, Task 4 of Transversal Spoke 3 (Spoke 7) of the RETURN project (Multi Risk Science for Resilient Communities under a Changing Climate), the extended partnership aiming at strengthening the research chains on environmental, natural and anthropogenic risks at national level and promote their participation in European and global strategic value chains.

The study investigates the role of cultural heritage in fostering community resilience to natural hazards, in the Proof of Concept (PoC) developed in Val Resia (Friuli Venezia Giulia, Italy), a mountain valley recognized within the Julian Alps Biosphere Reserve. Building on the conceptual framework developed in Deliverable 7.3.7 (Fontanella Pisa et al., 2025), the research aimed to co-develop an understanding of how intangible values associated to cultural heritage, such as cultural identity, collective memory and local practices, contribute to influencing community resilience.

Intangible dimensions of cultural heritage such as shared experiences of past disasters, traditional knowledge and a strong sense of identity are increasingly recognized as key assets in the capacity of communities to respond to hazards. Yet, demonstrating the mechanisms through which these values foster resilience remains a challenge, and their role is often overlooked in formal risk governance frameworks.

The Val Resia Proof of Concept represents an effort to make these connections explicit. The valley provides a unique setting to test the relationship between cultural heritage and hazard risk resilience due to its isolation, high exposure to natural hazards and the presence of a cohesive, linguistically and culturally distinct community that has long preserved its traditions and heritage.

This research, by adopting a participatory approach, aims to identify the cultural heritage elements that enhance the resilience of the valley across time; from the past to the present and into the future. In doing so, it aims to explore how intangible cultural values are not only relevant but also essential in strengthening the resilience of communities, particularly those in mountain areas, facing recurrent natural hazards.

The major goal of this deliverable is to reflect on the nexus between cultural heritage, social cohesion and community resilience towards natural hazard risks to validate the results of the previous deliverable, and to answer to the following overarching research question:

*How do intangible and tangible elements of cultural heritage within the Val Resia community contribute to strengthening resilience against natural hazards, and in what ways can their integration into disaster risk reduction strategies address local vulnerabilities, as evidenced by both empirical findings and the conceptual framework developed in Deliverable 7.3.7?*

This research question is answered upon investigation of the following sub-questions:

- 1) What are the risks and vulnerabilities perceived and experienced by the community of Val Resia PoC??
- 2) What are the elements of cultural heritage redeemed critical by the people living in Val Resia PoC in order to overcome their vulnerabilities?
- 3) Which specific elements of cultural heritage in Val Resia have been identified, through empirical evidence, as having an impact on community resilience to natural hazards?
- 4) How do these results align with the conceptual framework produced in Deliverable 7.3.7?

The document is organized as follows. It begins with a presentation of the overall scope of the project, followed by the theoretical background, which includes the definitions of community and community resilience and concludes with the presentation of the theoretical framework adopted in the study. Next, the methodology and the context of the research area are described in detail, leading to the presentation of the results. The document concludes with a discussion and final remarks, highlighting the connections between cultural heritage, community, and risk resilience as evidenced in the Val Resia PoC.

## 1.1 Scope of the project

This research is significant as it contributes to advancing the understanding of how local knowledge and cultural heritage can be operationalized to strengthen community resilience and inform multi-hazard risk reduction and mitigation strategies.

The study objectives align with international, European, and local policy frameworks for Disaster Risk Reduction (DRR). It supports the implementation of the Sendai Framework for DRR by proposing practical approaches for integrating local knowledge. Furthermore, it directly contributes to the Sustainable Development Goals (SDGs), namely to SDG 13 – Climate Action, and SDG 11 – Sustainable Cities and Communities), particularly targets 13.1, 13.3, and 11.4. The project also supports the activities of the World Network of UNESCO Mountain Biosphere Reserves (WNMBR) (Price et al., 2021, 2024), offering opportunities to strengthen the science–policy–practice interface in model regions for sustainable development.

Importantly, the project is expected to generate impact both internationally and locally. On the one hand, it provides insights into global policy and academic community; on the other, it directly engages the community of Val Resia. Through participatory approaches and knowledge co-production, the project raises awareness of local challenges and opportunities, while also deepening the understanding of community–environment interactions. Beyond the local context, the resulting methodological model is designed to be adaptable and replicable in other settings (while acknowledging the context specific constraints).

To clearly define the objectives, expected outcomes, and outputs, we have structured them according to the impacts foreseen for different stakeholder groups: scientific and academic, policymaking, and community level.

### 1.1.1 Scientific and Academic Level

At the scientific level, the study seeks to advance research in disaster risk reduction by reinforcing the theory that cultural heritage is a crucial element for enhancing community resilience to disaster risks. Specific objectives include:

- a) Collecting data to validate and operationalize the theoretical framework linking cultural heritage and community resilience.
- b) Providing empirical evidence on how different types of heritage support specific dimensions of resilience.
- c) Establishing the foundations for replicating the framework across diverse cultural and community contexts.

The expected outcome and output are a replicable methodology and toolkit, offering academics practical guidance on participatory approaches for integrating heritage into resilience-building efforts.

### 1.1.2 Policy Level

The project also addresses the policy and advocacy sphere, with the following aims:

- a) Delivering practical recommendations to policymakers on integrating cultural heritage into resilience strategies for disaster risk reduction and climate change adaptation.
- b) Testing and presenting a tool that makes the heritage–resilience connection tangible for decision-making processes.

At both national and international levels, the project seeks to provide evidence that strengthens the recognition of heritage as a resource for community resilience in multi-hazard contexts. Policymakers will gain the opportunity to engage with research findings, discuss their applicability, and potentially adapt them for their own risk reduction strategies.

To support this, the report presents the results of the proof-of-concept application of the framework, offering policymakers a concrete starting point for applying our framework in different contexts.

### 1.1.3 Community Level

Given the project’s participatory nature, it aims to generate direct and lasting benefits for the community of Val Resia, while also serving as a replicable model for other communities. The main objectives are:

- a) Providing operational data to inform local disaster risk reduction decision-making.
- b) Framing cultural heritage in ways that empower local people to better respond to risks.

The expected outcome is that the community gains new perspectives on its cultural richness and leverages this awareness as a tool for strengthening resilience.

To ensure usability and foster dialogue, a restitution workshop with local authorities of Val Resia will be organized. This event will provide a platform for discussing the application of the framework and exploring how its results can inform local strategies and actions.

## 1.2 Conceptual background

Communities living in hazard-prone areas are likely to have a long history of being exposed to frequent hazards over centuries of human-nature interactions, generating context-specific knowledge on their risk landscape (UNDRR & ICCROM, 2022). Disasters have therefore marked the history of several places and their inhabitants (Garcia, 2021), leading to the development of ad-hoc measures and traditions in response (Ghani, 2020). Many cultural cities and/or cultural landscapes are therefore shaped by centuries of interaction between disasters and heritage, which lessons are retained in societies' memory.

Knowledge of past events is hence essential for setting up strategies to protect those communities exposed to specific hazards (Garnier, 2019), and it contributes both to understanding disaster risks (Priority for Action 1 UNISDR, 2015) as well as a tool to invest in enhancing disaster resilience (Priority for Action 3 UNISDR, 2015). These places and the values they represent are at the key to community resilience as part of the identify of their people (Fontanella Pisa et al., 2025). A focus on the multiple forms of expression of local knowledge can contribute greatly to understanding the role that local values play in influencing responses to disaster risks (Kakinuma et al., 2019), leading to the development of context-specific disaster risk reduction practices that are more likely to be adopted and implemented by local actors.

Based on this understanding, this chapter aims to lay the theoretical foundations necessary to the development of this project activity, providing a common understanding of the following adopted terms:

- Cultural heritage
- Community
- Community resilience

### 1.2.1 Defining cultural heritage

In alignment with Deliverable 7.3.7, this present study acknowledges the reference to Shein's view on defining culture (Schein, 1990, p. 111). Definitions of *culture* and *cultural heritage*, find no agreement in the literature (Spencer-Oatey, 2021). Therefore, research on these topics should clearly

state their perspective or at least indicate the approach taken, in order to make the findings more actionable. This study explores cultural heritage by going beyond its physical aspects and examining the values and underlying meanings associated with it. In Schein's definition of culture (Schein, 1990, p. 111), culture is manifested within a particular community throughout three main layers: 1) observable artifacts, 2) values and 3) basic underlying assumptions.

Observable artifacts correspond here to the visible elements of heritage. These can be both tangible or intangible, and are normally formalized in official designations or conventions at local, regional, national or international levels (such as: UNESCO, 2022; UNESCO World Heritage Centre, 2025).

Schein refers to these as the "shell" of culture, that act as vehicles connecting communities through associated values and more implicit worldviews. If this is what defines *culture*, *heritage* is here seen as the dynamic transmission from generation to generation of these values through cultural expressions (Smith, 2012). As cultural heritage is constantly changing, it is seen as both a representation of a community's past, as much as a reflection of its living values and desired common future. Hence, the study decided to focus on *cultural heritage* maintaining its dynamism and by ensuring that the community itself identified with it.

### 1.2.2 Community definition

The concept of community is understood as a group of individuals connected by shared elements that foster a sense of belonging, identity, and interaction. These connections may be spatial, interest-based, or practice-oriented. In order to capture the multifaceted nature of community, three primary typologies have been identified based on the nature of the relationships and bonds among members.

**Community of place:** Refers to individuals who share a common physical or digital space. In this case, geographical proximity or co-location serves as the primary basis for interaction and collective experiences. This form of community is often observed in contexts where individuals are brought together by shared living environments or local events (Christenson & Jerry W, 1989; Miller, 1992).

**Community of practice:** Includes individuals who are connected through shared practices, values, or professional activities. Their bond is formed through collaboration and mutual engagement in a specific domain. This type of community is typically characterized by knowledge sharing, learning, and a practice-based identity, and may include religious or professional groups (Briard & Carter, 2013; Henri & Pudelko, 2003).

**Community of interest:** encompasses individuals who are united by common goals, concerns, or passions. Their sense of community arises from shared objectives rather than physical proximity or daily practices. These communities are often goal-oriented and interest-driven, with a focus on social change, advocacy, or collective action (Etienne, 1998; Reed et al., 2010; Wasserman & Faust, 1994).

### 1.2.3 What is community resilience: concept in a nutshell

The concept of community resilience has been extensively analyzed and discussed in the last decades, nurturing the development of a multiplicity of approaches and frameworks (e.g. Adger, 2000; Aldrich & Meyer, 2015; Assarkhaniki et al., 2020; Becker et al., 2018). The existence of multiple approaches led to divergencies in resilience conceptualization according to the dimensions considered (i.e. collective or individual dimension, knowledge systems, institutional structure, etc) or foundational characteristics related to the interpretation of the concept (i.e. bouncing backs vs continuous adaptation, internal vs external process ) (Alexander, 2013) .



Figure 1. emBRACE Framework for community resilience (Source: Kruse et al., 2018)

In order to examine traits that boost or hinder resilience to natural hazards in Val Resia community we base our understanding of community resilience on the emBRACE Framework (Kruse et al., 2018a). This framework is a conceptual model developed through the EU-funded project emBRACE (Building Resilience Among Communities in Europe). Its purpose is to describe how and why communities are able to withstand, adapt to, and recover from disasters, and to offer a structured way to study or strengthen resilience in practice. It integrates social-ecological systems thinking with practical disaster-risk concepts, setting a favorable ground for integration of cultural elements in resilience making. The emBRACE framework provides us with the analytical pillars to disentangle the role of cultural dimension in community resilience building. The framework defines Community Resilience as the result of three intertwined domains: a) Actions, b) Learning, c) Resources and Capacities, that are fully dependent on the dynamics characterizing communities. These domains are in turn influenced by processes external to the community, depending on super-local ( regional,

national, and international) governance frameworks and socio-economic context (Figure 1). Such a systemic approach on community resilience facilitates the integration of cultural heritage considerations in its dimensions.

### 1.3 Theoretical framework

The theoretical framework presented below is the result of the previous Deliverable 3.7.3. Processes to its delineation have been presented in the recent publication by Fontanella Pisa, Romagnoli and Shanko (2025). It has the objective of providing researchers, practical experts and other stakeholders with a visual map that showcases the dynamics that guide the linkages between cultural heritage and community resilience to disaster risks. There is a gap between these two fields, which prevents experts from the cultural heritage field to fully understand and engage in community resilience processes, and experts engaged in the disaster management field from fully understanding the potential deriving from investing in cultural heritage. This framework aims at bridging this gap, by unpacking this topic and showcasing the interrelation between the two fields. This relationship has been graphically represented upon developing a map of cause-effects around three main concepts: community resilience spheres, outputs and actions (Figure 2) (Fontanella Pisa et al., 2025).



*Figure 2. Conceptual framework showing resulting linkages between the dimensions of cultural resilience and contributions of cultural heritage related values to them. Image produced by Lavarello Schettini Romina.*

### 1.3.1 Cultural heritage contribution to spheres of community resilience

This framework recognizes cultural heritage contributions to community resilience through four main spheres:

**Social cohesion:** Social cohesion, a key aspect of resilience, is reinforced by cultural heritage through shared rituals, festivals, and sacred spaces (Aldrich & Meyer, 2015; Baumann et al., 2021; Imperiale & Vanclay, 2021; Ryzewski & Cherry, 2012; Wardekker et al., 2023). These practices foster identity, belonging, and social ties—even passively (Fabbricatti et al., 2020; Ghani, 2020; Kitamura, 2021). Vernacular knowledge in restoring dwellings and maintaining traditional structures supports place attachment and adaptive capacity (Garnier, 2019; Huang, 2018; Klein et al., 2019; Minguez Garcia, 2021; Pomeroy & Tapuke, 2016; Shinde, 2017). A cohesive community is widely acknowledged as a decisive factor in enhancing resilience and the capacity to respond to natural hazards.

**Coping capacity:** It refers to a community's ability to anticipate, mitigate, and respond to the impacts of natural hazards. Cultural heritage, particularly traditional knowledge, practices, and memory transmission; plays a vital role in strengthening this capacity by offering strategies for risk management and recovery (Beel et al., 2017; Bui et al., 2020). Storytelling, vernacular techniques, and rituals offer lessons for risk management and recovery (Ghani, 2020; Johnson et al., 2018; Wardekker et al., 2023). Community art and rituals help communicate risk (Baumann et al., 2021). Traditional support systems and ecological knowledge improve early warning and communication (Lawangen & Roberts, 2023), while cultural technologies like hydraulic systems aid in mitigation and reconstruction (Shinde, 2017; Shirvani Dastgerdi & Kheyroddin, 2023). Preserving and applying traditional knowledge empowers communities in recovery (Pomeroy & Tapuke, 2016).

**Wellbeing:** It addresses the emotional and psychological impacts of natural hazards. Cultural heritage supports healing through rituals, religious practices, and commemorative activities like visiting sacred spaces or ruins (Huang, 2018; Saul & Waterton, 2017; Wardekker et al., 2023). These practices promote psychological relief and help communities process trauma. Festivals and community events restore normalcy (Baumann et al., 2021; Saul & Waterton, 2017), while community art offers safe spaces for expression and collective healing (Baumann et al., 2021). Though underexplored, the role of heritage in supporting psychological wellbeing is now recognized as a vital component of resilience (Arefian et al., 2021).

**Economic support:** Cultural heritage contributes to post-disaster recovery by offering alternative local economies. Heritage-related activities like traditional festivals, rituals, and performances attract tourism and generate income, supporting economic revitalization (Kitamura, 2021; Wardekker et al., 2023). Similarly, promoting traditional livelihoods, such as agricultural or hunting

practices, can foster community-based tourism and sustainable economic development (Lin & Lin, 2020). Although less studied, these strategies are gaining recognition as tools for resilience.

### 1.3.2 Outputs

Each sphere has been developed and unpacked by investigating the role that cultural heritage played in community resilience and have been called outputs.

Table 1. Outputs description per community resilience sphere

OUTPUTS			
Social cohesion sphere	Wellbeing sphere	Coping capacity sphere	Economic support sphere
<ul style="list-style-type: none"> <li>• Stronger social capital</li> <li>• Identity reinforcement</li> <li>• Sense of belonging / place attachment</li> <li>• Social continuity</li> </ul>	<ul style="list-style-type: none"> <li>• Psychological relief / trauma grieving</li> <li>• Routine normality</li> <li>• Safe space building</li> </ul>	<ul style="list-style-type: none"> <li>• Sense making of disaster</li> <li>• Lessons learned</li> <li>• Early Warning Systems</li> <li>• Build back better</li> <li>• Disaster risk mitigation</li> <li>• Increased disaster risk awareness</li> <li>• Empowerment to take control over recovery</li> </ul>	<ul style="list-style-type: none"> <li>• Increased touristic attraction and income</li> </ul>

### 1.3.3 Actions

Cultural heritage on its own cannot automatically ensure the realization of the outputs to the resilience spheres, but a connection between heritage and community resilience can only be activated through actions performed by those who benefit from and interact with cultural heritage.

These actions can be in either output or sphere and are as followed: active involvement, participation, and performance; sharing and experiencing; visiting sacred places and participating in remembrance activities; reconstruction and transmission of knowledge and practices; fostering people connection; place making, preservation, and maintenance; strengthening the human-place relationship; implementing traditional practices; commemorating disasters; recognizing and applying heritage-based solutions; acknowledging and preserving cultural knowledge; communicating disaster experiences; promoting tourism; and obtaining official recognition.

## 2. Research Design and Methodology

This study was carried out using participatory methodologies. All activities took place in the study area, the Val Resia valley in Friuli Venezia Giulia (Italy), between September 2024 and April 2025. The data collection was intended to complement the conceptual activity that led to the development of the framework illustrated in Chapter 1.3. Figure 3 shows the overall conceptual and empirical development of the activities undertaken in task 3.4

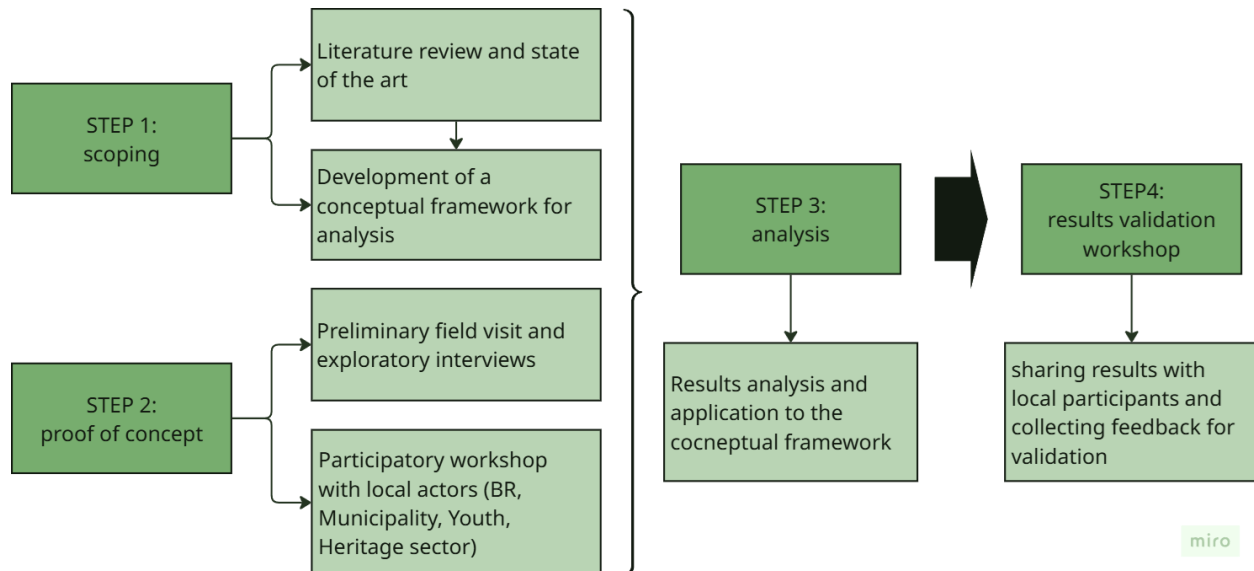


Figure 3 Overview of the steps that guided the data collection and analysis of this project

Data collection began with a preliminary field visit, during which in-depth interviews were conducted with key stakeholders. This was followed by a workshop inspired by the Future Search Conference approach, which brought together a diverse range of actors, fostering mutual learning and encouraging the development of concrete actions. Through this process, participants were able to articulate a shared vision around specific cultural elements considered crucial to community identity and resilience.

### 2.1 Preliminary field visit and interviews

In September 2024, a field visit was done with the objective of getting acquainted with the area and to obtain general information crucial to the development of the workshop and testing some initial results from the framework implementation based on literature review. Upon visits to the main sites identified in the previous phase (ethnographic museum, arrotino museum, biosphere reserve museum, Ucea, Stolvizza, Coritis), we conducted in-depth interviews with key stakeholders.

The In-depth interviews explored the following thematic areas:

- Main networks and cultural associations in Val Resia and how they contribute to heritage education/transmission within the valley.
- The past disasters experienced in Val Resia and main hazards
  - multi hazards that shrink the capacity of the community to react
  - small events that affect daily life
  - perception of being a mountain community that can influences their capacities and risk perception
- Main concerns for the future of Val Resia
- Main cultural expressions typical of Val Resia
  - With deeper investigations on potential implications for disaster management cycle
  - ⊖ Awareness within the community that certain aspects of daily life are identified as intangible heritage.
  - ⊖ The extent to which cultural aspects are considered relevant and connected to disaster risk reduction (DRR) and disaster risk management (DRM).
  - ⊖ Elements that are perceived to contribute to resilience.
  - ⊖ Possible signs of maladaptation, understood as cultural management choices that could weaken resilience rather than strengthen it.

## 2.2 Workshop

To co-develop an understanding of how intangible values - such as cultural identity, collective experiences and local practices- are key factors in fostering community resilience and can be integrated in different phases in the disaster risk management of the valley, we performed a workshop in April 2025, titled “Natural hazards and climate change: Cultural heritage as a pillar of resilience”.

### 2.2.1 Methodology

The workshop was structured following the future search conference approach, a technique that helped us involve diverse stakeholders and proceed chronologically starting by reflecting on the past, then assess the present and then co-create a vision for the future of the community (Nanz & Fritsche, 2012; Weisbord & Janoff, 2010). This structure guided the entire workshop, which was divided into three interconnected activities, one focused on the past of Val Resia, one focused on the present and the last one focused on a desired future for the valley (Figure 4). In each activity we employed several participatory techniques to foster dialogue, reflection and strategic thinking.

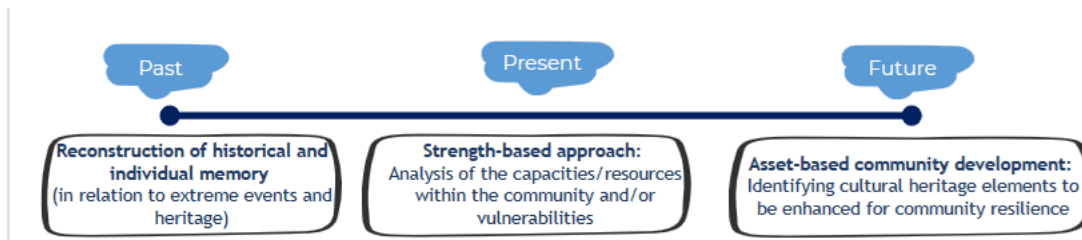


Figure 4 Overview of the structure adopted for the participatory workshop

**Activity 1 – Past:** in this first phase, participants were divided into groups to exchange on the occurrence of past extreme events, and to map them. Additionally, they were also asked to identify significant cultural heritage, places, and traditions that helped face these past threats. This first activity helped create a shared understanding of the topic addressed, building a common ground useful to proceed with the analysis. This activity highlighted infrastructural and natural elements, resource management techniques, and places affected by natural hazards.

**Activity 2 - Present:** this activity focused on assessing the present by using a strength-based approach. Groups identified community strengths and weaknesses in responding to a specific hazard, using a matrix of climatic threats. Each group presented their findings, facilitating a comprehensive understanding of community resilience.

**Activity 3 - Future:** this final activity employed the future backcasting approach (Van Der Voorn et al., 2023), a strategic planning method that starts with envisioning a desirable future and works backward to identify the steps needed to achieve it. Groups envisioned future scenarios for 2045, focusing on enhancing unique elements of the valley to increase resilience. Before the activity began, examples of good practices were provided to stimulate imagination and facilitate scenario creation. Each group imagined a future scenario, such as the year 2045, considering which unique elements of the valley will have been enhanced to increase resilience, how it was done and by whom. They explored how cultural heritage could be further utilized to respond to natural disasters and leverage existing heritage to become more resilient. Options included each group focusing on a single impact, such as fires, or a specific type of cultural element, like intangible heritage. This activity stimulated creativity and strategic foresight, helping participants articulate long-term goals and actionable strategies.

The workshop concluded with presentations of the scenarios by each group, the provision of feedback and discussion of results.

## 2.2.2 Participants

Participants for the workshop were identified collaboratively with our local partners, specifically Val Resia Municipality and Julian Alps Biosphere Reserve. The participants were invited, considering their critical role and expertise in the topics addressed during the workshop. Specifically, these included conservation, active promotion and awareness raising of local heritage, and disaster risk

reduction governance. Therefore, all participants belonged to and came as representatives of local organizations, associations, and institutions operating in Val Resia. We had a participation of 13 people.

The participants were divided into three groups, each facilitated by one of the researchers of the projects. An extra researcher rotated among groups to monitor the situation and address possible issues or doubts. Groups were made to try to ensure that each had participants that could provide a balanced point of view (Nanz & Fritsche, 2012). This was done by taking into consideration the role that each one of the participants plays in the community, considering the following four categories:

- Institutional subjects related to the park
- Institutional subjects related to the Municipality of Resia
- Associations operating in the cultural and environmental protection fields
- Youth council of the park

## 2.3 Data analysis

The analysis of workshop results was developed through two subsequential steps: data systematization and subsequently data analysis.

Data has been systematized into excel spreadsheet differentiating between data produced by participants during workshops activities and researchers' observations. Data was systematized following a specific coding system. We noted in which activity the data was produced (i.e. activity 1,2,3), the type of raw data (i.e. post-it or notes) and the group. This information was systematized in the reference ensuring anonymization. The full structure of the coding is depicted in Table 2. As raw data were collected in Italian, we first transcribed data in Italian and secondly translated them into English.

*Table 2 Metadata of collected data, transcribed, categorized and stored as shown*

Reference	Activity	Type of Data	Data Format
Field Notes, 16-17 September 2024	Preliminary Field Visit	Notes based on field observations and interviews	Word
Activity 1, Group A, 12 April 2025	Workshop – Activity 1 (Past)	Post-it	Excel
Activity 1, Group B, 12 April 2025	Workshop – Activity 1 (Past)	Post-it	Excel
Activity 1, Group C, 12 April 2025	Workshop – Activity 1 (Past)	Post-it	Excel
Activity 2, Group A, 12 April 2025	Workshop – Activity 2 (Present)	Post-it	Excel
Activity 2, Group B, 12 April 2025	Workshop – Activity 2 (Present)	Post-it	Excel

Activity 2, Group C, 12 April 2025	Workshop – Activity 2 (Present)	Post-it	Excel
Activity 3, Group A, 12 April 2025	Workshop – Activity 3 (Future)	Post-it	Excel
Activity 3, Group B, 12 April 2025	Workshop – Activity 3 (Future)	Post-it	Excel
Activity 3, Group C, 12 April 2025	Workshop – Activity 3 (Future)	Post-it	Excel
Observations, Activity 1, Group A, 12 April 2025	Workshop – Activity 1 (Past)	Notes	Excel
Observations, Activity 1, Group B, 12 April 2025	Workshop – Activity 1 (Past)	Notes	Excel
Observations, Activity 1, Group C, 12 April 2025	Workshop – Activity 1 (Past)	Notes	Excel
Observations, Activity 2, Group A, 12 April 2025	Workshop – Activity 2 (Present)	Notes	Excel
Observations, Activity 2, Group B, 12 April 2025	Workshop – Activity 2 (Present)	Notes	Excel
Observations, Activity 2, Group C, 12 April 2025	Workshop – Activity 2 (Present)	Notes	Excel
Observations, Activity 3, Group A, 12 April 2025	Workshop – Activity 3 (Future)	Notes	Excel
Observations, Activity 3, Group B, 12 April 2025	Workshop – Activity 3 (Future)	Notes	Excel
Observations, Activity 3, Group C, 12 April 2025	Workshop – Activity 3 (Future)	Notes	Excel

Once data were systematized and coded, each of the co-authors took charge of one specific group analysing data through an inductive qualitative thematic approach. This process involved identifying main topics, specific discourses and main concerns emerging in each activity. The results of this individual analysis were cross validated by the whole team during a workshop. The outcome of the workshop was the identification of dominant and marginal discourses across the different activities and the different groups in relation to perceived dimensions of resilience, most pressing natural hazards and role of traditions and tangible or intangible heritage. The disaggregated data are available for consultation in annexes (see Annex 1, 2,3).

Once the main discourse was identified, the results were collectively discussed in relation to the overarching themes and key research questions developed throughout the study. In Chapter 5.1 we

analysed the characteristics that inhabitants of Val Resia perceive as essential to defining their community, highlighting the multi-faceted nature and meaning of community and sense of community. In Chapter 5.2, community members' perception of Val Resia resilience is discussed with reference to the analytical categories outlined in the emBRACE framework. We benchmarked the perceived determinants and obstacle of community resilience, identified in Activity 2, against the domains that shape resilience, highlighting common and distinctive patterns between resilience in the past and in the present.

Ultimately in Chapter 5.3 we specifically addressed the role of cultural heritage for community resilience by applying the framework outlined in Chapter 1.3. Recognizing the dynamic nature of both cultural heritage and community resilience, we categorized the elements determinant for community resilience in the past (outlined in Activity 1) as well as the future desired outcomes to achieve a more resilient society (outlined in Activity 3). We then examine the specific roles attributed to cultural heritage in achieving the outputs identified within the framework.

### 3. Val Resia PoC

The chosen case study to evaluate our framework, designed to illustrate the relationship between community, risk, resilience, and cultural heritage, is Val Resia. Situated within the UNESCO Biosphere Reserve of the Julian Alps (Figure 5), this isolated valley faces considerable exposure to natural hazards. Resia is one of the 11 municipalities that make up the Julian Alps Biosphere Reserve, established in June 2019. The entire region was later recognized as a transboundary biosphere reserve with its counterpart in Slovenia in 2024 (Ente Parco Naturale delle Prealpi Giulie, 2019).

Val Resia hosts a cohesive and resilient community recognized as a notable linguistic and cultural enclave, dedicated to preserving distinct traditions and heritage.

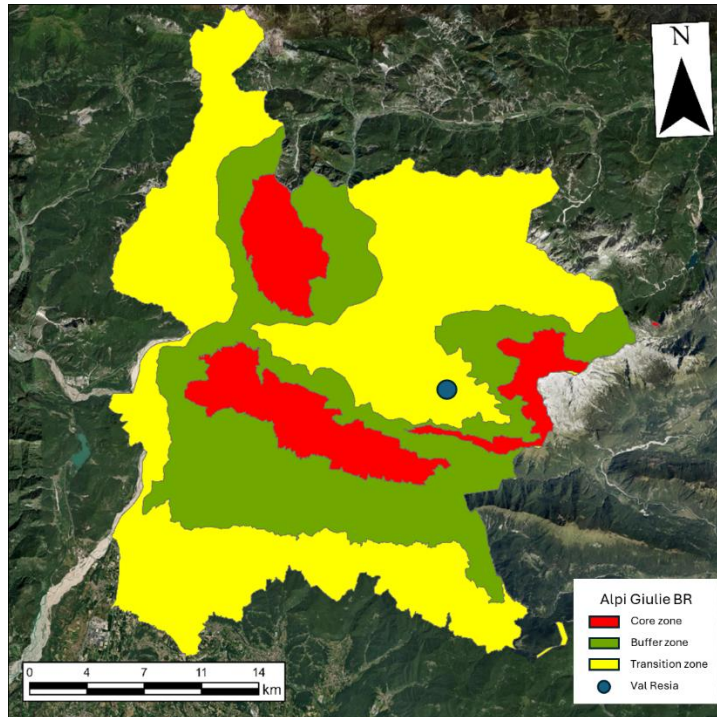


Figure 5 Zonation map of the Julian Alps (Italian side) and the exact location of Val Resia PoC. Map produced by Alessio Gatto and Emanuele Intriari.

The municipality of Resia counts 916 inhabitants (UrbiStat, 2025) distributed in 5 main villages: Prato di Resia (Ravanzä), seat of the local government, San Giorgio (Bilä), Oseacco (Osoane), Gniva (Njivä), Stolvizza (Solbiza) and Ucea (Učja) and other four hamlets Lischiazze (Liščaze), Gost (Höst), Coritis (Koritö) (Comune di Resia, 1990).

The furthest hamlets are Ucea and Coritis, the first one is located at the border with Slovenia, and the latter lies at the foothill of Mt. Canin. Coritis was destroyed as the consequence of the 1976 earthquake and its last school closed in 1980, forcing people to move to the valley and abandon the village. The same fate befell Ucea, even though it is not yet abandoned, nowadays it has only 4 residents and it populates again during weekends when the old inhabitants return. After the 1976 earthquake people moved out mainly to Tarcentino and other bigger villages in the surrounding area. The last café closed in 2010, there is no phone reception nor electricity and gathering spaces (Field Notes, 16-17 September 2024).

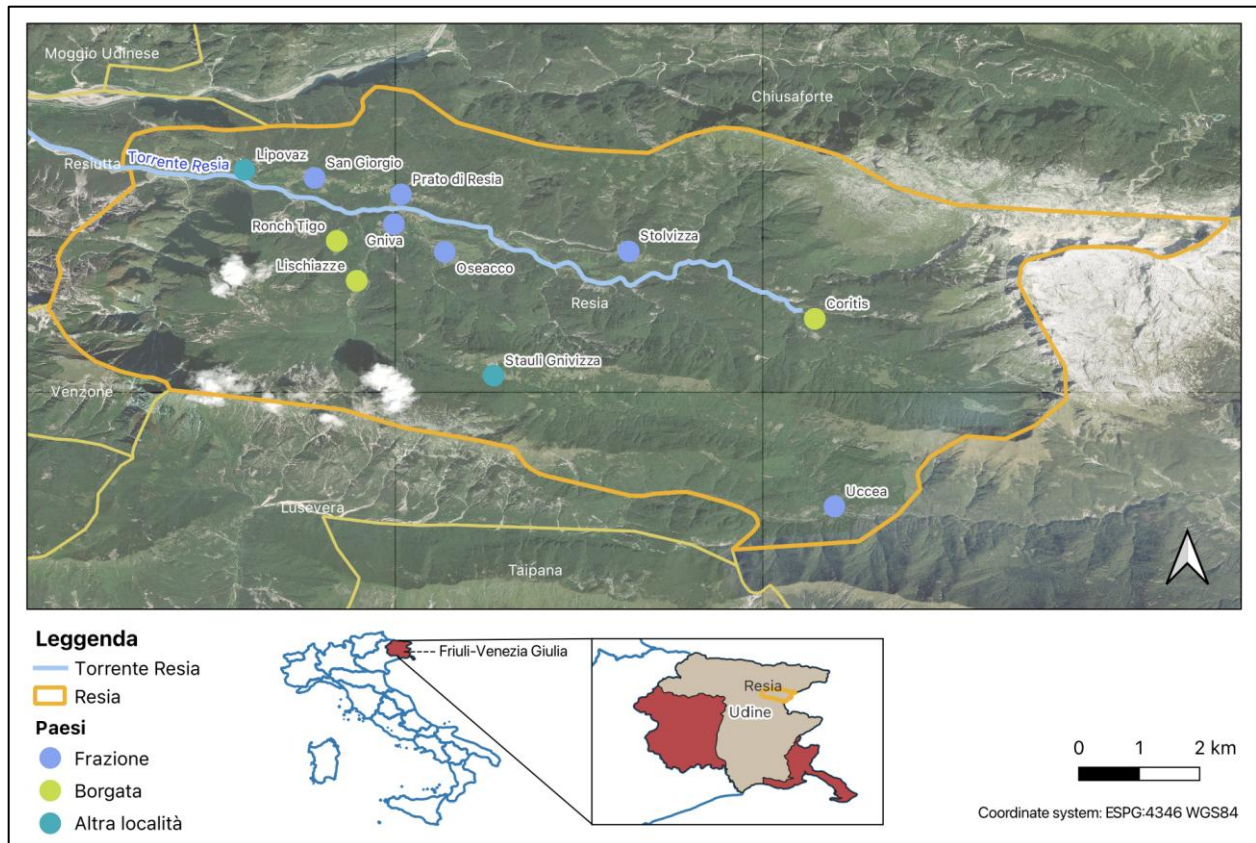


Figure 6 Detailed satellite map presenting Val Resia. Map produced by Lavarello Schettini Romina.

### 3.1 Geological and topographic characteristics

Val Resia is an alpine valley located in the region of Friuli-Venezia Giulia, within the Province of Udine. It extends for about 20 kilometers from west to east. The valley is enclosed by the Staulizze, Preburg, SartBaba, and Spric mountains to the north; the Canin group (2,587 m) to the east; Mount Musi to the south; and the Musi chain (1,869 m) and Mount Plauris (1,959 m) to the southwest. The valley floor is marked by moraine terraces hosting the main settlements (Peraz, 2025). The gateway of the valley is represented by a short stretch of narrow gorge carved between two steep rock walls, by the village of Resiutta.

Lithologically, the valley is entirely sculpted in Dolomite with remains of glacial activity on Mt. Canin (*Resia: Wild, Secluded Valley in the Julian Alps*, 2010), due to its geological composition it is strongly subjected to landslides that cover 841.94 hectares (7.32% of the municipal area) and are mostly concentrated at the valley entrance near the SP42 road, between San Giorgio and Prato, Prato–Gniva, Gniva–Lischiazze, near Gnivizza, and Uceea along the SR646 (Peraz, 2025).

The valley is crossed by the Resia River originated from the western slopes of Mount Canin and with a basin of about 107 km<sup>2</sup>. Historically, the river shaped the economy of the valley. The Resia River was crucial for several economic activities such as, the transportation of timber, for running mills used to grind corn and beans, and also to process fibres for small textile workshops, for fishing and for the extraction of building materials such as sand, gravel, and stone (Peraz, 2025).

## 3.2 Climatic features

The Julian Prealps, in which the valley is located, are the wettest area in Friuli Venezia Giulia and one of the wettest areas in Europe. Annual precipitation exceeds 3,000 mm in municipalities such as Resia, near Mount Musi. On average, the Musi area experiences 120–125 rainy days per year, peaking at 150 in very wet years. Months with no rainfall are rare and are usually limited to winter (OSMER & GRN, 2023).

The valley has a long history of dealing with landslides, floods, avalanches, fires and earthquakes, as well as other hazards. Local communities are concerned about an increase in the frequency and intensity of these events due to changing climatic patterns (Field Notes, 16-17 September 2024). These concerns are corroborated by climatic data showing an increase in extreme weather phenomena that exacerbate hydrogeological hazards such as landslides, debris flows, floods and storm damage (Arpa FVG, 2018). Another side effect is the long periods of drought caused by the African anticyclone, which was almost unknown in the region until 20 years ago and now brings prolonged summer heat and dryness. This raises the risk of wildfires in the dry limestone mountains covered by black pine, Scots pine and thermophilous broadleaves. The effects are also evident in the increased occurrence of lightning storms caused by the intrusion of cold air, which ceases the anticyclone but triggers violent storms, lightning and intense but uneven rainfall. This makes the Julian Prealps one of the areas in Europe with the highest lightning density. The most significant impact of these lightning storms on the valley is the wildfires they cause. Unlike in the past, these fires have become more dangerous; instead of small, localised burns, they now develop into large crown fires, making them one of the valley's major hazards (Arpa FVG, 2018; Peraz, 2025).

## 3.3 Natural Hazards

Val Resia is exposed to several natural hazards. Analysis conducted by colleagues engaged in Task 7.3.3 have investigated the different hazards that manifest in Val Resia and the Julian Alps Biosphere Reserve.

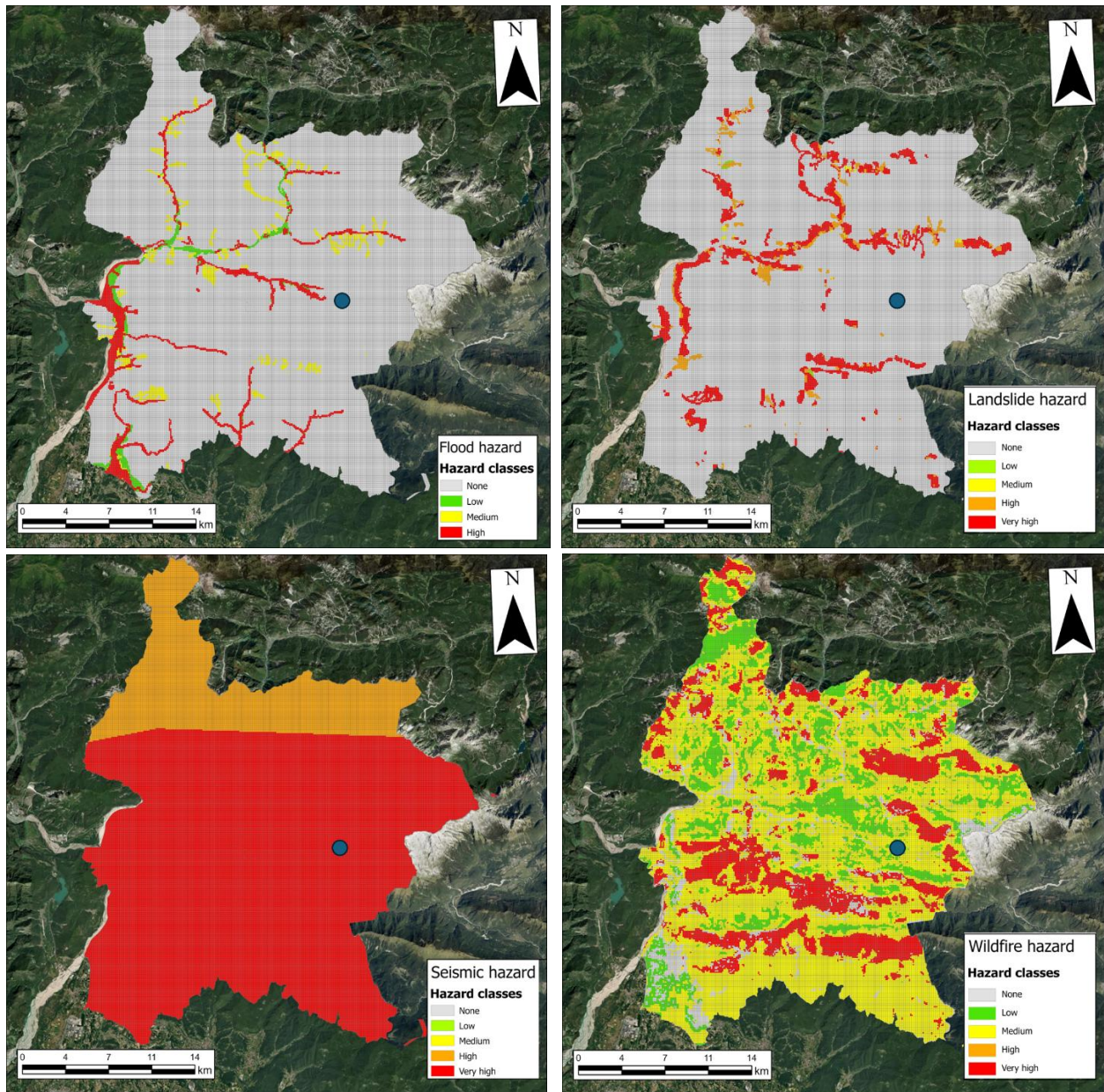


Figure 7 Representation of natural hazards (from top-down, left to right: flood, landslide, seismic, wildfire) within the zonation map of the Julian Alps (Italian side) and in relation to Val Resia PoC. Map produced by Alessio Gatto and Emanuele Intriari.

### 3.4 Socio-demographic characteristics

#### 3.4.1 History

Val Resia's geographical isolation has deeply shaped its historical and cultural development. Unlike neighbouring valleys with natural trade routes, Resia remained secluded, preserving an archaic Slovene dialect, ancient music, dances, and traditions that are still practiced today. The valley was

settled between 625 and 631 AD by Alpine Slavs, who founded the early Slavic state of Carantania. During the Middle Ages, Val Resia came under the control of the Benedictine Abbey of San Gallo in Moggio Udinese (1085), later becoming a Venetian feudal domain until the abbey's suppression in 1773. In 1805, under Napoleonic rule, the current municipality was formed by merging four villages. After a brief period under the Austrian Empire, Resia was annexed to the Kingdom of Italy in 1866 (*Resia Valley – Informations*, 2013). The valley was the setting for the 1900 wars that reshaped the region by redefining its borders, as well as by constructing mule tracks, mountain shelters and fortifications (*Ecomuseo Val Resia - Un Museo a Cielo Aperto Ai Piedi Delle Alpi Giulie*, 2024).

Migration has always been a constant characteristic of the Resian community. Due to poor living conditions, many Resians were used to emigrate seasonally for job seeking, especially as itinerant knife grinders (arrotini) to Austria, Bohemia, and Moravia. Emigration intensified in the 19th and early 20th centuries, becoming permanent for many. By the 1930s, unemployment led to mass migration to European countries and Italian cities, causing depopulation. Economic growth in the 1960s–70s reduced emigration, though the lack of local industry led many to work and often live outside the valley (*Ecomuseo Val Resia - Un Museo a Cielo Aperto Ai Piedi Delle Alpi Giulie*, 2024).

One of the most impactful events of the last century, that deeply shaped the Val Resia community was the devastating earthquake of 1976 that severely damaged several Resian villages. Reconstruction lasted about 15 years, supported by state aid and strong community involvement (*Ecomuseo Val Resia - Un Museo a Cielo Aperto Ai Piedi Delle Alpi Giulie*, 2024). This event changed completely the way of interaction between the community and the environment (Field Notes, 16-17 September 2024).

### 3.4.2 Val Resia Today

Many identified the 1976 earthquake as a turning point for the Val Resia community. During this period, the valley underwent a complete transformation, partly triggered by the arrival of the contemporary 'outside world'. A progressive decline in population, with most people migrating outside the valley, led to its gradual depopulation. The architecture changed, with stavoli (traditional mountain huts) being abandoned and most houses being rebuilt in a modern style (Field Notes, 16-17 September 2024). The young, educated workforce moved towards more lucrative and different professions than the traditional ones. The fields were abandoned, as were forestry and pastoral activities (Longhino, 2017). There have also been significant changes in forest management and cultivated land. As one community member explained, untamed forests have increased: 'Once we could see the neighbouring villages; now the forest has grown and we cannot see each other anymore' (Field Notes, 16-17 September 2024). According to data from 2021, the utilised agricultural area (UAA) accounts for 15.59% of the total agricultural area. Abandoning the traditional economic model based on agriculture, forestry, and pastoral practices has led to a loss of biodiversity, and it also poses challenges in terms of managing natural risks, such as fires, which have been exacerbated in recent years by climate change (Peraz, 2025).

Despite its progressive depopulation, the valley has not been abandoned. Many people return at weekends and during the summer. Although Val Resia is not a touristic valley, there are signs of development, and the population is determined to revitalize it. Several cultural associations preserve the valley's cultural heritage and take care of the area (Peraz, 2025). A major driver of sustainable development in the valley is the establishment of the Julian Prealps Biosphere Reserve in 2019. The Biosphere Reserve provides an opportunity for the valley to achieve sustainable development while remaining committed to the territory's values and in line with the themes developed by the Alpine Convention, such as quality of life in the Alpine area, tourism and production zones, agriculture, animal husbandry and forestry, energy self-sufficiency, and the Alpine ecological network (Santi et al., 2020).

## 3.5 Cultural aspects

### 3.5.1 Intangible heritage (Festivals, music, dance, fairy tales....)

The greatest value of the Resian Community is its intangible heritage, consisting mainly of language, dance and music, unique characteristics of the ethnic group, which due to their archaic nature, the smallness of the community and the threats due to the socio-cultural changes, make it even more precious and interesting from an anthropological-cultural point of view (*Ecomuseo Val Resia - Un Museo a Cielo Aperto Ai Piedi Delle Alpi Giulie*, 2024).

#### *The Pust*

The most celebrated festival is the Pust- “Carnival” in the Resian language. It takes place in the hamlet of San Giorgio from Shrove Thursday to Ash Wednesday; the event marks the symbolic end of winter and the beginning of the new year according to the rural calendar. This secular liturgy is characterized by spontaneous celebration, where villagers don “beautiful” and “ugly” masks and dance to the hypnotic strains of Resian music, played exclusively on a modified violin and cello to echo the sound of ancient bagpipes. The beautiful masks, traditionally worn by unmarried girls, feature white dresses adorned with vibrant ribbons and elaborate hats made of hundreds of paper flowers. In contrast, the ugly masks are improvised, often using worn or inverted clothing and face paint. The Pust is not merely a festive occasion but a moment of cultural renewal, where the archaic idiom, dance, and music of the Resian people are revived with expressive intensity (*Ecomuseo Val Resia - Un Museo a Cielo Aperto Ai Piedi Delle Alpi Giulie*, 2024).

#### *Music and dances*

Resia is also well known for its music and dances, considered as the oldest cultural expressions in the valley, likely dating back to the arrival of the Resian community in the 4th Century. The traditional orchestra consists of only two instruments: the *citira* (violin) and the *bünkula* (cello), with the rhythmic foot-stomping of the dancers considered a vital "third instrument." These string instruments are relatively recent replacements for the *dudy*, a type of bagpipe formerly used in the valley. Music

is learned by ear, passed down from elder musicians to younger ones, often performed from memory and frequently improvised. Dances are equally distinctive, marked by a fast and intense rhythm. Dancers always perform in pairs without physical contact, often spinning and switching places. Variations include the cross dance, circle dance, and the dance of the *lìpe bìle maškìre* (beautiful white carnival masks). In some hamlets, like Oseacco and Ucceà, older dance styles persist, featuring continuous movement or unique spinning techniques (*Ecomuseo Val Resia - Un Museo a Cielo Aperto Ai Piedi Delle Alpi Giulie*, 2024).

The preservation and transmission of the Resian music and dance are actively maintained by the Folklore Group “Val Resia”, officially founded in 1838. Considered one of the oldest folklore groups in Italy and Europe, it continues to play a vital role in showcasing traditional Resian music, dance, and costumes. The group performs regularly during the Pust, village festivals, and weddings, involving the entire community and keeping the valley’s cultural heritage vibrantly alive (*Resia Valley – Informations*, 2013)

### *Resian language*

One of the most distinctive cultural features of Val Resia is its local dialect, Resian, which has been remarkably well preserved and extensively studied over the years. Resian (*roseàns*) is a Slovene minority variety spoken exclusively in Val Resia and is protected under Italian state law no. 482/1999 (AlpiLink, 2023). From a dialectological perspective, Resian is the northwesternmost member of the Slovene Littoral dialect group (*primorščino narečje*). Unlike other Slovene dialects spoken in Italy, it does not continue across the Slovenian or Austrian borders and instead maintains a strong, independent local identity. The Resian community emphasizes its autonomy from Slovenia and upholds a folkloric myth that traces its ancestry to Russia (Dapit, 2001). The ethnonym *roseàns* is used by both locals and neighbouring Friulians, clearly distinguishing the group from “Slovenes” or “Slavs” (Dapit, 2001). Since the 1990s, efforts have been made to develop a standardized Resian orthography and grammar. However, this project has been politically stalled since 2020 (AlpiLink, 2023; Clemente, 2021).

Linguistically, Resian consists of five main varieties, each corresponding to one of the historical *comuni*: San Giorgio, Gniva, Oseacco, Stolvizza, and the newer settlement of Prato (Steenwijk, 2020). The geographic isolation of the valley has played a crucial role in preserving the archaic features of the dialect, as well as the region’s rich oral traditions, songs, and dances, many of which are still passed down through generations (Clemente, 2021).

### *Knife grinders (arrotini)*

The traditional craft of the arrotini (itinerant knife grinders) from Val Resia is a unique example of mobile craftsmanship rooted in local culture. Historically, these artisans travelled across regions like Austria, Bohemia, Moravia, and northern Italy, offering services such as sharpening tools, tinning, repairing umbrellas and pots, and working with glass. Initially, their migration was seasonal, and they carried their tools in a shoulder box called a *krösma* or *krama*. Over time, they upgraded to two-

wheeled carts and eventually bicycles equipped with grinding wheels. After World War II, many settled in cities and opened workshops, and today, some still practice the trade using vans. The legacy of the arrotini is preserved by the Arrotini Val Resia Association, which established a museum and monument in Stolvizza (Stolbica). Every year, on the second Sunday of August, the Festa dell'Arrotino celebrates this enduring tradition, bringing together active artisans and the community (Comitato Associativo Monumento all'Arrotino APS, 2025; *Slovenci v Italiji*, 2025).

### *Fairy tales from Resia*

Val Resia preserves a rich and fascinating oral tradition that has endured to the present day, encompassing fables, fairy tales, legends, narrative songs, and myths. These stories are not only a form of entertainment but also a means of transmitting local values, beliefs, and cultural knowledge. Fairy tales from the valley often feature kings, princes, and princesses, as well as wild beings such as the Dujak, his companion Dujačesa, and their child Dujačesica. These mysterious creatures are said to inhabit the forests and speak a language unknown to humans. Other fantastical figures include the Gärđinica, whose name derives from the Resian adjective gärd ('ugly'), and legendary characters like Dardej and Löl Kutleć. Dardej is still remembered for helping the people of Stolvizza preserve the pastures of Mount Sart, while Löl Kutleć is celebrated for his strength, reminiscent of the Slovenian folk hero Martin Karpan.

Animal fables are also widespread, with the fox (lisica) and the wolf (uk) as frequent protagonists, alongside other animals such as the hare (zec), rooster (pitilen), dog (päs), cat (tuca), bear (midved), and more. In Stolvizza, local legends such as the tale of Kodkodeka, who set fire to her house and the entire village, and the story of Mount Castello (Ta-na Rado) are still well known. Popular songs include mythological narratives like Sveti sinti Lawdić and Linčica Turkinčica. The former tells of King David's journey to hell in search of his family and their salvation through his intervention. The latter features Matjaž, the Hungarian king who escapes Turkish imprisonment with the help of Linčica Turkinčica, the sultan's daughter, who later marries his third son. Another notable figure in local songs and stories is Lepa Vida, known in the valley as Lipa Lina or Lipa Wida, who, like King Matjaž, holds a central place in Slovenian cultural and literary tradition. Religious narrative songs such as Tičica Arličica and Sveti sint'Antunišeć also remain popular in the valley. The tradition of storytelling was once deeply rooted in daily life.

The storyteller was the person in charge of transmitting this oral heritage to the young generations. In the evenings, after a long day of work, families would gather, and children, along with adults, were entertained by storytellers. Each village had its own skilled narrators who could captivate audiences with their expressive storytelling (*Resia Valley – Informations*, 2013).

### 3.5.2 Traditional architecture

The architecture of Val Resia reflects the community's deep connection with its natural environment and seasonal rhythms. Historically, residents spent winters in the valley towns and moved to stables in spring, bringing with them all the necessities for domestic life.

These stables (stavoli), especially in Sella Carnizza, remain well-preserved and showcase the simple yet functional design of the past: a single ground-floor room and an attic used as both a bedroom and barn, surrounded by cultivated fruit trees, vegetables, legumes, potatoes, and maize.

The Resian house is typically rectangular, built with thick stone walls and a double-pitched wooden roof. A distinctive feature is the external stone staircase leading to a wooden balcony, used for drying agricultural products and accessing the attic barn. Despite the damage caused by the 1976 earthquake, some structures, like the Pieve di Prato, a symbol of local pride, remain intact. Scattered throughout the valley are also small churches and chapels, further enriching the cultural landscape. These architectural forms are not only practical but also serve as expressions of the community's resilience and adaptation to their mountainous environment (*Ecomuseo Val Resia - Un Museo a Cielo Aperto Ai Piedi Delle Alpi Giulie*, 2024).

### 3.5.3 Typical products of the land

Agricultural production has long been a defining feature of Val Resia, serving as the primary means of sustenance for the local community both in the past and today. It remains a vital activity, with the region recognized for its diverse and high-quality products. Among the principal goods are various fruits, elderflowers, mushrooms, and wild herbs used for culinary and medicinal purposes. Traditional crops such as potatoes, beans, and buckwheat are also cultivated, alongside the renowned Resian garlic, which has been acknowledged as a Slow Food Presidium in 2004 (*Ecomuseo Val Resia - Un Museo a Cielo Aperto Ai Piedi Delle Alpi Giulie*, 2024).

## 4. Results

### 4.1 Preliminary field visit and interviews

Preliminary in-depth interviews were conducted between 16-17 September 2024 (Field Notes, 16-17 September 2024). These interviews amounted to three interviews in total and involved local actors from the three fields:

- Municipal administration
- Cultural heritage management
- Natural Park management

The interviews were conducted upon prior agreement and signing of consent form for data treatment. Data was analysed in an anonymised way, and analysis serves as basis to develop the right methodology for the participatory workshop (see next chapter) and as foundational background to the narrative on linkages between cultural heritage and community resilience.

Results have been jointly collected by the research group during a debriefing session, and are here conveniently summarised in main key emerging topics:

**Impact of past events (earthquake, floods, fires):** The 1976 earthquake marked a sharp division in community life, accelerating modernization and changing housing, livelihoods, and social dynamics. This event is seen as a turning point for the community, determining sudden changes also at the level of heritage transmission (e.g. sudden disappearance of storytelling in favor of television). Recent floods and fires (notably in 2022 and 2023) have tested the community's resilience, with improvised solutions (e.g., temporary roads along the river, etc.) highlighting adaptive capacity but also the frequent threats that impact the community. The definition and perception of disaster risks are shaped by the community's engagement with their surrounding environment. Disasters have been recognized when they directly affect livelihoods specifically. Past disaster experiences have been recognized as elements fostering strong social cohesion and coping capacity, with resilience seen as an embedded element of the community.

**Socio-demographic and environmental change:** Traditional settlement patterns prioritized safety, with vernacular architecture and water management systems designed to mitigate risks. Recent changes in rain patterns and reduced land management have increased hydrogeological risks. Depopulation and modernization have altered land use, leading to less care for the territory and increased hazards.

**Social cohesion and knowledge transmission:** Social cohesion is generally defined as a characteristic of the community, and deeply rooted in shared history and mutual support, especially during crises. However, there is little explicit association between participation in traditions and ceremonies and resilience. Oral transmission of stories and local knowledge linked to human-nature engagement has declined since the 1950s due to literacy, schooling, and media. The 1976 earthquake has definitively fastened this process with the introduction of newer sources of entertainment. Efforts to preserve language and traditions continue through the institutionalization of the language and academic efforts, but generational gaps remain. Val Resia's unique language and culture attract interest from neighboring regions and Slovenia, seen as the cradle of Slovenian culture. Historical migration and external influences have shaped local identity, but the sense of belonging remains strong.

**Heritage perception and community identity:** Interviews revealed a clear distinction between institutionalized heritage (museum, official conservation) and community-shared or "living" heritage. Local practices experienced at an individual level by citizens are perceived as different from the practices preserved at the institutional level, as well as diverging perspectives on specific local practices are not recognized at institutional level. This hierarchical structure on cultural heritage has been considered when developing the participatory workshop, as it is essential that the local participants refer to living heritage rather than institutionalized heritage.

**Governance, Biosphere Reserve, and Community Engagement:** The establishment of the MAB Biosphere Reserve and related governance structures has brought formal recognition but limited concrete benefits for the population. The creation of a school within the reserve aims to valorize the

territory and foster community identity. Engagement with youth and local associations is ongoing, but skepticism remains about the practical impact of these initiatives.

The results of this preliminary field visit led to recognizing that changing landscape and increased environmental risks due to depopulation led to altered land management. Due to these changes, and as consequence of an abrupt change in livelihoods after the 1976 earthquake, there is a perceived gap between institutional and living heritage. The transmission of local knowledge and traditions, especially across generations, is hindered by these changes, although social cohesion is still considered one of the distinguishing traits of the community of Val Resia, especially due to their need to rely on one another due to their remoteness.

## 4.2 Participatory workshop

This Section looks into the main results emerging from the workshop activities. As the workshop activities were developed following a temporal development and a logic sequence (namely analysing past, present and future), results are here presented following the chronological order to grasp the linearity of emerging perceptions from the workshop participants throughout the participatory process. To facilitate comprehension, we aggregated the data developed by the different groups and highlighted common patterns. Details of the data collected for each group can be found in the Annexes.

This facilitated the identification of both changes in the concepts and assessments of resilience over time, as well as any consistent trends or fundamental elements that have characterised the resilience of the Val Resia community throughout different periods.

### 4.2.1 Activity 1: Past

As first activity, participants to the workshop have been asked to exchange on the main extreme hydrogeological or climatic events they either experienced or heard about, that they consider to be relevant to the history of Val Resia. Hereafter are listed the extreme events identified as most relevant for Val Resia by the workshop participants. These events have been located both temporally, along a timeline, and spatially, to identify hotspots and most affected areas. In parallel to this activity, participants to the workshop have been asked to identify significant cultural heritage, places, and traditions that they perceive might have been critical to face these past threats. These elements have been grouped and analysed as main resources, identified by the participants as helpful for the management of past natural hazards.

#### *Most relevant hazards: Localization in time and space*

This section outlines the extreme events that community members identified as most significant, detailing their main characteristics and their impact on life in Val Resia. While this list may not be exhaustive of all the natural hazards that have affected the valley, it highlights those events that workshop participants identified as most influential in shaping their community and approach in

managing the landscape. The timeframe considered for the past is broad, stretching from 1746 to as recently as 2022. However, it is noteworthy that most events cluster within the last three decades (1990–2022), with three exceptions: two major floods (1746 and 1970) and the pivotal earthquake of 1976.

Val Resia has been affected by several natural hazard-related disasters over the past three centuries: windstorms, floods, wildfires, and landslides. Memories of these events shared by participants were organized systematically in a timeline (Figure 8), to simplify the temporal succession of the natural hazards that characterized the valley over the last centuries. In the timeline, some dates have been grouped together either because participants could not recall the exact year, or because the same event was mentioned by different groups but associated with different years.

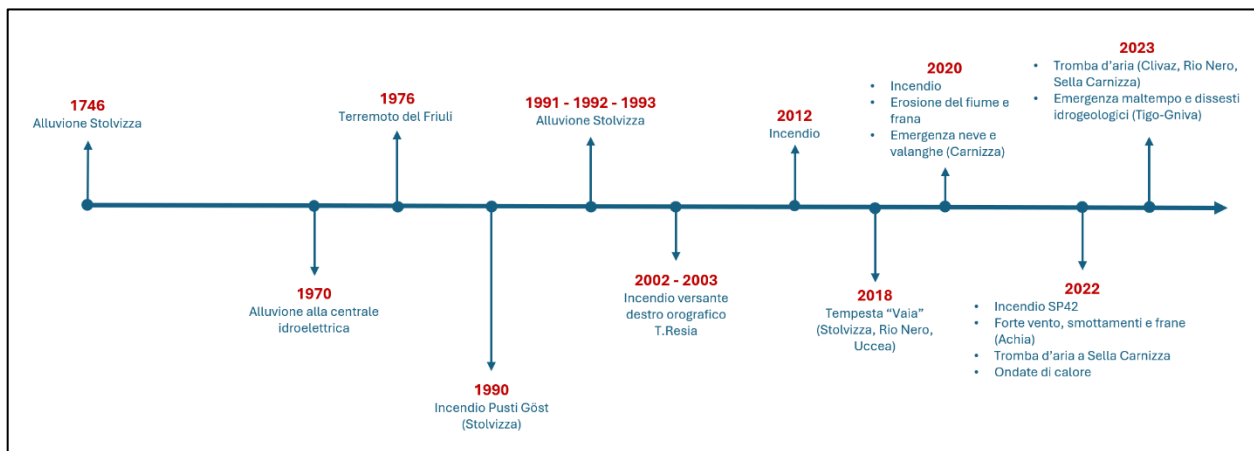


Figure 8. Timeline of past disasters based on the events highlighted by the workshop participants

The timeline indicates an increase in disaster occurrences since 1900. This trend could be attributed not only to the effects of climate change but also to the fact that more recent events were experienced firsthand by the respondents, making them more memorable. Some of the most important events that were highlighted during the workshop were:

- **Floods (1746, 1970, recent years):** Flood events have repeatedly shaped the collective memory of the valley. A major flood in 1746 destroyed the original settlement of Stolvizza, prompting its relocation to higher, more stable ground. In 1970, a significant flood tied to a hydraulic reservoir caused major damage, raising concerns about infrastructure and water management. More recent floods, triggered by intense rainfall and poor land maintenance, have further threatened areas like Stolvizza, now built on streambeds, and caused erosion and landslides in other parts of the valley. These events highlight both historical and ongoing vulnerabilities to water-related disasters.
- **Earthquake of 1976:** This earthquake has been a pivotal event for the valley. It strongly changed the layout and the spatial planning of the settlements as it destroyed or severely damaged most villages in Val Resia, except Stolvizza. Further than changes in housing patterns, according to participants' perceptions, it marked the transition from a rural to a

more modern society, hastening some modernization trends that communities of Val Resia were already experiencing. The earthquake speeded up the transition away from a society and economy based on agricultural practices, introducing other newer sources of income and livelihoods. This change entailed not only modifications in the economic fabric, but also in the housing infrastructure (i.e. no more stove as heating system, stable below or attached to the house) as well as in social dynamics as a strong outsource migration flow started. The earthquake was a critical event for community life in Val Resia: if on the one hand showed a strong sense of solidarity among community members that strongly helped each other's in a situation of strong emergency; on the other hand there is a general perception that after the earthquake bonds among community members are weaker and an increased individualism is perceived.

- **Frequent Fires (including 2002, 2012, 2020, 2022):** Fires have repeatedly affected the valley, largely due to unmanaged forests and the spread of flammable tree species. Traditionally, forest composition and pasture management helped prevent wildfires, but abandonment has increased vulnerability.
- **Climate-related Events (especially 2022–2023):** Dry summers, lightning storms, and extreme weather (wind/rain) have stressed infrastructure and ecosystems. Poorly rooted non-native trees planted mid-20th century have been uprooted, causing further damage, erosion, and landslides.
- **Landslides (2022/2023, especially in Achia):** Abandoned agricultural areas turned scrubland have become landslide prone. One landslide blocked access to certain areas, which were cleared voluntarily by locals, reflecting a self-organizing community spirit.
- **COVID-19 Pandemic:** Whereas the COVID-19 pandemic does not correspond to natural hazard-related events, it was mentioned by participants as an event that shook the community. It had both positive and negative effects from what concerns social aspects, but clearly led to a renewed appreciation for the territory. This was reported to have resulted in more community-driven land care and a stronger emotional connection to Val Resia.

In the heatmap (Figure 9) , past natural hazards are mapped onto the Val Resia area revealing some “hotspots” within the valley. The events were first localized on the map; then, based on the number of occurrences within each square of the grid, a corresponding colour was assigned: yellow for 1 event, orange for 2 events, and red for 3 or more events. The two red zones represent the locations with the highest concentration of disaster events and corresponds to the areas of Stolvizza and Sella Carnizza. The area of Stolvizza is widely perceived as particularly exposed to natural hazards, especially to flooding. Similarly, *Sella Carnizza* is often impacted by intense windstorms and is considered another highly exposed area by participants.

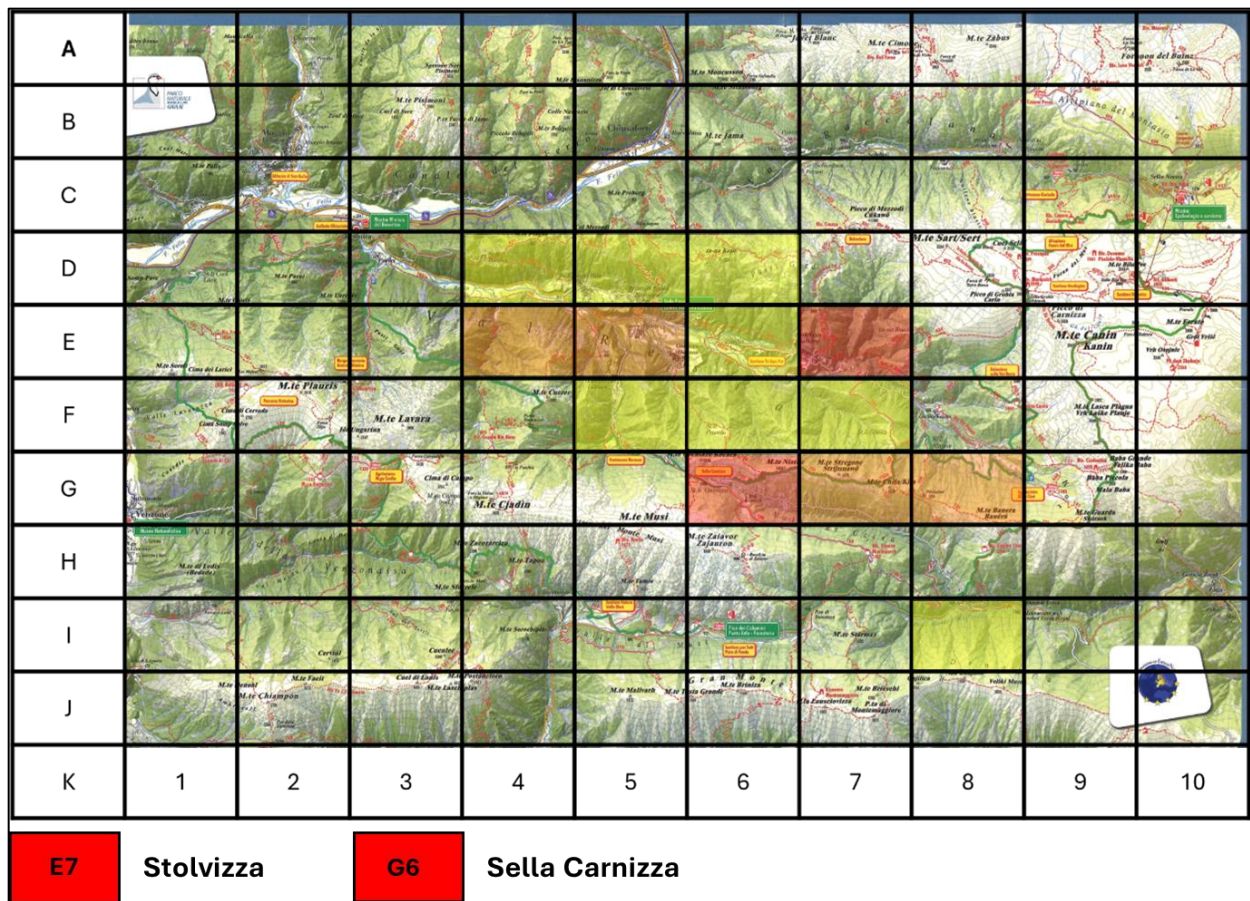


Figure 9. Heatmap of past disasters base on the main locations where natural hazards have occurred over the last century, based on the inputs provided by workshop participants.

### Past disasters and community resources to face hazards

Past natural hazards, especially the 1976 earthquake and historical floods, had strong impacts in community’s settlement patterns as well as social interactions among community members. According to workshop’s participants, several elements were crucial in fostering community resilience toward hazards in the past. The elements were clustered thematically, and four main thematic areas were identified: a) frequent land and natural resource management practices, b) in-depth territorial knowledge; c) close-knit community and community response; d) collective memory and intangible values of cultural heritage. Below, the main traits of each cluster category and their perceived key contributions to resilience building throughout all phases of disaster management, from prevention to recovery, are outlined.

#### a) Frequent land and natural resources management practices

In the past until 1976 (when the earthquake occurred) most of the inhabitants were shepherds, farmers, and woodcutters. The economic and social fabric of the valley was mainly built on rural lifestyle, as the main source of livelihood relied on agro-silvo-pastural activities. The landscape and

settlements were divided into specific zones, each carefully managed to meet production or subsistence needs. The entire valley, stretching from highland pastures down to the riverbeds in the plain, was consistently overseen and maintained, with key features like forests, rivers, soil moisture, and terrain continually handled (Open Leader S. CONS. A.R.L. & Ecomuseo della Val Resia, 2015). This thorough management was also associated to preventative measures against erosion, landslides, and wildfires, which were regularly carried out. However, when rural living declined and out-migration processes increased, these routine land stewardship practices became less frequent. Forests and pasturelands lost their productive value and have progressively become a joint responsibility and a cost rather than a resource. Workshop participants all unanimously agreed that this shift in land management is to be considered at the roots of the increase of wildfire and windthrown risks. Nonetheless, even if with less frequency and limited participation, the practice of collectively managing common land in self-organized groups is still active and fundamental to decrease vulnerability to natural hazards.

#### b) Territorial knowledge

The rural lifestyle and the constant management and maintenance of land fostered a deep understanding of territorial dynamics and a profound commitment to landscape stewardship. Regular practices and consistent landscape maintenance led to the development of specific competencies for natural resources management and a strong comprehension of territorial dynamics. For example, participants shared how forest management implies the accurate selection of tree species according to the fulfilment of specific functions (i.e. soil stabilization, construction, timber production, etc.) and a specific lexicon was used to describe different types of wood and their uses. Similarly, vernacular architecture techniques such as dry stone-walls for securing riverbeds and for houses were adopted for long-lasting construction able to resist to harsh winter season and related hazards such as snowstorms. Other two relevant examples of deep understanding of territorial dynamics and natural resources functions are: a) the relocation of Stolvizza village to higher ground after the 1746 flood, rebuilt on solid rock taking into consideration hydro-geological features to prevent landslides and floods; and b) the current use of erika and other local plant species to improve soil stabilization in slopes and reduce landslides and gravitational hazards. Such a detailed understanding of natural resources can play a crucial role in risk management, contributing to risk mitigation.

#### c) Community response: trustful community network

Val Resia is an isolated valley, enclosed by two mountain ranges that separate the valley from the Italian and Slovenian territories. This topographical marginalization is reportedly considered to be at the roots of a close-knit community, strongly shaping the relationships among its members as well as sense of belonging. The existence of such trustful relations is considered crucial in determining the resilience towards hardships. The inhabitants have always relied on each other to manage the territory and cope with the consequences of natural hazards. Jointly led land management practices as well as festivities and the frequent moment of conviviality have been fundamental in building a

strong community culture, fostering deep trust and strong bonds among members. Workshop participants associate these constant practices to strengthened community bonds and a developed sense of community building and trust in social capital, which, in times of hardship, translated into deep reciprocal caring and mutual help among members. Workshop participants claimed that during the earthquake and floods that affected the community "nobody was left behind", common shelters were organized for elders and youth as well as church bells were used as main "emergency communication tool" to inform all the villagers. In more recent times, particularly after the earthquake, the community has been suffering from depopulation and reduced sociality. Nonetheless, community bonds remain crucial for micro-practices of land management, such as forest and meadow cleaning, which are fundamental for hazard prevention.

#### d) Collective memory and intangible values of cultural heritage

The deep knowledge of territorial dynamics not only characterized land-use practices, but it was transmitted across generation through traditional songs and folk tales. Val Resia is described by its inhabitants as a valley with a deep-rooted tradition of oral stories and collective memory that allowed the transmission across time not only of land management practices, but also specific anecdotes related to past natural hazards. These anecdotes and tales tell the story of Val Resia, and were passed through generations, providing important information of the topography, territorial features as well as key identity features. Their transmission holds deep cultural and emotional significance and is seen as a benchmark in the valley's history and keeping alive traditions and community identity. Nevertheless, both during the workshop and during the preliminary field visit, no concrete example on the valuable contents of these tales were provided, highlighting a strong limitation of current means of transmission. Whereas in the past these stories were transmitted orally by storytellers, their transmission has changed ever since the emergence of other sources of entertainment and is now entrusted in written books.

### 4.2.2 Activity 2: Present

The second activity asked workshop participants to share their perceptions on most pressing hazards in contemporary life in Val Resia, along with the resources they deem critical to address them. This section presents an overview of the hazards that reportedly raise more concerns, along with perceived strengths and weaknesses in relation to local capacities.

#### *Hazards*

Earthquake was unanimously considered not a significantly threatening hazard in contemporary Val Resia's everyday life. Although the area is highly seismic, as presented in Section 3.3, earthquakes are not viewed as a major concern due to their low probability, improvements in building standards, and the preparedness of civil protection services. Wildfires and water-related events, on the other hand, have been identified as particularly concerning hazards due to the increase in frequency and

intensity of these events, increasing uncertainty, and the important changes in landscape and land management practices with significant perceived impacts on vulnerability.

Wildfires are particularly worrying due to the encroachment of forest and its consequent closeness to the settlements as a result of abandonment of pastureland as well as agricultural and forestry practices. Linked to wildfires, also drought has been mentioned as an emergent slow-onset hazard that is beginning to affect the valley. As a matter of fact, residents recognize that the largest wildfires occurred during the latest drought seasons, in 2005 and 2022. Similarly, water-related and hydrological hazards are seen as particularly worrying due to their increase in frequency and intensity. Residents recognize that climate change is significantly altering rainfall patterns. Although the valley is one of the rainiest areas in Europe (Santi et al., 2020) and inhabitants are accustomed to water-related hazards, the intensity of rainfall is significantly affecting the riverbanks as well as streams and increasing the erosion of the mountain slopes. Furthermore, as some villages are built over underground streams, the changes in rainfall patterns started to cause infrastructural problems in houses and buildings.

Val Resia has long been and continues to be exposed to a range of hazards. This condition has posed difficulties in agreeing to single out the most concerning hazard among those mentioned. Indeed, workshop participants engaged in lively discussions when trying to identify the most pressing. Beyond the actual frequency of the hazards, the discussion was strongly influenced by the individual risk perception and participants' place of residence, which according to them influence sensitivity and exposure to different types of hazards.

### *Strengths*

Workshop participants have then been asked to share their perceptions on the strengths that lie within their community in order to withstand the threats that originate from the hazards mentioned above. Resulting resources are here grouped in three main thematic topics: i) community sense of belonging, ii) in-depth knowledge of the territory and iii) adequate institutional emergency response management.

#### *i) community sense of belonging*

Participants highlighted how the sense of belonging to a close-knit community positively influences community resilience and the ability to overcome challenges and difficult situations. This shared sense of belonging fosters ownership and responsibility among community members inducing actions and voluntary organization for land management activities, such as forest cleaning or meadows cutting to prevent wildfires spreading or road cleaning in case of debris flow and landslide.

The strong sense of community also promotes high rate associationism. Several associations and informal groups present in Val Resia are dedicated to valorising and maintaining the territory and to participating in emergency response efforts, through the creation of voluntary groups (civil protection and fire fighters). These initiatives positively impact community preparedness as well as resilience in

case of disastrous events. Workshop participants further noted that associationism speeds up the identification of immediate solutions when the institutional response is “slow” or delayed and enhance coordination and communication among community members.

#### ii) in-depth knowledge of the territory

Participants stressed that community members have transmitted knowledge of land management, specific mountain risks and practices that should be implemented to reduce exposure. This in-depth comprehension of territorial dynamics supports risk forecasting risks and identification of risk prevention measures. All the three groups conveyed the idea that “those who live in the mountain know what the mountain need”. Such extensive knowledge of territorial dynamics is deeply linked to preservation and transmission along time of cultural practices, traditions, land management and agricultural techniques.

#### iii) adequate institutional emergency response management

The third thematic group of strengths relates to coping capacity and mitigation measures. From an institutional perspective, participants across all three groups exhibited strong trust in the institutional coping capacity and the emergency management framework. The confidence in institutional capability to deliver prompt responses during emergencies is significantly influenced by the widespread presence of various institutions dedicated to hazard prevention, such as civil protection agencies, fire departments, and forestry services, as well as emergency response units. While confidence in institutions was broadly shared across groups, only one group considered structural prevention measures adequate for risk reduction, and in particular for water related risks, such as riverbed erosion and flash floods.

#### *Weaknesses*

At the same time, workshop participants also presented a wide range of perceived weaknesses preventing their community from adequately preparing and responding to the main hazards that threaten the valley.

The orographic structure of the valley contributes to its challenging accessibility and physical isolation. These two aspects are considered strong limiting factors influencing proper land management, crucial for preventing and mitigating potential risks.

In close connection to the difficult topography of the valley, negative socio-demographics trends and related changes in land use are also identified as major obstacles to resilience against natural hazards. Most worrying socio-demographic dynamics are upward depopulation trends and increased aging of the community members. Both are perceived as a significant limit to the community's capacity to engage in effective land management activities, such as forest cleaning. Similarly, the abandonment of traditional land-use practices and livelihoods, such as pastoralism and wood cutting, is perceived as particularly problematic especially for ensuring consistent and adequate forest management.

Another aspect that limits Val Resia resilience towards natural hazards is the widely shared perception that the regional and national governance structure and legislations do not reflect the needs of mountain communities and are sometimes counterproductive for mitigating specific risks of mountain environments. Inadequate legislations and governance mechanisms are the result of a top-down decision-making process that is “distant” from the mountain community itself and does not have a good comprehension of the mountain context.

Further than identifying specific clear strengths and weaknesses, workshop participants express some contradictory perceptions concerning the role of social closeness and the adequacy of emergency infrastructures.

Concerning social closeness, despite the perception of Val Resia as a close-knit community which emerged as one of the key strengths discussed above, workshop participants reported an increased individualism among community members as a significant weakness affecting community resilience. Similarly, the emergency service and management structure, was perceived as sufficient and well-performing when referring to the communication of emergencies, but was considered insufficient when applied to flood management, preparedness and maintenance activities.

These contrasts highlight the complexity of forming a unified perspective on attitudes and perceptions toward community cohesion, as well as how relationships among community members can influence perceived preparedness for hazards.

The strengths and weaknesses presented above can be summarized as shown in Figure 10. As a concluding remark, it is relevant to stress that most of the strengths and weaknesses highlighted are

not hazards- dependent, meaning that they are not mentioned by in relation to specific hazards, but they are mainly perceived as characteristic of the community.

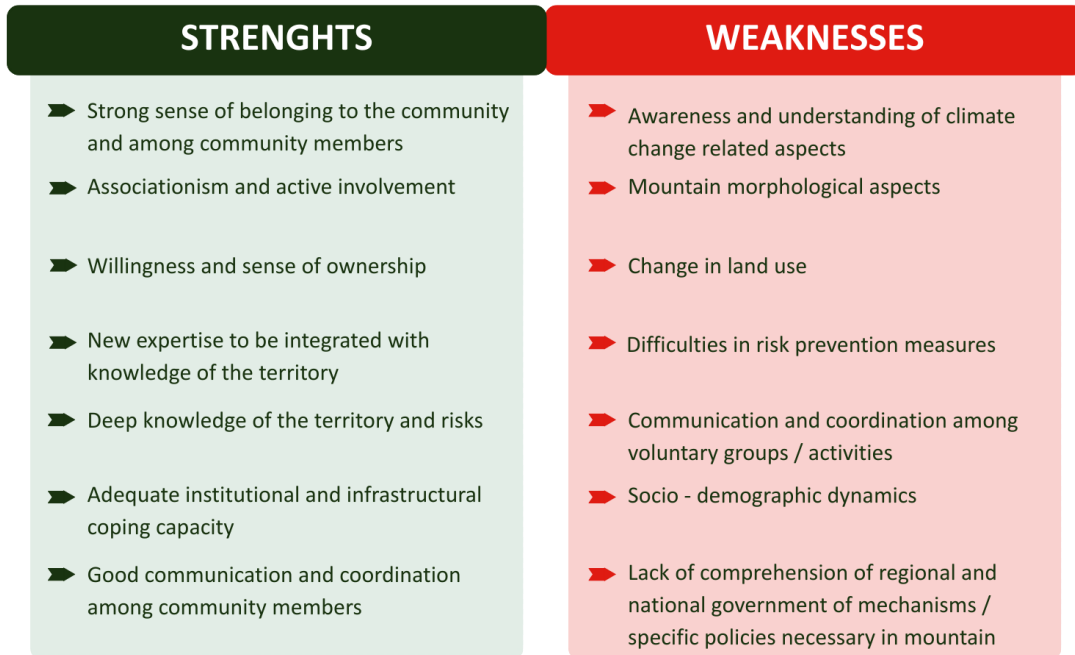


Figure 10. Summary of strengths and weaknesses perceived by workshop participants in definition of the resources that lie within the Val Resia community

### 4.2.3 Activity 3: Future

This section looks more in detail into the cultural resources that participants wish to see valorised by 2045, identifying main actors and desired modalities.

#### *Val Resia, from 2025 to 2045*

Val Resia faces intertwined challenges: demographic decline, economic fragility, and multi-hazard risks; all intensified by its remoteness and limited infrastructure. Participants across the workshop emphasized that reversing these trends requires a holistic approach rooted in both preservation and innovation. Analysing the results we identified 5 fields of intervention, for each field specific expectations raised concerning what needs to be valorised, how and by whom, leading to specific desired outcomes (Figure 11).

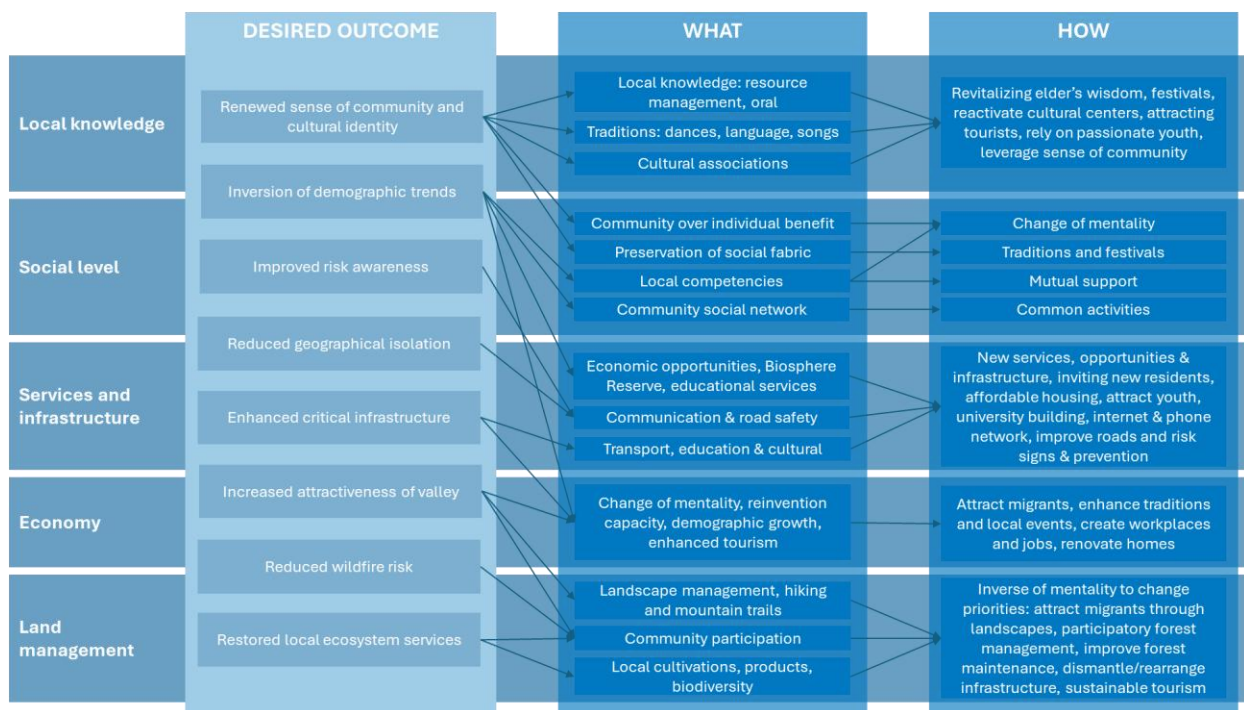


Figure 11 Overview of resulting expectations towards the future of Val Resia, divided per field of intervention

## Local knowledge

Workshop participants emphasized the importance of preserving local knowledge and traditions, especially the wisdom of the elderly regarding nature and mountain life, which is at risk of being lost. They highlighted the need to safeguard oral traditions, dances, language, and songs through festivals, museums, and community centres.

A significant responsibility is placed on youth and youth associations (like Consulta Giovani MAB) to carry this cultural heritage forward. However, despite recognizing the need for cultural revitalization, all groups lacked clarity on how these cultural elements specifically contribute to community resilience, beyond their role in fostering economic resilience and a shared community identity.

## Social level

Val Resia is facing significant demographic decline, prompting efforts to revitalize the community. Each group discussed various strategies: one focused on reversing population trends and boosting the valley's economic appeal, other aimed to change perceptions of mountain living, promote its beauty and viability, and rebuild social connections through shared activities and cultural traditions and the last group emphasized improving local skills and values, fostering mutual support, and prioritizing community well-being.

Reviving traditional festivals like the carnival, village fairs, and conscript celebrations was seen as key to preserving Val Resia's social fabric and identity. The revitalization of festivals is not identified as important for its own sake or only for preserving cultural identity. This activity is seen fundamental for maintaining alive community bonds, necessary to overcome moments of crisis.

### Services and infrastructure

Val Resia's remoteness and limited access to critical infrastructure and services (roads, education, communication, and risk management) undermine community resilience and drive out-migration. To address this, participants proposed improving road safety, internet and phone coverage, and fire risk awareness through better signage and prevention, for tourists' and locals' awareness and control.

Investments in educational facilities like schools with programs tied to the biosphere reserve and even a university faculty for mountain studies were suggested to attract youth and leverage on the exceptional natural resources. Additionally, the creation of affordable housing would support the relocation of students and workers. These measures aim to make the valley more liveable and connected, helping reverse demographic decline.

### Economy

As presented before, investing in new economic opportunities is seen as a critical requirement for the future of Val Resia's community resilience, by reversing the declining demographic trends. These efforts are attributed to the capacity of local actors to reinvent themselves, and to a substantial change of mentality.

To counter Val Resia's demographic decline, participants stressed the need to attract new people by enhancing economic opportunities, migrants or entrepreneurs. This requires a shift in mindset and the ability of local actors to innovate. Support is expected for youth, schools, and associations, along with welcoming migrants and entrepreneurs to stimulate growth.

Sustainable tourism is seen as a promising solution, always avoiding overtourism. Additionally, reviving local traditions and cultural events is viewed as a way to generate new employment opportunities and strengthen the local economy.

### Land management

Participants emphasized the need to valorise Val Resia's environmental assets to unlock ecosystem service-based economic opportunities, boost the valley's attractiveness, and reduce risks like wildfires linked to poor land and forest management. There's strong interest in investing in local products and cultivations, both for biodiversity conservation and economic growth.

However, a major challenge is the lack of community participation in land and forest management, which leads to low productivity, land erosion, and increased fire risk. Similarly, a tidier landscape is also seen as a way to attract more tourism and encourage better forest care.

To improve collaboration, participants proposed land reform to address fragmented property ownership, which complicates management and contact with absentee owners. Restructuring land through regional or national institutions would clarify responsibilities and help prevent wildfires.

### *Identified involved stakeholders*

Workshop participants identified a broad range of stakeholders essential for strengthening Val Resia's resilience for each field of intervention. Local and regional authorities are expected to lead improvements in infrastructure, services, and land and forest management, while also supporting efforts to strengthen community identity, in collaboration with local associations, schools, museums, and institutions like the biosphere reserve, national park offices, and the Church. Local associations, especially youth and cultural groups, play a key role in maintaining community vitality and transmitting Resian traditions, such as music and dance. The valorisation of cultural assets is largely attributed to these groups, with limited mention of external actors. In terms of land management, participants called for land reform to address fragmented ownership and clarify responsibilities, enabling locals to engage in cultivation, forest care, and trail development. This requires a shift in community mindset toward sustainability and collective benefit. While outsiders are sometimes perceived critically, their presence is seen as a potential source of economic opportunity and fresh perspectives. Students and researchers are especially welcomed, with support for establishing a university faculty and facilities in collaboration with the biosphere reserve and national park.

## 5. Discussion

This chapter presents emerging considerations on the results presented above, and in relation to the scope of the study in order to identify connections between what emerged from the participatory study and the role played by cultural heritage in influencing the community resilience of Val Resia. This is done by presenting emerging perspectives on the definition of the following:

1. Sense of “community” in Val Resia
2. Community resilience through resources, learning and actions
3. The role of cultural assets to community resilience

### 5.1 Sense of “community” in Val Resia and relevant stakeholders

The presence of a socially cohesive, strong, and close-knit community is widely recognized as a primary factor in fostering resilience and enhancing the capacity to manage and respond to natural hazards (Carmen et al., 2024; Fazey et al., 2021; Patel et al., 2017). Social cohesion significantly contributes to effective collective action, information sharing, and mutual support during and after crises. However, despite its acknowledged importance, the role of community in disaster risk management, recovery planning, and resilience strategies often remain underrecognized and

insufficiently integrated (Baumann et al., 2021; Lin & Lin, 2020; Saul & Waterton, 2017; Sengupta, 2023).

### 5.1.1 Community

To explore more deeply the nexus between hazards, risk - resilience, and heritage, it is essential to define what is meant by "community" and how we have approached this concept in our study. Acknowledging that the three baseline criteria to determine a community are the presence of a shared culture, values, and local knowledge (Johnson et al., 2018; McEwen et al., 2012; Pomeroy & Tapuke, 2016) we approached the community of Val Resia based on the conceptualization proposed on the framework developed within the Return project (Work Package 7.4.1) (Ravazzoli et al., 2025). Based on this classification we initially approached Val Resia as a *community of place*, a group connected by shared physical space (Christenson & Jerry W, 1989; Miller, 1992).

In the first phase of the study, semi-structured interviews and participatory observations helped us analyze the valley's physical, social, and especially cultural features, highlighting how environmental threats have shaped local dynamics (Field Notes, 16-17 September 2024). Residents show a deep attachment to their environment, reinforced by shared experiences of disasters (e.g., the 1976 earthquake, floods, wildfires; see Section 4.2.1) and long-standing traditions such as festivals, songs, and dances (Field Notes, 16-17 September 2024). This shared history and cultural memory contribute to a strong sense of belonging, maintained through community events and intergenerational practices (Johnson et al., 2018; McEwen et al., 2012; Miller, 1992; Pomeroy & Tapuke, 2016).

As the study progressed, our approach evolved. Depending on the objectives of each workshop phase, the community was also approached as a community of practice and a community of interest. Shared challenges, particularly natural hazards, have fostered collaborative learning and mutual aid networks (Etienne, 1998; Reed et al., 2010; Wasserman & Faust, 1994). Residents engage in self-organized activities such as forest maintenance, trail restoration, and the creation of digital tools to facilitate post-disaster recovery (See Section 4.2.1, Section 4.2.2). Community members are also bound by a shared goal and vision for the future of the valley. Local organizations such as Vivi Stolvizza, the Pro Loco, and the youth group have emerged as key actors united by common objectives: preserving cultural heritage, promoting sustainable land use, improving disaster preparedness, and revitalizing the valley (Observations, Activity 3, 12 April 2025). These shared goals reflect concerns expressed by participants about the erosion of both community knowledge and cultural traditions. In response, a collective desire has emerged to protect and promote the valley, a priority shared by grassroots associations and local institutions alike (Observations, Activity 3, 12 April 2025).

This approach allowed us to identify the three essential baseline criteria that define a community: shared culture, common values, and local knowledge in the community of Val Resia (Johnson et al.,

2018; McEwen et al., 2012; Pomeroy & Tapuke, 2016). The presence of these baseline elements in Val Resia is summarized in the figure below (Figure 12).

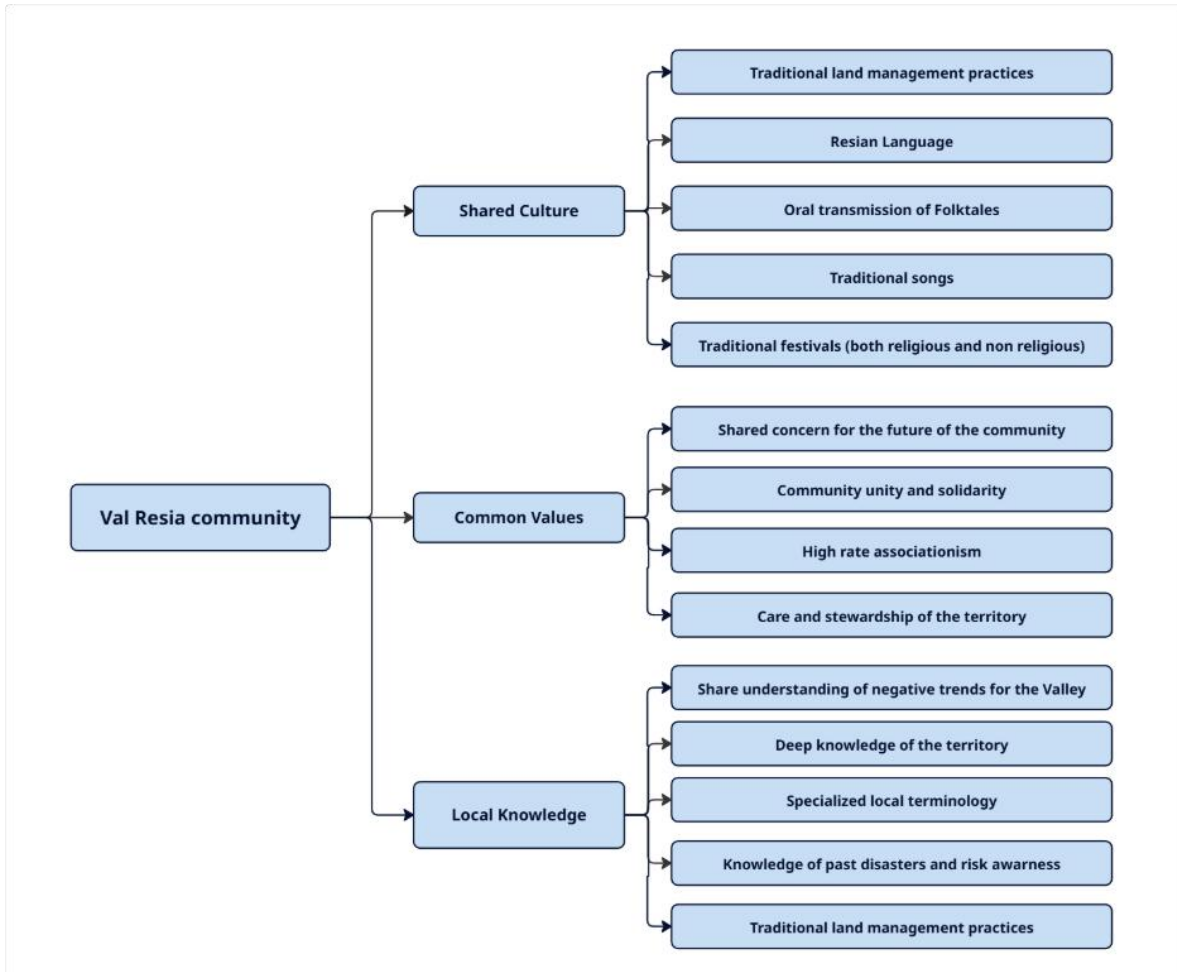


Figure 12. Baseline characteristics of the Val Resia community

### 5.1.2 Stakeholders

The literature widely recognizes that effective disaster resilience hinges on the active involvement of diverse stakeholders, spanning local communities, institutions, and sectoral experts (Arefian et al., 2021; Polymenopoulou, 2018). Particularly, community representatives and local networks are seen as essential actors for fostering social cohesion, adaptive capacity, and cultural continuity in post-disaster contexts. Furthermore, literature stresses the need for collaboration among local authorities, disaster risk management professionals, cultural heritage experts, and economic actors to develop comprehensive and sustainable resilience strategies (McEwen et al., 2012; Pereira et al., 2020; van

Bavel et al., n.d.). Despite this recognition, operational integration of these stakeholders often remains limited, impeding the full potential of community-based resilience approaches.

Through our study, we aimed to address this gap by clearly defining the role of the community and ensuring the involvement of all relevant actors who could contribute to understanding the intersection between community, risk resilience, and cultural heritage. The study recognizes as the primary beneficiary the community of Val Resia with the goal of providing actionable data to support local decision-making processes in disaster risk reduction and to reframe cultural heritage as a tool that empowers residents to respond more proactively to risks.

Following the framework developed in the RETURN project (Deliverable 7.3.7) (Fontanella Pisa et al., 2025), we identified the key stakeholders of Val Resia Community (See Table 3) essential for enhancing resilience across multiple dimensions, social cohesion, coping capacity, well-being, and economic support. These actors were selected not only based on their past roles in disaster response and heritage preservation, but also for their ongoing commitment to revitalizing the valley and safeguarding the transmission of its cultural heritage (Deliverable 7.3.7).

*Table 3 Key stakeholders relevant to the Val Resia community, identified with the support of results from Deliverable 7.3.7*

Field of action	Entity in the community of Val Resia
<b>Actors in the Heritage Field</b>	Cultural Association Museum of the People of the Resia Valley
	Researchers
	Folk dances' groups
	Associative Committee Monument to the Knife Grinder
	Museums
	Church
<b>Economic Sector</b>	Workers from outside and migrants
	Donors
	Entrepreneurs from outside the valley
	Museum
	Julian Prealps Natural Park
	State

<b>Disaster Risk Management Field</b>	Region Friuli Venezia Giulia
	Municipality of Resia
	Pro Loco
	Alpini
	Civil Protection Groups
	Park Authority
<b>Community</b>	Vivi Stolvizza Association
	San Giorgine
	Pro Oseacco
	Local community members
	Sportiva
	Consulta Giovani MAB
	Schools
	Amo Resia con I fatti

Regional and local authorities (state, region, municipality) are seen as primary actors responsible for infrastructure, services, and sustainable land and forest management, as well as for supporting community identity and social networks alongside local associations and residents. Local institutions such as biosphere reserve offices, churches, schools, museums, and especially grassroots associations, including youth and cultural groups, play a vital role in managing territory and preserving cultural traditions like folk dance, which are key to intergenerational cultural transmission. Environmental stewardship is expected to involve authorities leading land reform and redistributing management to local actors, fostering sustainable agriculture and forest care. However, this depends on a cultural shift within the community towards collective and sustainable values. Outsiders, though sometimes viewed skeptically, are recognized for bringing new economic opportunities and fresh perspectives that can invigorate local resilience. Lastly, collaboration with academic researchers and students, particularly through university programs linked to local conservation offices, is seen as an important driver for knowledge exchange and resilience-building.

## 5.2 Community resilience through resources, learning and actions

The study revealed that the community of Val Resia, here represented by the workshop participants, sees its community resilience as highly depending on several factors such as social cohesion, mutual help, local knowledge and land management. Encompassing the resilience concept developed by Norris et al. (2008), in the Val Resia study case we identify and conceptualize community resilience as “here to stay”. Val Resia has been profoundly vulnerable to and impacted by natural hazards, as well as by social changes that have strongly affected the livelihood of its inhabitants. Natural hazards in the past have led to significant disaster events, such as the 1976 earthquake and several flood events. On top of flood risks, the community perceives significant exposure and vulnerability to wildfire risks. Nonetheless, community members have developed several strategies, as well as capacities and resources, over time to support their livelihood and their willingness to stay in the valley. Starting from emBRACE analytical background (Kruse et al., 2018a), we have interpreted and categorized workshop results identifying elements that would boost or hinder community resilience building in Val Resia. The identification of elements composing or affecting resilience are clustered in the three different categories that constitute the framework (Kruse et al., 2018b, p. 85): i) Resources and capacities, ii) Actions and iii) Learning.

### i) Resources and capacities

Resources and capacities are defined by the emBRACE Framework as the first domain to take into consideration, at the “core of resilience within the community” (Kruse et al., 2018b, p. 84). These resources can be socio-political, natural or place-based, financial, physical or human (Kruse et al., 2018b, p. 84). Val Resia’s recognition of the role played by environmental and land management, for example, is one of the strongest resources and capacities acknowledged by the community as crucial for their community resilience. There are, however, other resources and capacities that workshop participants see as critical but are lacking. Among these, is the access to economic resources, local public services and socio-political capacities giving community members the capacity to influence political decision making beyond their valley. This, as it emerged from the perceived weaknesses, is a limitation given by the marginality of the mountain valley from where decisions are made. On the other hand, however, the community of Val Resia makes up for these limited resources with strong internal social capital, networks and trust. Social capital contributes to risk management (Adger, 2003). Relationships among neighbors, relatives, and formal and informal associations have been identified both as a contemporary perceived resource and strength, as much as something that needs to be further reinforced in the future. Place-based resources and capacities are also embedded in cultural assets through shared values and practices. These elements are currently both a great resource as much as they are at risk, and continuous efforts towards strengthening this component are crucial for the future of the valley. Previous experiences of past disasters is also recognized as a resource by the inhabitants of Val Resia, feeding into the pool of resources and capacities building the community resilience of the valley. However, it has also been acknowledged that people who experienced past disasters and bear exceptional local knowledge are increasingly disappearing, and these human capacities with them.

## ii) Action

For what concerns the domain of what the emBRACE Framework calls “Actions”, workshop participants raised concerns over Val Resia bearing stronger *social protection* than *civil protection* actions. *Social protection actions* refer to undertaken throughout the various phases of the disaster risk management cycle (preparedness, response, recovery and mitigation) by the members of the community (Alexander, 2013; Kruse et al., 2018b, p. 87). Among the weaknesses shared by the workshop participants in Section 4.2.2, the integration of early warning systems and risk communication actions in relation to fire risks is still requiring more systematization. Hence, hazard-specific actions have been identified as lacking. On the other hand, however, actions linked to what the emBRACE Framework defines as *social protection* have been recognized as a great perceived strength of the community. These actions correspond to “hazard-independent resilience actions” aimed at reducing general vulnerabilities upon establishing social safety nets and other efforts aimed at improving the living conditions in general (Kruse et al., 2018b, p. 87). The social support networks and associations identified by the workshop participants in Section 4.2.3 represent the a crucial element to *social protection*.

## iii) Learning

A third domain conceptualized by the emBRACE Framework concerns *learning*, understood as the process through which skills or social outcomes are produced and transmitted across generations, either individually or through networks, and enable continuity of knowledge through time (Kruse et al., 2018b, p. 88). In Val Resia, learning developed over generations through a combination of formal and informal networks of practice, in which both skills and knowledge are shared. The social dimensions of learning (i.e. learning collective units, embed in social networks), as well as learning as results of combinations of different knowledge types are particularly prominent within Val Resia community (Reed et al., 2010; Sharpe et al., 2018). As outlined in section 4.2.1 and 4.2.2 in-depth knowledge of the territory is a distinctive trait of Val Resia. This expertise has been refined over generations, enabling community members to interpret their landscape, understand mountain-specific risks, and identify measures to reduce vulnerability to hazards such as floods, wildfires, and landslides. This knowledge has emerged primarily as a collaborative and social process in which small groups implement land-management practices that, when successful, are validated by the wider community and subsequently adopted and transmitted over time.

Learning as a collective process also extends to the community’s engagement with legal and institutional frameworks regulating land management. Community members as well as representative of local institutions have often outlined the inappropriateness of Italian land management regulations that hinders the correct forest and land management. Drawing on their strong connection to the landscape that characterized the rural life style of Val Resia, inhabitants developed a critical awareness of present and future risks, as well as eventual losses and damages

that could be caused by natural hazards. This reflective process closely aligns with Sharpe et al.'s conceptualization of collective learning as “a critical reflection on the appropriateness of technology, values, and governance”.

Consistent with the rich literature that investigate the role of social capital in community resilience (Adger, 2010; Fazey et al., 2021; Imperiale & Vanclay, 2021), our findings stress that a close-knit community has been instrumental in enabling both individual and collective learning related to place-based land management and territorial stewardship (Moraes et al., 2023). This fostered the development of sense of place (De Dominicis et al., 2015) and of a shared responsibility, that sparked into collective action and sense of solidarity (Fazey et al., 2021). These elements have proven fundamental not only for response and recovery during past crises, such as the earthquake and other hazards that affected the community (Longhino, 2017), but also for sustaining social bonds through everyday social life and shared experiences.

### Final reflections on Val Resia community resilience

The development of community resilience in Val Resia reflects the deep interconnections among the three dimensions outlined in the framework. The competences and knowledge that underpin resilience today are rooted in interactions among community members over time, as well as in the accumulation of past knowledge and experiences (Sharpe et al., 2018). This is especially apparent in the context of land and forest management, where practices have evolved over time. In the past, common land management practices addressed natural resource management in order to identify the most effective way to meet basic needs as well as production purposes (Longhino, 2017). Through these processes, the community developed strong place-based capacities, closely connected to landscape and natural resources (Peraz, 2023). The crystallization of these capacities came through a process of social and mutual learning that validated the usefulness of the capacity and allowed the transmission over time (Sharpe et al., 2018). The dissemination of techniques spanned through informal networks created for landscape management both in past and current times. The social learning strongly fostered also community bonds as social learning dynamics relies on trust among community members that in turn foster the sense of community belonging crucial for community resilience.

Current views on community resilience are divided: many note a growing disconnect from local stewardship and environmental monitoring, while others emphasize the need to revive these skills and highlight the value of grassroots efforts in managing territories.

### 5.3 The role of cultural assets to community resilience

Upon sharing resulting considerations on the perceived resilience of the community of Val Resia in relation to natural hazards and climate change, this last discussion section aims at disentangling the functions played by cultural heritage as community resilience enabler.

Such activity is performed by associating the theoretical framework presented in Section 1.3 (Figure 2) with the cultural assets that have been identified by the local participants to the study. The theoretical framework is the result of Deliverable 7.3.7, and more detailed explanations on its functioning can be found in Fontanella Pisa et al. (2025).

The elements of cultural heritage that emerged in the study are presented in Figure 13.

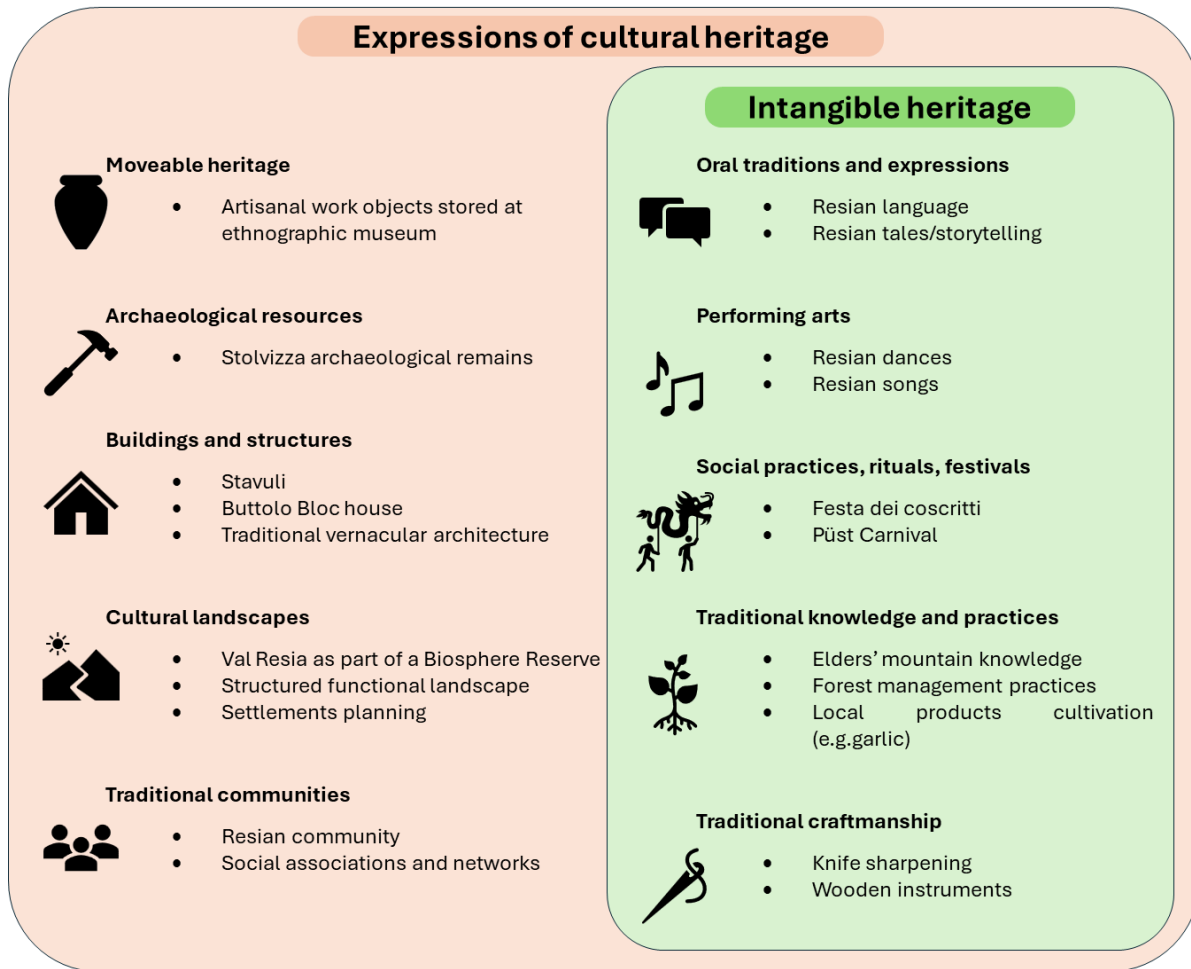


Figure 13. Summary of the elements of cultural heritage identified throughout the study

These elements represent the *artifact* of culture (Schein, 1990), to which several *values* and *underlying assumptions* have been associated by the study participants. More specifically, elements of cultural heritage have been found to contribute to community resilience by providing with elements for social cohesion, coping capacity, general wellbeing and economic support. All of these spheres contribute to the three domains of community resilience presented in the previous Section 5.2. It can be seen how the elements of community resilience identified through the emBRACE framework find their correspondence within the conceptual framework developed in Deliverable 7.3.7. The four sections outlined below have been developed in accordance with the cultural heritage values identified by participants in Activity 1 (refer to Section 4.2.1). These values were subsequently

examined in relation to the desired outcomes established during Activity 3 (see Section 4.2.3 and Figure 11), where essential priorities for achieving a sustainable future for Val Resia and its community were determined. This approach ensures that the potential of recognised forms of cultural heritage is clearly articulated with respect to their intended future implementation, in order to facilitate concrete plans for heritage revitalization in function to a community resilience process informed by local actors.

It goes without saying that each one of the spheres of resilience presented below, together with the specific role that cultural heritage expressions play in them, are influenced by one another. For example, an improved social cohesion supports the effectiveness of coping capacities and general wellbeing, and wellbeing goes hand in hand with economic resilience.

The general structure of each table provided below (see Table 5, Table 6, **Error! Reference source not found.**, and Table 8 shows that Val Resia’s economic resilience is closely linked to the valorization of its cultural and natural heritage. The biosphere reserve plays a pivotal role by providing a recognized framework for sustainable development, supporting the diversification of local economic activities, and enhancing the valley’s attractiveness for tourism and investment. Through the biosphere reserve, local products, traditional practices, and ecological habitats gain visibility and protection, which helps foster new economic opportunities. Reviving and promoting performing arts, festivals, and local traditions not only strengthens community identity but also increases the valley’s attractiveness for tourism and new residents. These strategies are seen as essential for reversing demographic decline and fostering sustainable development, making cultural heritage a key lever for economic resilience in the community. Ultimately, the biosphere reserve acts as a catalyst for integrating heritage-based economic strategies with broader sustainability goals for the valley.

Table 7) is therefore structured as follows:

*Table 4 Explanation of the reasoning behind the analysis for the role played by cultural heritage in community resilience in Val Resia, with reference to the application of the theoretical framework developed in Deliverable 7.3.7*

Sphere				
Output	Action	Expressions of cultural heritage	Examples from results	Reference
<b>= outcomes delineated in Activity 3 (Section 4.2.3), presenting the desired future for Val Resia</b>	= actions to be performed to facilitate the achievement of this output	= expressions of cultural heritage that emerged throughout the study, and whose values in relation to community resilience have been expressed in Activity 1 (Section 4.2.1)	= concrete examples from the study and anecdotes	= specific reference to the source of this allocation, when possible

### 5.3.1 Social cohesion

As seen in Section 5.2, social cohesion represents a crucial element contributing to community resilience not only as *resources and capacities*, but also as enabler for *social protection actions* and as base for *social learning*. Based on the results of the study, network of practices and the thriving social capital of Val Resia are greatly fostered by cultural events and other shared cultural practices.

The table highlights how social capital in Val Resia is built and sustained through active participation in cultural associations, collective practices such as forest management activities, and engagement in social practices, rituals, and festivals. These activities foster a strong sense of belonging and social continuity, with traditional music, dances, and storytelling playing a central role in community identity. However, the transmission of these cultural expressions is declining, and reduced participation in local associations poses a challenge for maintaining community cohesion and resilience. Festivals like the Püst carnival and the Festa dei Coscritti are especially important for bringing people together and preserving shared traditions, while performing arts and the Resian language remain vital yet increasingly limited in opportunities for transmission and engagement.

These elements are **fundamental to recovering and reacting during crisis**, such as the different hazards that affected the community.

Table 5 Resilience outputs and type of heritage for social capital dimension

Social capital sphere				
Output	Action	Expressions of cultural heritage	Examples from results	Reference
<b>stronger social capital</b>	<i>active involvement, participation</i>	Cultural associations and networks	Many activities linked to social protection are led and managed through associations such as the Church association or other networks (i.e. Vivi Stolvizza). They are voluntarily based, and a proactive engagement is crucial to ensure support at times of crisis.	Section 5.1
	<i>revitalize</i>	Forest management practices	e.g. collective forest cleaning practices	Section 4.2.1a, Section 4.2.1b
<b>sense of belonging</b>	<i>improve use of common spaces</i>	Social practices, rituals, festivals	e.g. traditional music performances, dances etc., bringing people together in shared spaces for celebrations	(Open Leader S. CONS. A.R.L. and Ecomuseo della Val Resia, 2015)
	<i>active involvement, participation</i>	Cultural associations and networks	People of Val Resia often remarked how active their local associations are and how crucial their role is in making sure that they continue to act as one. However people are removing themselves more and more from actively participating into these groups, hindering the future of the valley and sense of belonging.	Section 5.1
	<i>improve use of common spaces</i>	Performing arts	e.g. Püst festival, festa dei coscritti, etc., bringing people together in shared spaces for celebrations	
<b>social continuity</b> <i>(interaction between</i>	<i>transmitting, living</i>	Resian language		Section 4.2.1d

<i>social and environmental element that built traditional villages. E.g. social networks, landscape management practices, aesthetic features)</i>	<i>transmitting, living</i>	Resian tales/storytelling	Several local actors stressed how their identity is strongly linked to these storytelling traditions and orally transmitted tales. However, their transmission has thinned and people struggle to cite the contents of these stories, reason why they need to be transmitted and lived more proactively	Section 4.2.1d
	<i>promoting, actively engaging, participating</i>	Social practices, rituals, festivals	Val Resia bears great pride in the hosting of several festivals that involve the entire community as well as outside participants and performers. Among these, the most popular festivity is the Püst carnival, attracting people from outside as well. Otherwise, the “Festa dei Coscritti” represents an internal festivity which proactive participation and transmission is crucial to maintain social continuity.	Section 4.1
	<i>transmitting, living, participating, performing</i>	Performing arts	Performing arts such as traditional dances and music performances are a strong source of pride for the community of Val Resia, although occasions to transmit them and live them are increasingly limited.	

### 5.3.2 Coping capacity

Table 6 explores how the coping capacity of the Val Resia community is deeply intertwined with the preservation and activation of cultural heritage, linking specific risk management measures and strategies to the actions and cultural heritage expressions that enable them. The community is highly aware of local risks and learned from past events how to respond and prevent them. Oral storytelling about past disasters led to increased risk awareness, while land and forest management skills helped prevent and mitigate hazards like floods and wildfires. The copying capacity of Val Resia is highly dependent on the management of the landscape. Therefore, strengthening territorial management and formally recognizing past knowledge is crucial; however, ongoing out-migration, depopulation, and population ageing severely constrain the community’s capacity to sustain these practices.

Table 6 Resilience outputs and type of heritage for coping capacity dimension

Coping capacities sphere				
Output	Action	Expressions of cultural heritage	Examples from results	Reference

	<i>Transmitting; communicating</i>	Resian tales/storytelling	The transmission of anecdotes related to natural hazards allowed to develop a profound understanding of hazards that may affect the valley and understanding potential loss and damages	Section 4.2.1.d
	<i>Transmitting</i>	Forest and land management practices	Participants stressed how transmitted knowledge of land management, of specific mountain risks and practices should be implemented to reduce exposure	Section 4.2.1b
	<i>Acknowledging</i>	Settlements planning	e.g. the village of Stolvizza rebuilt centuries ago in areas knowingly safe from hydro-geological hazards	Section 4.2.1b
	<i>Preserving</i>	Traditional vernacular architecture	e.g. Stavuli built with specific techniques to resist snowstorms	Section 4.2.1b
<b>preserving ecosystem services</b>	<i>preserving</i>	Traditional species and habitat	Preserving ecosystem implies preserving specific risk mitigation functions	Section 4.2.1a; (Comune di Resia, 2019)
<b>stabilized soil erosion</b>	<i>Recognizing, Implementing</i>	Traditional knowledge and practices	e.g. Erika flower planting in order to stabilize soil	Section 4.2.1b
<b>risk / hazard prevention</b>	<i>Recognizing, Preserving and implementing</i>	Traditional knowledge and practices	Participants shared how forest and land management practices led to the implementation of risk mitigating measures (e.g. collective forest cleaning practices) and the support of specific ecosystem services (e.g. planting Erika to improve soil stabilization). They also reported the perceptions that the shift of land management across time could be considered as the root of wildfire and windthrown risks	Section 4.2.1a; Section 4.2.1b
<b>reduced wildfire risks</b>	<i>Recognizing, implementing</i>	Traditional knowledge and practices related to forest management	The collective practice of forest cleaning, as well as the deep knowledge of tree species were identified as extremely important to reduce wildfire risks	Section 4.2.1a 4.2.1b
	<i>Recognizing</i>	Resian tales/storytelling	Workshop participants recognized tales and storytelling related to wildfires particularly important to increase awareness about fire risks and to disseminate good practices	Section 4.2.1b

<b>risk management</b>	<i>Recognizing and valorising</i>	Traditional settlements planning	Recognizing how traditional settlement planning was designed, being able to identify safer area and more risky area, depending to specific hazards	Section 4.2.2
	<i>Implementation, transmission</i>	Traditional knowledge and practices	Regular practices and consistent landscape maintenance led to the development of specific competencies for natural resources management and a strong comprehension of territorial dynamics, that resulted in the implementation of risk prevention measures	Section 4.2.1a; Section 5.2; (Comune di Resia, 2019)
<b>empowerment to take control over risk management process</b>	<i>Recognizing, valorizing</i>	Traditional knowledge	The knowledge developed across time and the deep understanding of territorial dynamics empower the voice of citizens and local institutions in the risk management process and in the management of the territory, criticizing specific risk mitigation measures when harming the territory or pushing forward specific solutions	Section 4.2.2; Section 5.2.

### 5.3.3 Wellbeing

The importance of bonds was a determinant aspect of Val Resia, characterizing the valley along time. It is now embedded in collective memory and act as a point of reference to validate the resilience and the capabilities of the community to overcome crisis

Among the main desired outcomes that emerged during Activity 3, four of them can be directly attributed to the well-being sphere: fostering a sense of community, reversing demographic decline, reducing geographical isolation, and improving critical infrastructure. For each, participants expressed an acknowledgment of the role that cultural expressions or cultural associations and networks could play in strengthening community bonds. Nevertheless, no concrete examples were explored in this regard, requiring further follow-up inquiring on how such trends can be reversed through heritage. This contributes to the emBRACE Framework’s *learning* and *actions* domain.

### 5.3.4 Economic opportunities

The Resia Valley is not a tourist destination and is experiencing depopulation, but its rich cultural heritage can be an economic resource for the area, which is developing through the Julian Alps Biosphere Reserve.

Table 8 shows that Val Resia’s economic resilience is closely linked to the valorization of its cultural and natural heritage. The biosphere reserve plays a pivotal role by providing a recognized framework for sustainable development, supporting the diversification of local economic activities, and enhancing the valley’s attractiveness for tourism and investment. Through the biosphere reserve, local products, traditional practices, and ecological habitats gain visibility and protection, which helps foster new economic opportunities. Reviving and promoting performing arts, festivals, and local traditions not only strengthens community identity but also increases the valley’s attractiveness for tourism and new residents. These strategies are seen as essential for reversing demographic decline and fostering sustainable development, making cultural heritage a key lever for economic resilience in the community. Ultimately, the biosphere reserve acts as a catalyst for integrating heritage-based economic strategies with broader sustainability goals for the valley.

Table 7 Resilience outputs and type of heritage for economic resource dimension

Economic sphere				
Output	Action	Expressions of cultural heritage	Examples from results	Reference
<b>Capitalization of local ecosystem services</b>	<i>recognition, utilization</i>	Val Resia as part of a Biosphere Reserve	Utilization of the natural resources held in the Natural Park within the BR to optimize resilience	Cigalotto P. 2019
	<i>Recognizing, valorizing, using</i>	Habitat, traditional landscape and related ecosystem services	Participants emphasized the need to valorise Val Resia’s environmental assets with a twofold purpose: a) to diversify the economy and give prominence to agri-food economy and slow food presidia boosting valley attractiveness b) restore traditional habitat highlighting the protective and regulative functions of forest and pastureland ecosystems	Section 4.2.3; (Comune di Resia, 2019; Peraz, 2023); (Open Leader S. CONS. A.R.L. and Ecomuseo della Val Resia, 2015)
<b>increased attractiveness of the valley</b>	<i>transmitting, performing, promoting &amp; official recognition,</i>	Performing arts	Val Resia owns a rich cultural range of performing arts, in particular songs and dances. The value of this heritage is highly recognized by the community, who highlighted the potentiality of reviving and promoting traditions to increase the touristic attractiveness of the valley and improve the economic revenue	Section 4.2.3 (Open Leader S. CONS. A.R.L. and Ecomuseo della Val Resia, 2015)
	<i>performing, official</i>	Rituals, festivals	Community members perceive that the valorisation of their	Section 4.2.3 (Open Leader S. CONS. A.R.L.

	<i>recognizing, transmitting</i>		festivals, and traditions would strongly benefit the attractiveness of the valley, increasing the touristic offer and ultimately supporting the local economy	and Ecomuseo della Val Resia, 2015) Cigalotto P. 2019
	<i>touristic promotion &amp; official recognition</i>	Ecological habitat, traditional landscape.	There's strong interest in investing in local products and cultivations, both for biodiversity conservation and economic growth.	Section 4.2.3 (Open Leader S. CONS. A.R.L. and Ecomuseo della Val Resia, 2015) Cigalotto P. 2019
	<i>touristic promotion &amp; official recognition</i>	Local products cultivation;	The recognition of the value of local products is recognized by an opportunity for an economic development of the valley that would also be able to attract new inhabitants, thus reinforcing Val Resia community	Section 4.2.3 (Open Leader S. CONS. A.R.L. and Ecomuseo della Val Resia, 2015) Cigalotto P. 2019

## 6. Conclusions: final considerations and limitations

This study, conducted within the RETURN project, explored the complexities of the relationship between cultural heritage and community resilience to natural hazards in Val Resia, a unique mountain valley within the Italian side of the Julian Alps Biosphere Reserve. The activity was conducted by employing a participatory methodology which combined field visits, in-depth interviews, and a future-oriented workshop. The study served the purpose of validating the conceptual framework developed in Deliverable 7.3.7 and highlighted how both tangible and intangible cultural heritage underpin the community's capacity to cope with, adapt to, and recover from disasters.

The findings reveal that Val Resia's resilience is deeply rooted in its strong social cohesion, collective memory, and traditional land management practices. Past natural hazards, especially the 1976 earthquake and historical floods, had strong impacts in shaping the community's settlement patterns as well as social interactions. All groups emphasized a significant shift from traditional and land-sensitive practices to neglect or abandonment, leading to greater ecological and fire risks. Each group highlights different elements (e.g., oral traditions, volunteerism, or modern adaptations) that characterized community resilience toward hazards in the past; however, a common thread is the recognition that community resilience lies in reviving traditional land management and adapting it to contemporary challenges.

The participatory workshop highlighted that the preservation and revitalization of local knowledge, language, festivals, and land stewardship practices are seen as critical for future resilience. However,

the community also faces significant challenges: demographic decline, aging population, and the erosion of traditional practices due to modernization and rural out-migration. These trends threaten the continuity of knowledge transmission and the maintenance of the landscape, increasing vulnerability to natural hazards such as wildfires and landslides.

The study demonstrates through the framework application that cultural heritage is not only a passive backdrop but also an active pillar of resilience. It supports social capital, enables collective action, and provides psychological and economic resources in times of crisis. The integration of cultural heritage into disaster risk reduction strategies, at both policy and community levels, emerges as a key recommendation. The framework developed and tested here offers a replicable model for other mountain communities facing similar challenges, emphasizing the need for context-sensitive, locally driven approaches to resilience.

While the participatory and qualitative approach adopted in this study enabled a rich, context-sensitive understanding of dynamics and remarkable elements of Val Resia, the approach and the methodology adopted suffered some limitations that should be acknowledged:

- **Stakeholder representation:** The involvement of stakeholders was primarily local, with limited participation from regional and national authorities. This may restrict the broader applicability of the findings and limit recognition of cultural heritage's role in disaster risk management at higher institutional levels (Longworth, 2014). Nonetheless, the results acquired stressed the pivotal role that local authorities have in bridging the gap between the community and higher institutional levels, advocating the role of cultural heritage in resilience strategies.
- **Self-reported data and potential bias:** The reliance on self-reported perceptions from workshop participants introduces the possibility of bias and may overlook dissenting or marginalized voices within the community. While the methodology fostered open dialogue, it is possible that some perspectives, especially those less aligned with dominant narratives, were underrepresented.
- **Scope of economic and tourism stakeholders:** The absence of actors from tourism and other economic sectors may have limited the exploration of how cultural heritage contributes not only to resilience against natural hazards but also to economic sustainability and diversification. Including these perspectives could have enriched the analysis of heritage's multifaceted value.
- **Transferability and context-specificity:** The findings are deeply rooted in the specific context of Val Resia, characterized by its isolation, linguistic uniqueness, and demographic trends. While the framework is designed to be adaptable, its transferability to other settings should be approached with caution, always considering local specificities.

Despite these limitations, the study provides valuable insights into the role of cultural heritage in fostering resilience and offers a methodological model for participatory, community-centered research. The lessons learned here can inform both academic inquiry and practical interventions

aimed at strengthening the resilience of mountain communities facing the dual challenges of natural hazards and socio-economic change. Reflecting on the research process, the team also recognized the importance of not treating the community merely as a source of data. Instead, the community should be positioned as the primary beneficiary of research outcomes. To this end, the next steps will include preparing a document tailored to community needs and organizing a results validation workshop to present findings and gather further feedback.

## References

- Adger, W. N. (2000). Social and ecological resilience: Are they related? *Progress in Human Geography*, 24(3), 347–364. <https://doi.org/10.1191/030913200701540465>
- Adger, W. N. (2003). Social Capital, Collective Action, and Adaptation to Climate Change. *Economic Geography*, 79(4), 387–404. <https://doi.org/10.1111/j.1944-8287.2003.tb00220.x>
- Adger, W. N. (2010). Social Capital, Collective Action, and Adaptation to Climate Change. In M. Voss (Ed.), *Der Klimawandel* (pp. 327–345). VS Verlag für Sozialwissenschaften. [https://doi.org/10.1007/978-3-531-92258-4\\_19](https://doi.org/10.1007/978-3-531-92258-4_19)
- Aldrich, D., & Meyer, M. (2015). Social Capital and Community Resilience. *American Behavioral Scientist*, 59, 254–269. <https://doi.org/10.1177/0002764214550299>
- Alexander, D. E. (2013). Resilience and disaster risk reduction: An etymological journey. *Natural Hazards and Earth System Sciences*, 13(11), 2707–2716. <https://doi.org/10.5194/nhess-13-2707-2013>
- AlpiLink. (2023). *Resiano*. <https://alpilink.it/resiano/>
- Arefian, F. F., Ryser, J., Hopkins, A., & Mackee, J. (2021). Introduction: Towards Multi-perspective and Multidisciplinary Approaches. In F. F. Arefian, J. Ryser, A. Hopkins, & J. Mackee (Eds), *Historic Cities in the Face of Disasters* (pp. 1–19). Springer International Publishing. [https://doi.org/10.1007/978-3-030-77356-4\\_1](https://doi.org/10.1007/978-3-030-77356-4_1)
- Arpa FVG. (2018). *Studio conoscitivo dei cambiamenti climatici e di loro alcuni impatti in Friuli Venezia Giulia*. [https://www.osmer.fvg.it/clima/clima\\_fvg/03\\_cambiamenti\\_climatici/01\\_REPORT\\_cambiamenti\\_climatici\\_e\\_impatti\\_per\\_il\\_FVG/impattiCCinFVG\\_marzo2018.pdf](https://www.osmer.fvg.it/clima/clima_fvg/03_cambiamenti_climatici/01_REPORT_cambiamenti_climatici_e_impatti_per_il_FVG/impattiCCinFVG_marzo2018.pdf)
- Assarkhaniki, Z., Rajabifard, A., & Sabri, S. (2020). The conceptualisation of resilience dimensions and comprehensive quantification of the associated indicators: A systematic approach.

- International Journal of Disaster Risk Reduction*, 51, 101840.  
<https://doi.org/10.1016/j.ijdrr.2020.101840>
- Baumann, S. E., Merante, M. M., Sylvain-Holmgren, M.-A., & Burke, J. G. (2021). Exploring Community Art and Its Role in Promoting Health, Social Cohesion, and Community Resilience in the Aftermath of the 2015 Nepal Earthquake. *Health Promotion Practice*, 22(1\_suppl), 111S-121S.  
<https://doi.org/10.1177/1524839921996083>
- Becker, D., Schneiderbauer, S., Forrester, J., & Pedoth, L. (2018). Combining Quantitative and Qualitative Indicators for Assessing Community Resilience to Natural Hazards. In *Framing Community Disaster Resilience* (pp. 139–153). John Wiley & Sons, Ltd.  
<https://doi.org/10.1002/9781119166047.ch10>
- Beel, D. E., Wallace, C. D., Webster, G., Nguyen, H., Tait, E., Macleod, M., & Mellish, C. (2017). Cultural resilience: The production of rural community heritage, digital archives and the role of volunteers. *Journal of Rural Studies*, 54, 459–468.  
<https://doi.org/10.1016/j.jrurstud.2015.05.002>
- Briard, S., & Carter, C. (2013). *Communities\_of\_Practice\_Interest.pdf*. Ontario centre of Excellence for Child and Youth Mental Health. [https://www.niagaraknowledgeexchange.com/wp-content/uploads/sites/2/2014/05/Communities\\_of\\_Practice\\_Interest.pdf](https://www.niagaraknowledgeexchange.com/wp-content/uploads/sites/2/2014/05/Communities_of_Practice_Interest.pdf)
- Bui, H. T., Jones, T. E., Weaver, D. B., & Le, A. (2020). The adaptive resilience of living cultural heritage in a tourism destination. *Journal of Sustainable Tourism*, 28(7), 1022–1040.  
<https://doi.org/10.1080/09669582.2020.1717503>
- Carmen, E., Fazey, I., & Friend, R. M. (2024). Community-based sustainability initiatives: The quality of relationships matter? *Sustainability Science*, 19(3), 905–920.  
<https://doi.org/10.1007/s11625-024-01492-8>

- Christenson, J. A., & Jerry W, R. (1989). *Community development in perspective* (1st ed). Iowa State University Press, Ames,.
- Clemente, N. (2021, February 19). *The Rezian language. The lexicon of contact – the unwritten history*. <https://wachtyrz.eu/the-rezian-language-the-lexicon-of-contact-the-unwritten-history/>
- Comitato Associativo Monumento all'Arrotino APS. (2025, December 4). *Arrotini Val Resia – Comitato Associativo Monumento all'Arrotino APS*. <https://arrotinivalresia.it/>
- Comune di Resia. (1990). *Statuto comunale (ai sensi della Legge 8 giugno 1990, n. 142)*.
- Comune di Resia. (2019). *Piano strategico*. [https://moodle2.units.it/pluginfile.php/290996/mod\\_folder/content/0/Resia\\_%20Piano%20strategico\\_ad.pdf](https://moodle2.units.it/pluginfile.php/290996/mod_folder/content/0/Resia_%20Piano%20strategico_ad.pdf)
- Dapit, R. (2001). *Identità e minoranze. Il caso della Val Resia*. Forum Editrice.
- De Dominicis, S., Fornara, F., Ganucci Cancellieri, U., Twigger-Ross, C., & Bonaiuto, M. (2015). We are at risk, and so what? Place attachment, environmental risk perceptions and preventive coping behaviours. *Journal of Environmental Psychology*, 43, 66–78. <https://doi.org/10.1016/j.jenvp.2015.05.010>
- Ecomuseo Val Resia—*Un museo a cielo aperto ai piedi delle Alpi Giulie*. (2024, April 23). <https://www.ecomuseovalresia.it/>
- Ente Parco Naturale delle Prealpi Giulie. (2019). *Riserva di Biosfera delle Alpi Giulie*. <https://biosferaalpigiulie.it/>
- Etienne, W. (1998). Communities of practice: Learnings as social system. *The System Thinker*, 9(5).
- Fabbricatti, K., Boissenin, L., & Citoni, M. (2020). Heritage Community Resilience: Towards new approaches for urban resilience and sustainability. *City, Territory and Architecture*, 7(1), 17. <https://doi.org/10.1186/s40410-020-00126-7>

- Fazey, I., Carmen, E., Ross, H., Rao-Williams, J., Hodgson, A., Searle, B. A., AlWaer, H., Kenter, J. O., Knox, K., Butler, J. R. A., Murray, K., Smith, F. M., Stringer, L. C., & Thankappan, S. (2021). Social dynamics of community resilience building in the face of climate change: The case of three Scottish communities. *Sustainability Science*, 16(5), 1731–1747. <https://doi.org/10.1007/s11625-021-00950-x>
- Fontanella Pisa, P., Romagnoli, F., & Shanko, A. (2025). Framing Resilience: The Role of Cultural Heritage in Community Responses to Multi-Hazard Risks. *International Journal of Disaster Risk Reduction*, 105876. <https://doi.org/10.1016/j.ijdr.2025.105876>
- Garcia, B. M. (2021). Integrating culture in post-crisis urban recovery: Reflections on the power of cultural heritage to deal with crisis. *International Journal of Disaster Risk Reduction*, 60, 102277. <https://doi.org/10.1016/j.ijdr.2021.102277>
- Garnier, E. (2019). Lessons learned from the past for a better resilience to contemporary risks. *Disaster Prevention and Management: An International Journal*, 28(6), 786–803. <https://doi.org/10.1108/DPM-09-2019-0303>
- Ghani, S. M. (2020). Traditional Practices, Communities' Aspirations, and Reconstructed End Products: Analyzing the Post-Sidr Reconstruction in the Coastal Region of Bangladesh. In I. Chowdhoree & S. M. Ghani (Eds), *External Interventions for Disaster Risk Reduction* (pp. 81–101). Springer Singapore. [https://doi.org/10.1007/978-981-15-4948-9\\_5](https://doi.org/10.1007/978-981-15-4948-9_5)
- Henri, F., & Pudelko, B. (2003). Understanding and analysing activity and learning in virtual communities: Activity and learning in virtual communities. *Journal of Computer Assisted Learning*, 19(4), 474–487. <https://doi.org/10.1046/j.0266-4909.2003.00051.x>
- Huang, S.-M. (2018). Heritage and Postdisaster Recovery: Indigenous Community Resilience. *Natural Hazards Review*, 19(4), 05018008. [https://doi.org/10.1061/\(ASCE\)NH.1527-6996.0000308](https://doi.org/10.1061/(ASCE)NH.1527-6996.0000308)

- Imperiale, A. J., & Vanclay, F. (2021). Conceptualizing community resilience and the social dimensions of risk to overcome barriers to disaster risk reduction and sustainable development. *Sustainable Development*, 29(5), 891–905. <https://doi.org/10.1002/sd.2182>
- Johnson, R. M., Edwards, E., Gardner, J. S., & Diduck, A. P. (2018). Community vulnerability and resilience in disaster risk reduction: An example from Phojal Nalla, Himachal Pradesh, India. *Regional Environmental Change*, 18(7), 2073–2087. <https://doi.org/10.1007/s10113-018-1326-6>
- Kakinuma, K., Yanagawa, A., Sasaki, T., Rao, M. P., & Kanae, S. (2019). Socio-ecological Interactions in a Changing Climate: A Review of the Mongolian Pastoral System. *Sustainability*, 11(21), 5883. <https://doi.org/10.3390/su11215883>
- Kitamura, M. (2021). Intangible Heritage and Resilience in Managing Disaster Shelters: Case Study in Japan. In F. F. Arefian, J. Ryser, A. Hopkins, & J. Mackee (Eds), *Historic Cities in the Face of Disasters* (pp. 105–119). Springer International Publishing. [https://doi.org/10.1007/978-3-030-77356-4\\_6](https://doi.org/10.1007/978-3-030-77356-4_6)
- Klein, J. A., Tucker, C. M., Steger, C. E., Nolin, A., Reid, R., Hopping, K. A., Yeh, E. T., Pradhan, M. S., Taber, A., Molden, D., Ghate, R., Choudhury, D., Alcántara-Ayala, I., Lavorel, S., Müller, B., Grêt-Regamey, A., Boone, R. B., Bourgeron, P., Castellanos, E., ... Yager, K. (2019). An integrated community and ecosystem-based approach to disaster risk reduction in mountain systems. *Environmental Science & Policy*, 94, 143–152. <https://doi.org/10.1016/j.envsci.2018.12.034>
- Kruse, S., Abeling, T., Deeming, H., Fordham, M., Forrester, J., Jülich, S., Karanci, A. N., Kuhlicke, C., Pelling, M., Pedoth, L., Schneiderbauer, S., & Sharpe, J. (2018a). The emBRACE Resilience Framework. In *Framing Community Disaster Resilience* (pp. 79–96). John Wiley & Sons, Ltd. <https://doi.org/10.1002/9781119166047.ch6>

- Kruse, S., Abeling, T., Deeming, H., Fordham, M., Forrester, J., Jülich, S., Karanci, A. N., Kuhlicke, C., Pelling, M., Pedoth, L., Schneiderbauer, S., & Sharpe, J. (2018b). The emBRACE Resilience Framework: Developing an Integrated Framework for Evaluating Community Resilience to Natural Hazards. In H. Deeming, M. Fordham, C. Kuhlicke, L. Pedoth, S. Schneiderbauer, & C. Shreve (Eds), *Framing Community Disaster Resilience* (pp. 79–96). John Wiley & Sons, Ltd. <https://doi.org/10.1002/9781119166047.ch6>
- Lawangen, A., & Roberts, J. K. (2023). Interactions between disaster risk reduction and intangible culture among indigenous communities in Benguet, Philippines. *International Journal of Disaster Risk Reduction*, *94*, 103801. <https://doi.org/10.1016/j.ijdr.2023.103801>
- Lin, P.-S. S., & Lin, W.-C. (2020). Rebuilding Relocated Tribal Communities Better via Culture: Livelihood and Social Resilience for Disaster Risk Reduction. *Sustainability*, *12*(11), Article 11. <https://doi.org/10.3390/su12114538>
- Longhino, A. (2017). *Val Resia: Tradizioni e cultura di un popolo*. Tipografia Marioni.
- Longworth, E. (2014). The Culture of Prevention: Heritage and Resilience. In S. von Schorlemer & S. Maus (Eds), *Climate change as a threat to peace: Impacts on cultural heritage and cultural diversity*. PL Academic Research.
- McEwen, L. J., Krause, F., Jones, O., & Hansen, J. G. (2012). *Sustainable flood memories, informal knowledge and the development of community resilience to future flood risk*. 253–264. <https://doi.org/10.2495/FRIAR120211>
- Miller, B. (1992). Collective Action and Rational Choice: Place, Community, and the Limits to Individual Self-Interest. *Economic Geography*, *68*(1), 22. <https://doi.org/10.2307/144039>
- Minguez Garcia, B. (2021). Integrating culture in post-crisis urban recovery: Reflections on the power of cultural heritage to deal with crisis. *International Journal of Disaster Risk Reduction*, *60*, 102277. <https://doi.org/10.1016/j.ijdr.2021.102277>

- Moraes, A. R. de, Farinaci, J. S., Prado, D. S., Araujo, L. G. de, Dias, A. C. E., Ummus, R. E., & Seixas, C. S. (2023). What comes after crises? Key elements and insights into feedback amplifying community self-organization. *Ecology and Society*, 28(1). <https://doi.org/10.5751/ES-13773-280107>
- Nanz, P., & Fritsche, M. (2012). *La partecipazione dei cittadini: Un manuale. Metodi partecipativi: Protagonisti, opportunità e limiti*. Bundeszentrale für politische Bildung.
- Norris, F. H., Stevens, S. P., Pfefferbaum, B., Wyche, K. F., & Pfefferbaum, R. L. (2008). Community Resilience as a Metaphor, Theory, Set of Capacities, and Strategy for Disaster Readiness. *American Journal of Community Psychology*, 41(1–2), 127–150. <https://doi.org/10.1007/s10464-007-9156-6>
- Open Leader S. CONS. A.R.L., & Ecomuseo della Val Resia. (2015). *Mappa di Comunità Oseacco*. Lithostampa s.r.l. - Pasion di Prato (UD). <https://www.sauldaru.com/wp-content/uploads/2016/04/03-oseacco.pdf>
- OSMER & GRN. (2023). *Le precipitazioni in Friuli Venezia Giulia. Schede Climatiche*. [https://www.meteo.fvg.it/clima/clima\\_fvg/schede/](https://www.meteo.fvg.it/clima/clima_fvg/schede/)
- Patel, S. S., Rogers, M. B., Amlôt, R., & Rubin, G. J. (2017). What Do We Mean by ‘Community Resilience’? A Systematic Literature Review of How It Is Defined in the Literature. *PLoS Currents*, 9, [ecurrents.dis.db775aff25efc5ac4f0660ad9c9f7db2](https://doi.org/10.1371/currents.dis.db775aff25efc5ac4f0660ad9c9f7db2). <https://doi.org/10.1371/currents.dis.db775aff25efc5ac4f0660ad9c9f7db2>
- Peraz, A. (2023). Dal MAB Unesco a Vivistolvizza. Strategie per la valorizzazione del territorio della Val Resia. In F. Adobati, L. De Bonis, & A. Marson (Eds), *Agire sul patrimonio*. Planum Publisher e Società Italiana degli Urbanisti. <https://arts.units.it/bitstream/11368/3067540/3/peraz-Dal%20MAB%20Unesco.pdf>

- Peraz, A. (2025). *Giocare d'anticipo. Dal rischio alla progettazione integrata dei territori delle valli Dogna e Resia* [Tesi di dottorato]. Università di Trieste.
- Pereira, F., Oliveira, A., Santos, M., Aguiar, M., & Magalhães, L. (2020). Build Back Better: Rebuild to Preserve. In F. Fernandes, A. Malheiro, & H. I. Chaminé (Eds), *Advances in Natural Hazards and Hydrological Risks: Meeting the Challenge* (pp. 101–104). Springer International Publishing. [https://doi.org/10.1007/978-3-030-34397-2\\_20](https://doi.org/10.1007/978-3-030-34397-2_20)
- Polymenopoulou, E. (2018). Cultural rights in the prevention and management of disasters. In *Routledge Handbook of Human Rights and Disasters*. Routledge.
- Pomeroy, A., & Tapuke, S. (2016). *Understanding the place of intangible cultural heritage in building enduring community resilience: Murupara case study*. 31(7).
- Price, M. F., Schaaf, T., Cárdenas, M.-R., Pisa, P. F., & Köck, G. (2024). The World Network of Mountain Biosphere Reserves. In *Safeguarding Mountain Social-Ecological Systems* (pp. 169–174). Elsevier. <https://doi.org/10.1016/B978-0-12-822095-5.00025-5>
- Price, M. F., Schaaf, T., & Cárdenas Tomažič, M. R. (2021). Mountain research in UNESCO's Man and the Biosphere Programme: The first five decades. *Eco.Mont (Journal on Protected Mountain Areas Research)*, 13(special issue), 93–101. <https://doi.org/10.1553/eco.mont-13-sis93>
- Ravazzoli, E., Lavarello-Schettini, R., Oberti, B., & Maino, F. (2025). Community-based approaches in disaster risk reduction and climate change adaptation: An analysis of applied participatory processes. *Climatic Change*, 178(12), 225. <https://doi.org/10.1007/s10584-025-04078-0>
- Reed, M., Evely, A., Cundill, G., Fazey, I., Glass, J., Laing, A., Newig, J., Parrish, B., Prell, C., Raymond, C., & Stringer, L. (2010). What is Social Learning? *ECOLOGY AND SOCIETY*, 15, r1. <https://doi.org/10.5751/ES-03564-1504r01>
- Resia valley – Informations*. (2013, February 15). <https://rezija.com/en/2013/02/15/kako-tu-w-reziji/>

- Ryzewski, K., & Cherry, J. F. (2012). Communities and archaeology under the Soufrière Hills Volcano on Montserrat, West Indies. *Journal of Field Archaeology*, 37(4), 316–327. <https://doi.org/10.1179/0093469012Z.00000000028>
- Santi, S., Cigalotto, P., & Benzoni, A. (2020). The Italian Julian Alps – A new Biosphere Reserve for a sustainable future. *Eco.Mont (Journal on Protected Mountain Areas Research)*, 12(2), 46–51. <https://doi.org/10.1553/eco.mont-12-2s46>
- Saul, H., & Waterton, E. (2017). Heritage and communities of compassion in the aftermath of the great earthquake, Nepal: A photographic reflection. *Journal of Community Archaeology & Heritage*, 4(3), 142–156. <https://doi.org/10.1080/20518196.2017.1299328>
- Schein, E. H. (1990). Organizational culture. *American Psychologist*, 45(2), 109–119. <https://doi.org/10.1037/0003-066X.45.2.109>
- Sengupta, U. (2023). (Re)adaptation of urban space in post-disaster recovery. *URBAN DESIGN International*, 28(2), 152–167. <https://doi.org/10.1057/s41289-023-00216-1>
- Sharpe, J., Swartling, Å. G., Pelling, M., & Pearson, L. (2018). Social Learning and Resilience Building in the emBRACE Framework. In H. Deeming, M. Fordham, C. Kuhlicke, L. Pedoth, S. Schneiderbauer, & C. Shreve (Eds), *Framing Community Disaster Resilience* (pp. 43–59). John Wiley & Sons, Ltd. <https://doi.org/10.1002/9781119166047.ch4>
- Shinde, K. A. (2017). Disruption, resilience, and vernacular heritage in an Indian city: Pune after the 1961 floods. *Urban Studies*, 54(2), 382–398. <https://doi.org/10.1177/0042098016652777>
- Shirvani Dastgerdi, A., & Kheyroddin, R. (2023). Building Resilience in Cultural Landscapes: Exploring the Role of Transdisciplinary and Participatory Planning in the Recovery of the Shushtar Historical Hydraulic System. *Sustainability*, 15(13), Article 13. <https://doi.org/10.3390/su151310433>
- Slovinci v Italiji*. (2025, June 16). <https://slovita.info/it/>

- Smith, L. (2012). Discourses of heritage: Implications for archaeological community practice. *Nuevo Mundo Mundos Nuevos*. <https://doi.org/10.4000/nuevomundo.64148>
- Spencer-Oatey, H. (2021). *What is Culture? A Compilation of Quotations for the Intercultural Field. GlobalPeople Core Concept Compilation*. <https://doi.org/10.13140/RG.2.2.29603.37925>
- Steenwijk, H. (2020). *Resian [Dataser]* [Data set]. Encyclopedia of Slavic Languages and Linguistics Online. [https://doi.org/10.1163/2589-6229\\_ESLO\\_COM\\_032136](https://doi.org/10.1163/2589-6229_ESLO_COM_032136)
- UNDRR, & ICCROM. (2022). *Words into action: Using traditional and Indigenous knowledges for disaster risk reduction*.
- UNESCO. (2022). *Basic Texts of the 2003 Convention for the Safeguarding of the Intangible Cultural Heritage* (No. 2022 Edition). Living Heritage Entity, Cultural Sector, UNESCO. [https://ich.unesco.org/doc/src/2003\\_Convention\\_Basic\\_Texts-\\_2022\\_version-EN\\_.pdf](https://ich.unesco.org/doc/src/2003_Convention_Basic_Texts-_2022_version-EN_.pdf)
- UNESCO World Heritage Centre. (2025). *Basic Texts of the 1972 World Heritage Convention, Edition December 2024*. UNESCO. <https://whc.unesco.org/en/basictexts/>
- UNISDR. (2015). *Sendai Framework for Disaster Risk Reduction 2015—2030*. <https://www.undrr.org/publication/sendai-framework-disaster-risk-reduction-2015-2030>
- UrbiStat. (2025). *Comune di RESIA : bilancio demografico, trend popolazione, tasso di mortalità, Tasso di natalità, tasso migratorio*. <https://ugeo.urbistat.com/AdminStat/it/it/demografia/popolazione/resia/30092/4>
- van Bavel, B., Curtis, D. R., Dijkman, J., Hannaford, M., de Keyzer, M., van Onacker, E., & Soens, T. (n.d.). *Disasters and History*.
- Van Der Voorn, T., Quist, J., Svenfelt, Å., Kok, K., Hickman, R., Sheppard, S., Kanyama, A. C., & Banister, D. (2023). Advancing participatory backcasting for climate change adaptation planning using 10 cases from 3 continents. *Climate Risk Management*, 42, 100559. <https://doi.org/10.1016/j.crm.2023.100559>

Wardekker, A., Nath, S., & Handayaningsih, T. U. (2023). The interaction between cultural heritage and community resilience in disaster-affected volcanic regions. *Environmental Science & Policy*, 145, 116–128. <https://doi.org/10.1016/j.envsci.2023.04.008>

Wasserman, S., & Faust, K. (with Library Genesis). (1994). *Social network analysis: Methods and applications*. Cambridge; New York: Cambridge University Press.  
[http://archive.org/details/socialnetworkkana00wass\\_567](http://archive.org/details/socialnetworkkana00wass_567)

Weisbord, M. R., & Janoff, S. (2010). *Future Search: An Action Guide to Finding Common Ground in Organizations and Communities*. Berrett-Koehler Publishers.

# Annexes

## Annex 1: Transcribed results from Activity 1

This table presents results from Activity 1 of the workshop, where participants listed the resources that they believe have helped the community to thrive and adequately respond to past disasters.

Workshop Activity	Group	Post it Color	Transcription	Map location	Reference
Past	A	Orange	1) XVIII Secolo Alluvione Stolvizza	E6	Activity 1, Group A, 12 April 2025
Past	A	Orange	2) 1990 Incendio Pustigost	D6	Activity 1, Group A, 12 April 2025
Past	A	Green	3) Incendio (doloso) 2003 Versante destro orografica T. Resia		Activity 1, Group A, 12 April 2025
Past	A	Green	4) Tempesta 10.08.2018 Stolvizza + Rio Nero + Ucea	G7, H8, I8, E4, F4	Activity 1, Group A, 12 April 2025
Past	A	Green	Presidio del territorio attraverso la costante piccola manutenzione	E6	Activity 1, Group A, 12 April 2025
Past	A	Orange	5) 1991 Bomba d'acqua a Stolvizza	E6	Activity 1, Group A, 12 April 2025
Past	A	Orange	6) 2023 Tromba d'aria Clivaz + Rio Nero + Sella Carnizza sotto Gniva	F7, E5, F5,	Activity 1, Group A, 12 April 2025

Past	A	Orange	7) 2022 Sella Carnizza Tromba D'Aria	G6	Activity 1, Group A, 12 April 2025
Past	A	Orange	8) 1976 6 Maggio 20 Settembre terremoto	All	Activity 1, Group A, 12 April 2025
Past	A	Orange	9) 2022 Incendio SP 42	Out of map	Activity 1, Group A, 12 April 2025
Past	A	Orange	Ta-Na Sarte Sëkala - canti	NA	Activity 1, Group A, 12 April 2025
Past	A	Orange	Kodkodeka Tramando Orale delle Favole	NA	Activity 1, Group A, 12 April 2025
Past	A	Orange	Technica fluitazione raccolta ramaglie foglie secche totale utilizzo	NA	Activity 1, Group A, 12 April 2025
Past	A	Orange	Stato idrogeologico a stolvizza (Borgo Kikej) I rii passano in mezzo alle case e sotto le case sempre meno manutenzioni hanno portato a meno sicurezza	NA	Activity 1, Group A, 12 April 2025
Past	B	Pink	2018 Vento forte tempesta "vaia" Ucceca	H7, H8	Activity 1, Group B, 12 April 2025
Past	B	Pink	1990 Incendio Stolvizza - Pusti Göst	E6, E7	Activity 1, Group B, 12 April 2025

Past	B	Pink	1992-1993 Alluvione Stolvizza	E6, E7	Activity 1, Group B, 12 April 2025
Past	B	Orange	Alluvione Stolvizza Anno 1700	D7, D6	Activity 1, Group B, 12 April 2025
Past	B	Orange	Alluvione 1970 Centrale Idroelettrica	E5, F5	Activity 1, Group B, 12 April 2025
Past	B	Pink	2023 Emergenza maltempo venti e dissesti idrogeologici Tigo-Gniva	D5	Activity 1, Group B, 12 April 2025
Past	B	Pink	2020-2021 Emergenza neve + valanghe Carnizza	G6	Activity 1, Group B, 12 April 2025
Past	B	Pink	Agosto 2022 Scoperchiata Chiesetta St. Anna Carnizza per forte vento	G6	Activity 1, Group B, 12 April 2025
Past	B	Orange	Terremoto 1976	All	Activity 1, Group B, 12 April 2025
Past	B	Orange	Incendio 2022 SP 42 Val Resia	Out of map	Activity 1, Group B, 12 April 2025
Past	B	Orange	Incendio 2003 in Val Resia	C4, D4	Activity 1, Group B, 12 April 2025
Past	B	Orange	Tradizione dei Coscritti	All	Activity 1, Group B, 12 April 2025

Past	B2	Green	Gestione dell'emergenza nell'immediato --> pronta risposta delle comunità	C2, C3	Activity 1, Group B, 12 April 2025
Past	B2	Pink	App per regolare i lunghi tempi semaforici sulla SP 42	C5	Activity 1, Group B, 12 April 2025
Past	B2	Salmon	Cura del territorio perché c'erano tanto prati. Questo perché c'erano tante famiglie che avevano bestiame	All	Activity 1, Group B, 12 April 2025
Past	B2	Salmon	Terremoto vengono a limitarsi gli aiuti tra il vicinato la gente comincia a pensare ai suoi problemi tanta gente va via le occasioni di incontro vengono limitate e si perdono/compromettono alcune tradizioni	All	Activity 1, Group B, 12 April 2025
Past	B2	Salmon	A Stolvizza hanno costruito le case sulla roccia (borgo kikej) per evitare che le case fossero distrutte da nuovi nubifragi e smottamenti	E6, E7	Activity 1, Group B, 12 April 2025
Past	C	Pink	Forte vento 2023	E4, F4	Activity 1, Group C, 12 April 2025
Past	C	Pink	Forte vento 2023	E5	Activity 1, Group C, 12 April 2025

Past	C	Pink	Forte vento 2023	E7, E8	Activity 1, Group C, 12 April 2025
Past	C	Orange	Incendio 2022 SP 42 Val Resia	D4	Activity 1, Group C, 12 April 2025
Past	C	Orange	Incendio 2002	D4	Activity 1, Group C, 12 April 2025
Past	C	Orange	Terremoto	D5, D6, E5, E6	Activity 1, Group C, 12 April 2025
Past	C	Salmon	Erosione del fiume - frana ha interrotto strada For. (?!?) 2020	E6	Activity 1, Group C, 12 April 2025
Past	C	Pink	Smottamenti vari	G7	Activity 1, Group C, 12 April 2025
Past	C	Pink	Alluvione 1746	D7, E7	Activity 1, Group C, 12 April 2025
Past	C	Orange	Covid 2020	All	Activity 1, Group C, 12 April 2025

## Annex 2: Transcribed results from Activity 2

The table below shows transcribed results from Activity 2 of the workshop. It reports on post-its collected during the process, listing perceived strengths and weaknesses of the Val Resia community as of today.

Workshop Activity	Group	Post it	Transcription	Chosen Hazard	Evaluation	Reference
Present	A	Green	Sindaco	Tempeste con venti forti	Strength	Activity 2, Group A, 12 April 2025
Present	A	Salmon	Nei problemi comunque è forte l'impegno per intervenire nella manutenzione	Tempeste con venti forti	Strength	Activity 2, Group A, 12 April 2025
Present	A	Green	Presenza stazione corpo forestale regionale	Tempeste con venti forti	Strength	Activity 2, Group A, 12 April 2025
Present	A	Salmon	Senso di appartenenza alla comunità che ha aiutato a superare i problemi	Tempeste con venti forti	Strength	Activity 2, Group A, 12 April 2025
Present	A	Green	Gruppo di protezione civile	Tempeste con venti forti	Strength	Activity 2, Group A, 12 April 2025
Present	A	Salmon	Competenze dei singoli che hanno vissuto e lavorato nel territorio da sempre	Tempeste con venti forti	Strength	Activity 2, Group A, 12 April 2025
Present	A	Salmon	Attivazione spontanea della comunità per liberare le strade	Tempeste con venti forti	Strength	Activity 2, Group A, 12 April 2025

Present	A	Green	Associazioni attive; vivistolvizza, io amo resia con I fatti	Tempeste con venti forti	Strength	Activity 2, Group A, 12 April 2025
Present	A	Green	Nuove competenze da parte dei giovani del luogo (nativi digitali)	Tempeste con venti forti	Strength	Activity 2, Group A, 12 April 2025
Present	A	Green	Strutturale - Orografia ed accessibilità della valle	Tempeste con venti forti	Weakness	Activity 2, Group A, 12 April 2025
Present	A	Salmon	Adesso le cose stanno cambiando con tanto individualismo e quindi viene a mancare la forza solidale di una comunità	Tempeste con venti forti	Weakness	Activity 2, Group A, 12 April 2025
Present	A	Green	Ancora bassa consapevolezza dell'impatto dei cambiamenti climatici sulla quotidianità	Tempeste con venti forti	Weakness	Activity 2, Group A, 12 April 2025
Present	A	Salmon	Spopolamento con una popolazione prevalentemente anziana e il territorio non è mantutentato	Tempeste con venti forti	Weakness	Activity 2, Group A, 12 April 2025
Present	A	Salmon	Scarsa manutenzione a causa della parcellizzazione del territorio	Tempeste con venti forti	Weakness	Activity 2, Group A, 12 April 2025

Present	A	Salmon	Lo spopolamento problema di grande portata	Tempeste con venti forti	Weakness	Activity 2, Group A, 12 April 2025
Present	B	Pink	Chi vive in montagna sa cosa serve alla montagna	Alluvioni	Strength	Activity 2, Group B, 12 April 2025
Present	B	Pink	Capacità di problem solving	Alluvioni	Strength	Activity 2, Group B, 12 April 2025
Present	B	Pink	Protezione civile e volontariato	Alluvioni	Strength	Activity 2, Group B, 12 April 2025
Present	B	Orange	Collaborazione tra la popolazione	Alluvioni	Strength	Activity 2, Group B, 12 April 2025
Present	B	Pink	Senso di comunità	Alluvioni	Strength	Activity 2, Group B, 12 April 2025
Present	B	Pink	Rete Whatsapp per comunicazioni di criticità alla comunità	Alluvioni	Strength	Activity 2, Group B, 12 April 2025
Present	B	Pink	Consapevolezza del rischio, limitare gli spostamenti	Alluvioni	Strength	Activity 2, Group B, 12 April 2025
Present	B	Pink	Pronto intervento, capacità e attrezzature per affrontare il rischio	Alluvioni	Strength	Activity 2, Group B, 12 April 2025
Present	B	Pink	Difficoltà nella manutenzione degli alvei fluviali	Alluvioni	Weakness	Activity 2, Group B, 12 April 2025

Present	B	Pink	Punti boschivi intorno ai centri abitati	Alluvioni	Weakness	Activity 2, Group B, 12 April 2025
Present	B	Pink	normative troppo vincolanti e complesse	Alluvioni	Weakness	Activity 2, Group B, 12 April 2025
Present	B	Orange	viabilità in caso di calamità	Alluvioni	Weakness	Activity 2, Group B, 12 April 2025
Present	B	Pink	Poca attenzione al territorio montano "dall'alto"	Alluvioni	Weakness	Activity 2, Group B, 12 April 2025
Present	B	Pink	Paura e ricerca del "colpevole"	Alluvioni	Weakness	Activity 2, Group B, 12 April 2025
Present	B	Pink	Isolamento dovuto alla conformazione della valle	Alluvioni	Weakness	Activity 2, Group B, 12 April 2025
Present	B	Pink	Difficoltà di coordinamento	Alluvioni	Weakness	Activity 2, Group B, 12 April 2025
Present	C	Orange	Struttura regionale (e comunale) dell'antincendio molto preparato	Incendio	Strength	Activity 2, Group C, 12 April 2025
Present	C	Orange	Incendio 2021/2022 pulizia prato a livello di comunità (gruppo di amici)	Incendio	Strength	Activity 2, Group C, 12 April 2025
Present	C	Pink	C'è meno gestione del bosco - arriva vicino alle case	Incendio	Weakness	Activity 2, Group C, 12 April 2025

Present	C	Salmon	Poca gente e poca possibilità di farlo - persone anziane	Incendio	Weakness	Activity 2, Group C, 12 April 2025
Present	C	Salmon	> 50 anni vegetazione ha preso il sopravvento --> troppo bosco specie alberi altamente infiammabili	Incendio	Weakness	Activity 2, Group C, 12 April 2025
Present	C	Salmon	Le persone sono emigrate non c'è + gestione del territorio	Incendio	Weakness	Activity 2, Group C, 12 April 2025
Present	C	Orange	Non + pastorizia	Incendio	Weakness	Activity 2, Group C, 12 April 2025
Present	C	Orange	Esperienza, consapevolezza	Acqua (erosione, alluvione e siccità)	Strength	Activity 2, Group C, 12 April 2025
Present	C	Orange	Buona infrastruttura (erosione + alluvione) viabilità	Acqua (erosione, alluvione e siccità)	Strength	Activity 2, Group C, 12 April 2025
Present	C	Orange	Briglie - durante tutto il '900 fino agli anni '80 Buona base di gestione	Acqua (erosione, alluvione e siccità)	Strength	Activity 2, Group C, 12 April 2025
Present	C	Orange	Argini dei fiumi x erosione (pericolo x strade)	Acqua (erosione, alluvione e siccità)	Weakness	Activity 2, Group C, 12 April 2025

## Annex 3: Transcribed results from Activity 3

The table below shows the collected results from Activity 3, in which workshop participants were asked to present their desired future for Val Resia and its community, specifying what needs to be improved/valorised, by whom, and how.

Workshop Activity	Group	Transcription	Part	Linkages	Reference
Future	B	Tessuto sociale, ripopolazione	cosa è stato valorizzato	1	Activity 3, Group B, 12 April 2025
Future	B	Territorio e biodiversità	cosa è stato valorizzato	2	Activity 3, Group B, 12 April 2025
Future	B	Conoscenze tramandate	cosa è stato valorizzato		Activity 3, Group B, 12 April 2025
Future	B	Tradizioni: lingua, ballo e canto, festività laiche e religiose	cosa è stato valorizzato	3	Activity 3, Group B, 12 April 2025
Future	B	Lavoro, creazione di posti di lavoro	cosa è stato valorizzato		Activity 3, Group B, 12 April 2025
Future	B	Infrastrutture (strade, scuole, edifici x associazioni)	cosa è stato valorizzato		Activity 3, Group B, 12 April 2025
Future	B	Inversione dei pensieri	cosa è stato valorizzato		Activity 3, Group B, 12 April 2025

Future	B	Riconvertire abitazioni adatte ai giovani, possibilità di vivere in valle	come è stato valorizzato	1	Activity 3, Group B, 12 April 2025
Future	B	Disboscamenti intelligenti	come è stato valorizzato	2	Activity 3, Group B, 12 April 2025
Future	B	Sostentamento economico alle associazioni e progetti ad hoc per I giovani e scuole	come è stato valorizzato	3	Activity 3, Group B, 12 April 2025
Future	B	Comune, regione, associazioni, comunità	chi lo ha valorizzato	1,2	Activity 3, Group B, 12 April 2025
Future	B	Associazioni, Parrocchia, Giovani, Scuole	chi lo ha valorizzato	3	Activity 3, Group B, 12 April 2025
Future	B	Gruppo folk, consulta giovani riserva MAB, Proloco, Musei, Vivistolvizza, Alpini, San Giorgine (?!?!), Pro Oseacco, Sportiva	chi lo ha valorizzato		Activity 3, Group B, 12 April 2025
Future	A	Messa in sicurezza strada Resiutta-Resia (con collegamento Pusti Gam (?!?!?!)) - Ruschis - Resiutta)	cosa è stato valorizzato		Activity 3, Group A, 12 April 2025
Future	A	La rete dei soggetti e delle competenze	cosa è stato valorizzato		Activity 3, Group A, 12 April 2025

Future	A	Un territorio più mantenuto e coltivato	cosa è stato valorizzato		Activity 3, Group A, 12 April 2025
Future	A	Avere in valle una sede staccata dell'università	cosa è stato valorizzato		Activity 3, Group A, 12 April 2025
Future	A	Valorizzare le associazioni culturali I musei	cosa è stato valorizzato		Activity 3, Group A, 12 April 2025
Future	A	Potenziamento e ampliamento segnale internet	cosa è stato valorizzato		Activity 3, Group A, 12 April 2025
Future	A	Coltivazione aglio di Resia - necessità campi --> quindi manutenzione bosco	cosa è stato valorizzato		Activity 3, Group A, 12 April 2025
Future	A	scuola della biosfera consolidata e ampliata	cosa è stato valorizzato		Activity 3, Group A, 12 April 2025
Future	A	inversione di tendenza nella demografia	cosa è stato valorizzato		Activity 3, Group A, 12 April 2025
Future	A	Attraverso progettualità specifiche, condivise e finanziate	come è stato valorizzato		Activity 3, Group A, 12 April 2025
Future	A	Rendendo protagonisti I giovani	come è stato valorizzato		Activity 3, Group A, 12 April 2025
Future	A	Strategie di accoglienza di nuovi cittadini	come è stato valorizzato		Activity 3, Group A, 12 April 2025

Future	A	Scambio di buone pratiche con realtà analoghe + azioni pilota innovative	come è stato valorizzato		Activity 3, Group A, 12 April 2025
Future	A	Ottimismo	come è stato valorizzato		Activity 3, Group A, 12 April 2025
Future	A	Regione FVG, Stato, Comune, Comunità di montagna, Ente Parco	chi lo ha valorizzato		Activity 3, Group A, 12 April 2025
Future	A	Comune + parco + Associazioni locali + centri di ricerca + donors	chi lo ha valorizzato		Activity 3, Group A, 12 April 2025
Future	C	Più cura del territorio per ripristinare --> vivere attraverso il prodotto del territorio	cosa è stato valorizzato		Activity 3, Group C, 12 April 2025
Future	C	Le azioni di manutenzione costante --> rii, prati, bordi strada, sentieri	cosa è stato valorizzato		Activity 3, Group C, 12 April 2025
Future	C	Il bene della comunità sopra il bene individuale	cosa è stato valorizzato		Activity 3, Group C, 12 April 2025
Future	C	Presidio del territorio, turismo	cosa è stato valorizzato		Activity 3, Group C, 12 April 2025
Future	C	Motivazione per tenere curato il territorio	cosa è stato valorizzato		Activity 3, Group C, 12 April 2025

Future	C	Più semplice gestione del territorio - facilita la gestione se c'è volontà di farlo	cosa è stato valorizzato		Activity 3, Group C, 12 April 2025
Future	C	Comunicazione antincendio (segnaletica)	cosa è stato valorizzato		Activity 3, Group C, 12 April 2025
Future	C	Attività in comune, tenere in vita una rete di connessioni	come è stato valorizzato		Activity 3, Group C, 12 April 2025
Future	C	Supporto reciproco e tenere connessione tra le comunità	come è stato valorizzato		Activity 3, Group C, 12 April 2025
Future	C	(turisti e gente del posto) più segnali di pericolo - più informazione, più controllo	come è stato valorizzato		Activity 3, Group C, 12 April 2025
Future	C	riforma fondiaria	come è stato valorizzato		Activity 3, Group C, 12 April 2025
Future	C	il territorio è stato curato e valorizzato --> manutenzione costante assumendo persone del posto	come è stato valorizzato		Activity 3, Group C, 12 April 2025
Future	C	Giovani del parco	chi lo ha valorizzato		Activity 3, Group C, 12 April 2025
Future	C	Amo Resia con I Fatti	chi lo ha valorizzato		Activity 3, Group C, 12 April 2025

Future	C	Persone da fuori --> imprenditori, da fuori che supportano l'economia	chi lo ha valorizzato	Activity 3, Group C, 12 April 2025
Future	C	legislatore, stato, regione	chi lo ha valorizzato	Activity 3, Group C, 12 April 2025
Future	C	La comunità	chi lo ha valorizzato	Activity 3, Group C, 12 April 2025

