

D4.3 LOCAL RESILIENCE BASELINE AND LOCAL IMPACT CHAINS FOR R-LABSCAPES



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Summary

This deliverable presents the process and results of T4.2 ("Co-creation of resilience baseline and impact chains") in the project RescueME. The task involved the conduction of a local resilience baseline assessment for each of the five case studies – so called R-Labscapes ("R-Labs") – and the co-creation of two impact chains for each R-Lab. Both subtasks aim to present the current status in the R-Labs with regard to resilience and (climate) hazards and are a product of the views and experiences of the stakeholders involved. The results of this task provide a starting point for the co-creation of solutions, measures and resilience strategies at a later stage of the project.

The resilience baseline assessment aimed at evaluating local resilience by gathering and analysing local data through a questionnaire developed for this purpose and answered by the R-Labs. The resilience baseline assessment was based on the RescueME indicator framework (Egusquiza & Gandini, 2023) that includes the concept of Socio-Ecological Systems (SES), and incorporated insights from projects like SHELTER (Egusquiza & Gandini, 2022) and ARCH (Milde, Lückerath, & Ullrich, 2020). The assessment results were classified into "Positive Performance," "Attention Needed," and "Identified Weaknesses", providing insights into strengths and areas for improvement across social, human, financial, natural, and built capital domains. While certain challenges were common among several R-Labs, analysing the questionnaire responses revealed significant differences among them. This highlighted the need for customized approaches to address diverse social, geographical, and administrative challenges.

Furthermore, two local impact chains were co-created with each of the R-Labs in two distinct and consecutive workshops per R-Lab. The purpose of these workshops was to co-analyse how a certain hazard – either climatic or non-climatic – affects different subsystems ("exposures") in the R-Labs and how these "impacts" are influenced by internal factors ("vulnerabilities"). The hazards analysed per R-Lab were the following:

- Island of Neuwerk in Hamburg, Germany
 - "Two much water" in two scenarios (storm surge, sea level rise)
 - Water pollution in three scenarios (oil spill, small pollutant accident, other pollution)
- The defensive system of Zadar, Croatia
 - Heatwaves and temperature rise
 - \circ Urban pluvial flooding and storm surges
- The historical irrigation system at l'Horta de València, Spain (L'Horta de València GIAHS)
 - Changing precipitation patterns



- Abandonment of agricultural activity
- Cinque Terre & the Islands Palmaria, Tino, and Tinetto, Italy
 - o Landslides due to extreme precipitation in Tramonti
 - o Landslides due to extreme precipitation in Corniglia
- Psiloritis Geopark in Crete, Greece
 - Heatwaves and temperature rise (various exposure systems)
 - Heatwaves and temperature rise (only on the systems tourism and agriculture)

The workshops took place both online and in-person, in English or in the respective national language and involved various stakeholders according to their expertise on the respective topics.

This deliverable outlines the process applied for developing the resilience baseline assessment, including the criteria employed for analysis, and presents the results for each R-Lab in structured tables. The document furthermore describes the process of creating the impact chains as well as their content (hazards, exposures) and the type of stakeholders involved. It includes the two final impact chains of each R-Lab.



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List of Acronyms

ARCH	Advancing Resilience of Historic Areas against Climate-related
	and other Hazards (H2020, GA N°820999)
BTC	Bioclimatic Terrestrial Capacity
CEN	European Committee for Standardization
CSR	Corporate Social Responsibility
CWA	CEN Workshop Agreement
Dx.x	Deliverable x.x
EU	European Union
FhG	Fraunhofer IAIS
GIAHS	Globally Important Agricultural Heritage Systems
H2020	Horizon 2020
NUTS	Nomenclature of Territorial Units for Statistics
PATODH	Territorial Action Plan for Planning and Dinamization of l'Horta
PDO	Protected Designation of Origin
PeSPKA	Regional Plan for Adaptation to Climate Change
PGI	Protected Geographical Indication
RescueME	Equitable RESilience solutions to strengthen the link between Cultural
	landscapEs and coMmunitiEs (H2020, GA N°101094978)
R-Lab	R-Labscape (resilience landscape laboratories)
SES	Socio-Ecological Systems
SHELTER	Sustainable Historic Environments hoListic reconstruction
	through Technological Enhancement and community-based Resilience
	(H2020, GA N°821282)
STx.x	Subtask x.x
Tx.x	Task x.x
TEC	Tecnalia Research and Innovation
TSG	Traditional Specialties Guaranteed
UNESCO	United Nations Educational, Scientific and Cultural Organization
WP	Work Package



1 Introduction

1.1 Overview of T4.2 and relation to other project activities

Deliverable D4.3 is the primary outcome of Task T4.2 "Co-creation of resilience baseline and impact chains" of the project RescueME. This task involved two subtasks (ST): conducting a local resilience baseline assessment (ST4.2.1) for each R-Labscape (hereafter referred to as "R-Lab"), led by ICLEI, and the co-creation of two impact chains (ST4.2.2) for each R-Lab, led by FhG. The R-Labs are the five case studies (resilience landscape laboratories) in RescueME and include the Island of Neuwerk in Hamburg, Germany; the defensive system of Zadar, Croatia; the historical irrigation system at l'Horta de València, Spain (L'Horta de València GIAHS); Portovenere, Cinque Terre & the Islands – Palmaria, Tino, and Tinetto, Italy; and Psiloritis Geopark in Crete, Greece.

The two subtasks of T4.2 offer the following points of focus. ST4.2.1 aimed to gather information on the current state of different "system dimensions" that allowed to assess the current resilience at the local level. This is done through the development, filling in, and analysis of a questionnaire for each R-Lab. The results from the questionnaire were classified using a traffic light method, indicating general actions in each R-lab as being a positive performance, action needed, or being identified as a weakness in relation to the Key Elements of each capital (i.e. social, human, financial, natural, and built capital) of the resilience framework as developed in T1.1.

ST4.2.2 analyses the effects of the different hazards (as identified by each R-Lab), taking into account local conditions, and uses this information to co-create local impact chains. The effects of two specific hazards were analysed for each R-Lab by identifying their effects on the R-Lab as a socio-ecological-technical system ("impacts"). The co-creation of impact chains further aims to analyse which circumstances in the R-Labs can lead to a successful management of these hazards ("coping capacities"), and which factors could exacerbate the negative impacts of the hazards ("sensitivities"). This was done by conducting workshops with R-Labs and relevant local stakeholders. The product of ST4.2.2 are impact chains, i.e., visual representations of how a hazard leads to a risk in the system R-Lab.

Overall, the task aims to represent the current status in the R-Labs based on the views and experiences of the stakeholders involved. Both the resilience baseline assessment and the



impact chains indicate the potential strengths and weaknesses in each R-Lab and so complement each other thereby providing a starting point for the co-creation of solutions, measures and resilience strategies at a later stage of the project.

Within the broader co-creation process (as initiated in T4.1), T4.2 is contributing to understand the challenges and capacities in each R-Lab, setting the groundwork for further work in the project. The usefulness of the task outcomes for other project activities is also manifested in other task relationships (see Figure 1). Specifically, ST4.2.1 focused on the primary resilience assessment framework developed in T1.1. The results of the baseline resilience assessment will provide inputs to the predictive impact modelling (ST1.3.3), application of the serious game (T4.3) and the co-creation of local resilience measures and solutions (T4.4). On the other hand, ST4.2.2 features concrete links to various other tasks in the RescueME project, both within WP4 and in other WPs. The impact chains will be used in the development and application of the serious game (T2.4, T4.3), particularly in identifying relevant hazards and scenarios, and co-creating entry points for potential adaptation measures. The latter will also be supported by T4.2.2 in T2.1 and T4.5. Furthermore, the impact chains will inform the multiscale risk and resilience assessment (T1.3), the co-creation of local resilience measures and solutions (T4.4), and the development of long-term resilience strategies (T2.5). Lastly, the combination of impact chains with organigraphs of adaptive governance maps (T2.3) provides a great potential in matching sensitivities, capacities and potential adaptation measures with stakeholder responsibilities in the R-Labs.





Figure 1: Relationship of T4.2 with other tasks in RescueME

1.2 Purpose and structure of the document

The aim of this document is to provide a comprehensive overview of the results and process of T4.2 so that it can be used for further work within the project RescueME as well as by related research projects and practitioners. It is not the purpose of this document to describe the methodology of impact chains (ST4.2.2) as this is an already established and proven method. For more information on the methodology please refer to the original source (Zebisch et al., 2021). However, for the resilience baseline assessment (ST4.2.1), an overview of the methodology is provided in this deliverable since it is based on a newly established methodology.

The structure of the document corresponds to the task structure. The first part deals with the resilience baseline assessment (Chapter 2), while the second part (Chapter 3) looks at the impact chains. Chapter 2 explains the purpose and methodology of the resilience baseline assessment and presents the results for each R-Lab. Chapter 3 provides an overview of the process of developing the impact chain, as well as details of the individual workshops and the final impact chains themselves.



2 Resilience baseline assessment

The assessment of local resilience has been carried out based on the RescueME Deliverable D1.1 "Actionable framework for resilient historic landscapes" (Egusquiza & Gandini, 2023), from Task 1.1, hereafter referred to as the "RescueME Framework". This framework incorporated the RescueME indicator approach, which implements a GLOCAL (global and local) strategy blending global and local factors alongside top-down and bottom-up approaches. Additionally, the concepts of Socio-Ecological Systems (SES) and a landscape approach as described in (Egusquiza & Gandini, 2023) were adopted. The development of this framework aligns with the standard CWA 17727:2022 "City Resilience Development - Framework and guidance for implementation with a specific focus on historic areas" (European Commitee for Standardization, 2022) and capitalizes on the results of different frameworks, particularly those from two projects:

- The ARCH project Advancing Resilience of Historic Areas against Climate-related and other Hazards - (H2020, GA No. 820999) developed a tool – the ARCH Resilience Assessment Dashboard RAD – which enables stakeholders to evaluate the resilience level of their historic area through a questionnaire. This tool implements the ARCH Resilience Framework (Milde, Lückerath, & Ullrich, 2020).
- The SHELTER project Sustainable Historic Environments hoListic reconstruction through Technological Enhancement & community-based Resilience (H2020- GA No. 821282) which established a Historic Area systemic Resilience Index: a self-assessment tool that aims to assess the current capacities of the Historic Area and identify strengths and weaknesses to better focus future improvement strategies (Egusquiza & Gandini, 2022).

The resilience baseline assessments were conducted via a questionnaire among all R-Labs, based on the resilience indicators identified in D1.1 (Egusquiza & Gandini, 2023). The aim was to employ the RescueME framework to identify weak spots and strongpoints in each R-Lab and inform the most appropriate approach to co-creating resilience measures.



2.1 Methodology: The questionnaire

2.1.1 Definition of questions

The questionnaire to conduct the resilience baseline assessment was developed based on the indicators defined in the RescueME framework (Egusquiza & Gandini, 2023). Out of the total 115 indicators, 47 indicators were linked to local data sources. These indicators served as the initial basis for the formulation of the questionnaire. The aim was to gather customised information tailored to the specific circumstances of each R-Lab. The questionnaire was structured according to the RescueME Framework featuring System dimensions, Capitals, and Key Elements (Egusquiza & Gandini, 2023).

Simultaneously, the 10 essentials of the ARCH Resilience Assessment Dashboard (ARCH RAD) (Milde, Lückerath, & Ullrich, 2020) and the 44 indicators from the SHELTER Historic Area Systemic Resilience Index (Egusquiza & Gandini, 2022) were used as references for the questionnaire formulation. Initially, the 10 essentials of the ARCH RAD questionnaire and their respective questions guided the transformation of selected indicators into questions. Subsequently, a reference mapping of the 44 qualitative indicators of the SHELTER Historic Area Systemic Resilience Index against these 10 essentials was conducted to identify common themes between the two tools. This mapping facilitated a better understanding of the topics considered in their respective resilience assessments and helped in identifying key aspects to be considered for development of the questionnaire for the local baseline assessment in the RescueME project.

A first draft of questions was shared with the R-Lab coordinators and RescueME partners, who provided valuable insights, emphasizing the importance of understanding the unique social, economic, territorial, and organizational factors influencing each R-Lab's context. Based on this feedback and the previously mentioned mapping of common themes in the ARCH and SHELTER tools, the final formulation of the questionnaire was developed, considering the inclusion of other indicators from the RescueME framework linked to sources of information at the EU level.

The final questionnaire was formulated based on a total of 74 RescueME indicators that were identified as relevant for the local resilience baseline assessment, including a mix of localand European-level indicators. To prevent redundancy in data collection, some indicators addressing similar topics were consolidated into one question. For example, indicators no. 54 on "Organic farming activities" and no. 100 on "Number of bio agriculture firms" were merged into a single question. Conversely, some indicators required multiple questions to delve deeper into the subject. For instance, indicator no. 101 on "Number of young farmers" **13 – RescueME – D4.3 Local Resilience Baseline and Local Impact Chains for R-Labscapes – 03/05/2024**



prompted the need to inquire about the approximate percentage of young farmers and the existence of plans or strategies for engaging youth in the field. Consequently, the final questionnaire has **78 questions**, each associated with an indicator (see Table 1).

The questionnaire includes a combination of quantitative and qualitative questions to take into account the integration of selected indicators and the differences between the R-Labs, particularly in view of potential challenges in obtaining information at local level. These questions are either open-ended or multiple-choice. In the case of open-ended questions, the R-Labs were able to provide more details, reference examples, or indicate actions. For multiple-choice questions, rankings were used (either percentage or 1-to-5 score ranking), allowing each R-Lab to provide the most appropriate response. To allow respondents to indicate any difficulties in accessing information, the options of "not sure" or "not available" were made available. Similarly, although all questions were compulsory, respondents had the option to specify if some were not applicable to their specific context. This resulted in a standardised questionnaire for all R-Labs. Finally, considering the difference of territories among the R-Labs, it was indicated in the questionnaire that whenever the term "cultural landscape" appeared, it referred to the specific area or territory that the R-Lab coordinators defined at the beginning of the project as their focus, rather than a specific municipal area.

All the selected indicators and the final set of questions to conduct the resilience baseline assessment structured according to the RescueME framework (System dimensions, Capitals, and Key Elements) are presented in Table 1.

Table 1 – Selected RescueME framework indicators and related questions formulated to conduct the resilience baseline assessment

System dimension	Capital	Key element	RescueMe Indicator		Final RescueME questions		
Social system			132	Number of sites accessible by people with disabilities	1	How accessible is the cultural landscape area to people with disabilities (e.g., mobility challenges)? MULTIPLE CHOICE: 1 to 5 score (1 = not accessible; 3 = some areas are accessible; 5 = every part of the cultural landscape is accessible); Not sure; Not applicable.	
					2	Are there existing or forthcoming plans/strategies to ensure or improve accessibility to local sites within the cultural landscape for people with disabilities? If yes, please provide details. If not applicable or not available, please specify.	
	Social capital			Gender employment gap		How equitable across gender is employment in the cultural landscape area and broader region?	
		Diversity	94		3	<i>MULTIPLE CHOICE: 1 to 5 score (1 = no gender parity, very imbalanced; 5 = high gender parity, gender-balanced among those employed); Not sure; Not applicable.</i>	
					4	Are there existing or forthcoming plans/strategies to improve gender employment equity within the cultural landscape or in the surrounding area? If yes, please provide details. If not applicable or not available, please specify.	
			46	Farm business with owner/manager over 65 years old.	5	What percentage of farm businesses in your cultural landscape area are owned or managed by people over 65 years old?	
					5	MULTIPLE CHOICE: 0-20%; 20-40%; 40-60%; 60-80%; 80-100%; Not Sure; Not applicable.	
			50	Derity in form monogers	6	Considering to the total number of farm managers/ owners in your cultural landscape, what is the percentage of female managers?	
			58	Parity in farm managers	D	MULTIPLE CHOICE: 0-20%; 20-40%; 40-60%; 60-80%; 80-100%; Not Sure; Not applicable.	
			101	Number of young farmers	7	What percentage of farmers working in your cultural landscape area are young (from 21 to 36 years old)?	
				, , ,		MULTIPLE CHOICE: 0-20%; 20-40%; 40-60%; 60-80%; 80-100%; Not Sure; Not applicable.	

System dimension	Capital	Key element		RescueMe Indicator	Final RescueME questions		
					8	Are there existing or forthcoming plans/strategies to encourage young people to work in agriculture within the cultural landscape or in the surrounding area? If yes, please provide details. If not applicable or not available, please specify.	
			51	Land tenure system	9	To what extent do existing Land Tenure Systems (Land use Policy and Property Rights) support the protection of cultural landscape heritage in your site? <i>MULTIPLE CHOICE: 1 to 5 score (1 = minimum/not available; 5 = high level</i> <i>of support); Not sure; Not applicable.</i>	
			102	Participation of Municipalities in rural development projects	10	Please rank the level of Local Municipalities' participation in the cultural landscapes' community planning activities and/or rural development projects. MULTIPLE CHOICE: 1 to 5 score (1 = minimum/not participating; 5 = high level of engagement); Not sure; Not applicable.	
		Governance	103	Number of bottom-up projects presented by citizens	11	Within your cultural landscape, what is the number of projects/initiatives engaging nongovernment bodies /community groups in pre-and post- disaster risk management and protection of cultural heritage and historical sites? Please list examples if any.	
			104	Projects on landscape and CH included in the NEXT Generation EU	12	Within your cultural landscape, what is the number of projects/initiatives on landscape and Cultural Heritage included in the NEXT Generation EU (key instrument to help EU economies emerge stronger and more resilient from the Coronavirus crisis)? Please list examples if any. If not applicable or not available, please specify.	
			29	National adaptation strategies	13	To what extent does the current legislation support the implementation of the national adaptation strategies? MULTIPLE CHOICE: 1 to 5 score (1 = minimum level of support; 5 = high level of support); Not sure; Not applicable.	

System dimension	Capital	Key element	RescueMe Indicator		Final RescueME questions		
			1	Population Density	14	Within your cultural landscape, what is the population growth rate decrease? <i>MULTIPLE CHOICE: 0-20%; 20-40%; 40-60%; 60-80%; 80-100%; Not Sure;</i> <i>Not applicable.</i>	
		Demographics	10	Net migration rate (per 1000)	15	What is the ratio of the net migration during the year to the average population in that year, within the cultural landscape? The value is expressed per 1000 inhabitants. If not applicable or not available, please specify.	
			8	Young-age dependency	16	What is the ratio between population aged 0-14 years to 15-64 in your cultural landscape? If not applicable or not available, please specify.	
			133	Annual number of festivals or cultural events connected to traditions/culinary practices/local products	17	Within your cultural landscape, what is the number of festivals or cultural events connected to traditions/culinary practices/local products with structured messaging, channels, and delivery? Please list examples if any. If not applicable or not available, please specify.	
			13	134	Number of local associations connected to traditions/culinary practices/local products	18	Within your cultural landscape, what is the number of local associations connected to traditions/culinary practices/local products? Please list examples if any. If not applicable or not available, please specify.
	intang		135	Number of shops, restaurants and tourism facilities selling local	19	Can you provide a percentage of the shops, restaurants and tourism facilities selling local products? <i>MULTIPLE CHOICE: 0-20%; 20-40%; 40-60%; 60-80%; 80-100%; Not Sure;</i>	
				Availability of products		Not applicable.	
			65	with designation of origin or geographical indications (PDO, PGI), traditional specialties guaranteed (TSG)	20	indications (PDO, PGI), traditional specialties guaranteed (TSG). <i>MULTIPLE CHOICE: 1 to 5 score (1 = we have very few or none of these products available; 5 = we have many of these products available; Not Sure; Not applicable.</i>	

System dimension	Capital	Key element		RescueMe Indicator		Final RescueME questions		
		Social value	73	Percentage of enterprises/ establishments using a voluntary certification/ labelling for environmental/ quality/ sustainability and/ or Corporate Social Responsibility	21	Can you provide a percentage of enterprises/establishments using a voluntary certification/labelling for environmental quality/sustainability and/or Corporate Social Responsibility? MULTIPLE CHOICE: 0-20%; 20-40%; 40-60%; 60-80%; 80-100%; Not Sure; Not applicable.		
		Training tal	66	Capacity building/ training activities/ mentoring opportunities promoted by institutions for improving cultural knowledge	22	To what extent Capacity building/ training activities/mentoring opportunities to involve the local community are promoted by institutions for improving cultural knowledge? MULTIPLE CHOICE: 1 to 5 score (1 = minimum/not available; 5 = high level of promotion); Not sure; Not applicable.		
			128	Participation rate in education and training	23	What is the percentage of the population age 25-64 participating in formal and informal education or training in relation with preservation of cultural heritage? <i>MULTIPLE CHOICE: 0-20%; 20-40%; 40-60%; 60-80%; 80-100%; Not Sure;</i> <i>Not applicable.</i>		
	Human capital		47	Farm business with owner/manager with full- time commitment/contract	24	What is the percentage of farm managers/ owners with a full-time contract/commitment in your cultural landscape? <i>MULTIPLE CHOICE: 0-20%; 20-40%; 40-60%; 60-80%; 80-100%; Not Sure;</i> <i>Not applicable.</i>		
		Education	13	Highly educated working age persons	25	What is the percentage of people aged 15 and older with tertiary education? <i>MULTIPLE CHOICE: 0-20%; 20-40%; 40-60%; 60-80%; 80-100%; Not Sure; Not applicable.</i>		
			16	Early leavers from education and training	26	What is the percentage of people in the age group between 18-24 who leave education and training programs? <i>MULTIPLE CHOICE: 0-20%; 20-40%; 40-60%; 60-80%; 80-100%; Not Sure;</i> <i>Not applicable.</i>		

System dimension	Capital	Key element	RescueMe Indicator		Final RescueME questions		
			59	Farm manager with agricultural studies	27	What percentage of farm businesses in your cultural landscape are owned/ managed by trained farm manager (professional agrarian studies, university agrarian studies, and others). <i>MULTIPLE CHOICE: 0-20%; 20-40%; 40-60%; 60-80%; 80-100%; Not Sure;</i> <i>Not applicable.</i>	
		ial Economy	61	Municipal budget	28	Is there a specific budget allocated at the municipal level for pre- and post-disaster risk management and protection of cultural landscapes? If yes, can you please provide details? If not applicable or not available, please specify.	
Fi	Financial capital		69	Resources allocated to public space and pathways maintenance, improvement and accessibility, including installation of equipment for cultural use	29	Is there a specific budget allocated at the municipal level to public spaces and their upkeep, including maintenance of pathways and equipment? If yes, can you please provide details? If not applicable or not available, please specify.	
			72	Total expenditure (public and private) per capita spent on the preservation, protection and conservation of all cultural and natural heritage	30	Is there a specific budget allocated by the private sector in the preservation, protection and conservation of cultural landscapes? If yes, can you please provide details? If not applicable or not available, please specify.	
			88	Funds spent in initiatives aimed at raising awareness among tourists and the local population	31	Is there a specific budget allocated by the public/private sector spent in initiatives aimed at raising awareness of site values and weaknesses among tourists and the local population of cultural landscapes? If yes, can you please provide details? If not applicable or not available, please specify.	
			91	Annual income	32	What is the Annual income rate among residents in your cultural landscape? If not applicable or not available, please specify.	

System dimension	Capital	Key element		RescueMe Indicator		Final RescueME questions		
			105	Municipal financing for Cultural Heritage	33	Is there a specific budget allocated at the municipal level for financing the management and protection of your cultural landscapes? If yes, can you please provide details? If not applicable or not available, please specify.		
			27	Environmental protection investments of total economy	34	Is there any budget coming from a regional/national level for environmental protection? Please define if possible. If not applicable or not available, please specify.		
				Employment rate in	05	What is the percentage of people that are employed in the cultural and creative sectors and cultural occupations?		
			//	cultural sector	35	MULTIPLE CHOICE: 0-20%; 20-40%; 40-60%; 60-80%; 80-100%; Not Sure; Not applicable.		
		-	90	Average bousing prices	36	What is the average housing price per square meter in the cultural landscape / surrounding area? If not applicable or not available, please specify.		
			0		37	What is the average housing price per square meter at the national level? If not applicable or not available, please specify.		
			44	Total number of farm business	38	Which is the total number of the farm businesses in of your cultural landscape? If not applicable or not available, please specify.		
			50	Social Security affiliation in Agriculture	39	What is the percentage of people affiliated to Social Security in the agriculture sector compared to the total number of affiliated people (agriculture, industry, construction and services).		
						MULTIPLE CHOICE: 0-20%; 20-40%; 40-60%; 60-80%; 80-100%; Not Sure; Not applicable.		
			39	Tourism Carrying Capacity	40	Is there a designated carrying capacity (or maximum number) for tourists? If not applicable or not available, please specify.		
		Tourism	68	Existence of adopted visitors' management plans that address seasonality of tourism and carrying capacity of properties	41	Is there a visitor management plan in place for the cultural landscape that considers carrying capacity for visitors, or a maximum number of tourists? Please provide details if possible. If not applicable or not available, please specify.		

System dimension	Capital	Key element	RescueMe Indicator		Final RescueME questions	
				Number of days in a year in which maximum tourism carrying capacity has been exceed	42	What is the estimated number of days in a year in which maximum tourism carrying capacity has been exceeded? If not applicable or not available, please specify.
			81	Houses used for official accommodation activities	43	What is the estimated percentage of houses of residents that are now being used as accommodations for tourist? MULTIPLE CHOICE: 0-20%: 20-40%: 40-60%: 60-80%: 80-100%: Not Sure:
						Not applicable.
			00	Owned houses with	11	What is the estimated percentage of houses of residents that are only used in the summer season (e.g., for vacations)?
			02	summer use only	44	MULTIPLE CHOICE: 0-20%; 20-40%; 40-60%; 60-80%; 80-100%; Not Sure; Not applicable.
	Natural capital	Agriculture	53	Diversification of agricultural activities	45	What is the ratio of farms with mixed activity (agriculture and livestock) in relation to the total number of farms by municipality? If not applicable or not available, please specify.
			54	Organic farming activities		What is the ratio of organic farms in relation to the total number of farms
Ecological system			100	Number of Bio agriculture firms	46	by municipality? If not applicable or not available, please specify.
			55	Area with arable crops	47	In your cultural landscape, what percentage of the total crop surface is dedicated to arable crops (cereals for grain, pulses, tubers, industrial crops, flowers and ornamentals, fodder crops, vegetables, nurseries)? <i>MULTIPLE CHOICE: 0-20%; 20-40%; 40-60%; 60-80%; 80-100%; Not Sure;</i>
						Not applicable.
			85	Percentage of	48	If your cultural landscape features terraced areas, what percentage of these terraces are currently abandoned?
				on the total terraced area	40	MULTIPLE CHOICE: 0-20%; 20-40%; 40-60%; 60-80%; 80-100%; Not Sure; Not applicable.
			97	Percentage of terraced 87 vineyards on the total land used for viticulture	10	If viticulture is present in your cultural landscape, what portion of the vineyards is comprised of terraced areas?
			87 Vi la		43	MULTIPLE CHOICE: 0-20%; 20-40%; 40-60%; 60-80%; 80-100%; Not Sure; Not applicable.

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System dimension	Capital	Key element	RescueMe Indicator			Final RescueME questions	
			42	Surface cultivated with vineyards	50	In your cultural landscape, what percentage of surface is cultivated with vineyards? <i>MULTIPLE CHOICE: 0-20%; 20-40%; 40-60%; 60-80%; 80-100%; Not Sure; Not applicable.</i>	
			42	Surface cultivated with	51	In your cultural landscape, what percentage of surface is cultivated with olive trees?	
				olive trees	-	MULTIPLE CHOICE: 0-20%; 20-40%; 40-60%; 60-80%; 80-100%; Not Sure; Not applicable.	
			45	Crops surface	52	In your cultural landscape, what percentage of the surface is devoted to crops? <i>MULTIPLE CHOICE: 0-20%; 20-40%; 40-60%; 60-80%; 80-100%; Not Sure;</i> <i>Not applicable.</i>	
			48	Average hydric resources for crops	53	Do you believe that crops in your cultural landscape have sufficient access to water resources throughout the year? Please provide an explanation. If not applicable or not available, please specify.	
			99	Number of PDO/PGI agriculture firms	54	If there are agricultural firms in your cultural landscape that produce EU- recognized excellence in food production, such as those with Protected Designation of Origin (PDO) or Protected Geographical Indication (PGI), please specify the number. If not applicable or not available, please specify.	
		Natural heritage	56	Protected Areas Surface		What is the percentage of total Protected Areas Surface for cultural landscapes in your site?	
					55	MULTIPLE CHOICE: 0-20%; 20-40%; 40-60%; 60-80%; 80-100%; Not Sure; Not applicable.	
				Diversity of landscape	56	What is the number of landscape typologies in your area? Please name the typologies of landscape you have. If not applicable or not available, please specify.	
		141		(number of landscape typologies)		To what extent are planning measures implemented to secure the diversity of cultural landscapes?	
					57	<i>MULTIPLE CHOICE: 1 to 5 score (1 = minimum/not available; 5 = high level); Not sure; Not applicable.</i>	

System dimension	Capital	Key element	RescueMe Indicator			Final RescueME questions	
			14	Quality of natural landscapes based on Natura 2000 sites	58	What is the percentage share of Natura 2000 sites within the NUTS2 or NUTS3 region? <i>MULTIPLE CHOICE: 0-20%; 20-40%; 40-60%; 60-80%; 80-100%; Not Sure;</i> <i>Not applicable.</i>	
			130	Nationally designated areas	59	What is the percentage of nationally designated protected areas in the cultural landscape? <i>MULTIPLE CHOICE: 0-20%; 20-40%; 40-60%; 60-80%; 80-100%; Not Sure;</i> <i>Not applicable.</i>	
	107		Green areas of high ecological quantity	60	What is the percentage within the cultural landscape of green areas of high ecological quality (defined as green areas with BTC index higher than 2,4 Mcal/m2 * year with respect to the total surface of the LU.)? <i>MULTIPLE CHOICE: 0-20%; 20-40%; 40-60%; 60-80%; 80-100%; Not Sure;</i>		
	Green and	110	Nature based recreation potential	61	Not applicable. What is the share of areas for daily recreation (% of km2 of land potentially used for daily recreation)? MULTIPLE CHOICE: 0-20%; 20-40%; 40-60%; 60-80%; 80-100%; Not Sure;		
		infrastructure	111	Habitat and species maintenance	62	<i>Not applicable.</i> Do you have any plans for the conservation and maintenance of the natural habitat and species? If yes, please provide details. If not applicable or not available, please specify.	
		113	Global climate regulation – Carbon sequestration	63	Do you have any policy, regulation or plan that considers the value of ecosystem accounts of carbon sequestration as a proxy of global climate regulation? If yes, please provide details. If not applicable or not available, please specify.		
		Topography	31	Suite of products (land use, population, street trees)	64	To what extent do you use Copernicus data or other source of data in your land planning processes? MULTIPLE CHOICE: 1 to 5 score (1 = no data is used; 5 = high level); Not	
	Topography and morphology 3		34	Áffected areas due to an extreme event	65	<i>sure; Not applicable.</i> Do you have any tool or service that helps to identify the most affected areas and the severity of damage of the cultural landscape, when an extreme event happens? If yes, please provide details. If not applicable or not available, please specify.	

System dimension	Capital	Key element	RescueMe Indicator		Final RescueME questions	
			108	Dispersion of urban areas	66	Are there identified areas of ecological fragmentation generated by urban dispersion? If yes, please provide details. If not applicable or not available, please specify.
			119	Number of fire events in a considered time period	67	How often have you experienced a fire event in recent years? If not applicable or not available, please specify.
			41	Percentage of rented houses	68	What is the percentage of rented houses in your cultural landscape? <i>MULTIPLE CHOICE: 0-20%; 20-40%; 40-60%; 60-80%; 80-100%; Not Sure;</i> <i>Not applicable.</i>
	Built capital	Buildings	64	Number of cultural facilities open to the public and aiming at promoting arts and culture per population	69	What is the number of cultural facilities open to the public and aiming at promoting arts and heritage of cultural landscapes in your site? If yes, can you please provide details? If not applicable or not available, please specify.
			92	Number of properties	70	What is the total number of properties (buildings) within the cultural heritage area? If not applicable or not available, please specify.
Technical system		l Infrastructure	74	Percentage of cultural facilities and sites accessible by public transport or other environmentally friendly transport or cycle tracks	71	What is the percentage of cultural facilities and sites accessible by public transport or other environmentally friendly transport or cycle tracks within the cultural landscape area? <i>MULTIPLE CHOICE: Not accessible; 0-20% is accessible; 20-40% is accessible; 40-60% is accessible; 60-80% is accessible; 80-100% is accessible; Not sure; Not applicable.</i>
			96	Number of emergency operators	72	To what extent are the main urban and rural settlements in your landscape properly served by all necessary emergency operators (civil protection, fire-fighters, rescuers, etc)? <i>MULTIPLE CHOICE: 1 to 5 score (1 = not properly served; 5 = properly served); Not sure; Not applicable.</i>
			122	Time distance from the main city	73	What is the average time distance from your cultural landscape to the main urban area (access to emergency services), considering different vehicles (car, bike, train, feet, cruise)? If not applicable or not available, please specify.

System dimension	Capital	Key element	RescueMe Indicator		Final RescueME questions	
			123	Conservation index of historical rural architectural heritage	74	Do you have any plan for the conservation of the historical rural architectural heritage in your cultural landscape, that also includes an inventory of them? If yes, please provide details. If not applicable or not available, please specify.
		Tangible CH	62	Heritage density: Number of designated or formally listed natural and cultural sites and intangible heritage per area	75	Are there measures taken by public authorities to protect, safeguard and manage heritage through their inclusion and recognition in inventories, lists or registers? If yes, can you please name any? If not applicable or not available, please specify.
			22	Historical building stock	76	What is the approximated ratio between the number of dwellings built before 1919 and the total number of dwellings? <i>MULTIPLE CHOICE: 0-20%; 20-40%; 40-60%; 60-80%; 80-100%; Not Sure;</i> <i>Not applicable.</i>
		Energy	126	Energy consumption from renewable carriers for space heating, hot water and cooling	77	In your cultural landscape, what is the approximated ratio of the energy consumption from renewable carriers (for space heating, hot water and cooling)? <i>MULTIPLE CHOICE: 0-20%; 20-40%; 40-60%; 60-80%; 80-100%; Not Sure;</i> <i>Not applicable.</i>
			127	Share of energy from renewable carriers for space heating, hot water and cooling	78	In your cultural landscape, is there a policy or plan to improve the share of energy for space heating, hot water and cooling from renewable carriers? If yes, please provide details. If not applicable or not available, please specify.



2.1.2 Data collection

Before commencing the data collection, the final questionnaire was shared with the R-Labs for any last feedback and to provide clarifications, as needed. To enhance flexibility and allow the R-Labs to conduct the data collection in the most suitable way considering their different contexts, ICLEI recommended two main options for completing the questionnaire:

- **Option 1:** Involving relevant stakeholders from the outset through the organization of focus group discussions, allowing them to collectively respond to the questionnaire.
- **Option 2**: Initially, R-Labs would complete the questionnaire, with specific stakeholders engaged later to gather any missing information, as needed.

Representatives from each R-Lab were encouraged to utilize previous stakeholder mapping exercises to identify and contact targeted stakeholders to gather information for the questionnaire. Given that the R-Labs represented diverse contexts, the types of resources and stakeholders consulted varied significantly. In certain instances, particularly for larger and more diverse cultural landscapes, challenges were reported in securing engagement and responsiveness from contacted parties. Conversely, in other cases, the limited geographical scope facilitated a more direct and streamlined data collection process.

Overall, the data collection spanned from December 18, 2023, to February 9, 2024. To gather the answers to the questionnaire from the five R-Labs, ICLEI created a digital survey form in English using the online survey-management system EU Survey¹. Translations of the questionnaire were shared separately to facilitate answering questions and gathering data, mitigating the risk of potential misinterpretation by ICLEI.

2.1.3 Data analysis

In line with the questionnaire's structure featuring multiple questions for each Key Element, ICLEI chose to evaluate the responses collectively by Key Element rather than individually. The main reasons behind this approach are on the one hand the limited availability of specific benchmarks for every question – also considering that some of them are qualitative and some quantitative – and on the other the need to compare questions on the same topic evaluating them against each other, as well as against the specific context.

¹ EU Survey; © EU Survey

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To better explain, taking the Key Element of "Diversity" as an example, to evaluate the response to question n.7 "*What percentage of farmers working in your cultural landscape area are young (from 21 to 36 years old)?*" it may be needed to consider additional factors such as:

- Responses to other questions: as for example question n.8 "*Are there existing or forthcoming plans/strategies to encourage young people to work in agriculture within the cultural landscape or in the surrounding area?*" for which a positive answer could mitigate in the medium/long-term a potential low presence of young farmers in the area.
- The demographics of the area: for example, a low value in a territory with a high number of inhabitants has a different relevance compared to a scarcely populated area.
- Economic activities of the area: in terms of the specific relevance of farming and agriculture, as the weight of age diversity can have different impacts on context where that type of activity is predominant as opposed to territories relying more on different types of economic activities.

For these reasons, a comparative evaluation among the R-Labs was discarded, preferring instead an individual evaluation of the questionnaires, while still having a common base for the analysis. To do that, ICLEI leveraged its expertise to define why the general theme of each Key Element is important for the resilience of cultural landscapes, also diving into more specific topics for each group of questions. For example, for the Key Element of "Diversity", which comprises eight questions, the following three specific topics were identified: i) accessibility to people with disabilities; ii) gender equity; iii) age distribution. For each one of the three topics, details about their relevance for resilience is provided. This information for all the Key Elements and their specific questions can be found in Table 2, where also a shorter version of the questions is provided for ease of reference.

	Key Elements and questions' main topics: relevance for resilience				
Soc	Social System				
al	Key Element: Diversity				
pit	Questions	Relevance for resilience			
Ca	1. How accessible is the cultural	Diversity within a cultural landscape encompasses various			
l (landscape area to people with	dimensions, including accessibility, gender equity, age			
cié	disabilities (e.g., mobility challenges)?	distribution and opportunities for marginalized groups			
ŏ	2. Are there existing or forthcoming	Linderstanding and promoting diversity is essential to			
0)	plans/strategies to ensure or improve	Understanding and promoting diversity is essential to			
	accessibility to local sites within the	foster a sense of social cohesion, belonging and			

Table 2 – Key Elements and questions' main topics: relevance for resilience



cultural landscape for people with	ownership, strengthening community resilience.
disabilities?	Specifically, regarding the main topics emerging from the
3. How equitable across gender is	
employment in the cultural landscape	questions.
area and broader region?	- Accessibility to People with Disabilities: Inclusive
4. Are there existing or forthcoming	access allows everyone, including those with
plans/strategies to improve gender	disabilities, to fully engage with cultural heritage sites,
employment equity within the cultural	fostering social inclusivity and resilience through
landscape or in the surrounding area?	diverse participation and community involvement.
5. What percentage of farm businesses	- Gender Equity: Equal participation empowers
in your cultural landscape area are	marginalized groups, enhancing community resilience
owned or managed by people over 65	and fostering diverse leadership by ensuring fair
years old?	and fostering diverse teadership by ensuring fail
6. Considering to the total number of	- opportunities for both women and men in culturat
farm managers/ owners in your	landscapes.
cultural landscape, what is the	- Age Distribution: A varied age demographic facilitates
percentage of female managers?	intergenerational knowledge exchange, innovation, and
7. What percentage of farmers working	resilience in agricultural practices, enabling adaptation
in your cultural landscape area are	to climate change and emerging environmental
young (from 21 to 36 years old)?	challenges through collaborative learning and diverse
8. Are there existing or forthcoming	perspectives.
plans/strategies to encourage young	
people to work in agriculture within	
the cultural landscape or in the	
surrounding area?	
surrounding area?	
Key Element: Governance	
Key Element: Governance Questions	Relevance for resilience
Key Element: Governance Questions 9. To what extent do existing Land	Relevance for resilience The Governance Key Element examines the resilience of
Key Element: Governance Questions 9. To what extent do existing Land Tenure Systems (Land-use Policy and	Relevance for resilience The Governance Key Element examines the resilience of cultural landscapes through various dimensions of
Key Element: Governance Questions 9. To what extent do existing Land Tenure Systems (Land-use Policy and Property Rights) support the	Relevance for resilience The Governance Key Element examines the resilience of cultural landscapes through various dimensions of cultural and scapes through various dimensions of cultural landscapes through various dimensions dimensions of cultural landscapes through various dimensions dimensions of cultural landscapes through various dimensions dimensions dimensions of cultural landscapes through various dimensions dimensis dimen
Key Element: Governance Questions 9. To what extent do existing Land Tenure Systems (Land-use Policy and Property Rights) support the protection of cultural landscape	Relevance for resilience The Governance Key Element examines the resilience of cultural landscapes through various dimensions of governance, which play a critical role in shaping adaptive
Surrounding area?Key Element: GovernanceQuestions9. To what extent do existing LandTenure Systems (Land-use Policy andProperty Rights) support theprotection of cultural landscapeheritage in your site?	Relevance for resilience The Governance Key Element examines the resilience of cultural landscapes through various dimensions of governance, which play a critical role in shaping adaptive responses to environmental, social, and economic
Key Element: Governance Questions 9. To what extent do existing Land Tenure Systems (Land-use Policy and Property Rights) support the protection of cultural landscape heritage in your site? 10. Please rank the level of Local	Relevance for resilience The Governance Key Element examines the resilience of cultural landscapes through various dimensions of governance, which play a critical role in shaping adaptive responses to environmental, social, and economic challenges. Effective governance ensures the sustainable
Key Element: Governance Questions 9. To what extent do existing Land Tenure Systems (Land-use Policy and Property Rights) support the protection of cultural landscape heritage in your site? 10. Please rank the level of Local Municipalities' participation in the	Relevance for resilience The Governance Key Element examines the resilience of cultural landscapes through various dimensions of governance, which play a critical role in shaping adaptive responses to environmental, social, and economic challenges. Effective governance ensures the sustainable management and protection of cultural heritage while
Surrounding area?Key Element: GovernanceQuestions9. To what extent do existing LandTenure Systems (Land-use Policy andProperty Rights) support theprotection of cultural landscapeheritage in your site?10. Please rank the level of LocalMunicipalities' participation in thecultural landscapes' community	Relevance for resilience The Governance Key Element examines the resilience of cultural landscapes through various dimensions of governance, which play a critical role in shaping adaptive responses to environmental, social, and economic challenges. Effective governance ensures the sustainable management and protection of cultural heritage while fostering community engagement and collaboration.
Key Element: GovernanceQuestions9. To what extent do existing LandTenure Systems (Land-use Policy andProperty Rights) support theprotection of cultural landscapeheritage in your site?10. Please rank the level of LocalMunicipalities' participation in thecultural landscapes' communityplanning activities and/or rural	Relevance for resilience The Governance Key Element examines the resilience of cultural landscapes through various dimensions of governance, which play a critical role in shaping adaptive responses to environmental, social, and economic challenges. Effective governance ensures the sustainable management and protection of cultural heritage while fostering community engagement and collaboration. Specifically, regarding the main topics emerging from the
Key Element: Governance Questions 9. To what extent do existing Land Tenure Systems (Land-use Policy and Property Rights) support the protection of cultural landscape heritage in your site? 10. Please rank the level of Local Municipalities' participation in the cultural landscapes' community planning activities and/or rural development projects.	Relevance for resilience The Governance Key Element examines the resilience of cultural landscapes through various dimensions of governance, which play a critical role in shaping adaptive responses to environmental, social, and economic challenges. Effective governance ensures the sustainable management and protection of cultural heritage while fostering community engagement and collaboration. Specifically, regarding the main topics emerging from the questions:
Key Element: Governance Questions 9. To what extent do existing Land Tenure Systems (Land-use Policy and Property Rights) support the protection of cultural landscape heritage in your site? 10. Please rank the level of Local Municipalities' participation in the cultural landscapes' community planning activities and/or rural development projects. 11. Within your cultural landscape,	Relevance for resilience The Governance Key Element examines the resilience of cultural landscapes through various dimensions of governance, which play a critical role in shaping adaptive responses to environmental, social, and economic challenges. Effective governance ensures the sustainable management and protection of cultural heritage while fostering community engagement and collaboration. Specifically, regarding the main topics emerging from the questions: - Land Tenure Systems: Legal frameworks governing
Key Element: Governance Questions 9. To what extent do existing Land Tenure Systems (Land-use Policy and Property Rights) support the protection of cultural landscape heritage in your site? 10. Please rank the level of Local Municipalities' participation in the cultural landscapes' community planning activities and/or rural development projects. 11. Within your cultural landscape, what is the number of	Relevance for resilience The Governance Key Element examines the resilience of cultural landscapes through various dimensions of governance, which play a critical role in shaping adaptive responses to environmental, social, and economic challenges. Effective governance ensures the sustainable management and protection of cultural heritage while fostering community engagement and collaboration. Specifically, regarding the main topics emerging from the questions: - Land Tenure Systems: Legal frameworks governing land tenure are crucial for managing and conserving
Key Element: Governance Questions 9. To what extent do existing Land Tenure Systems (Land-use Policy and Property Rights) support the protection of cultural landscape heritage in your site? 10. Please rank the level of Local Municipalities' participation in the cultural landscapes' community planning activities and/or rural development projects. 11. Within your cultural landscape, what is the number of projects/initiatives engaging	Relevance for resilience The Governance Key Element examines the resilience of cultural landscapes through various dimensions of governance, which play a critical role in shaping adaptive responses to environmental, social, and economic challenges. Effective governance ensures the sustainable management and protection of cultural heritage while fostering community engagement and collaboration. Specifically, regarding the main topics emerging from the questions: - Land Tenure Systems: Legal frameworks governing land tenure are crucial for managing and conserving cultural landscapes. Strong systems support
Key Element: Governance Questions 9. To what extent do existing Land Tenure Systems (Land-use Policy and Property Rights) support the protection of cultural landscape heritage in your site? 10. Please rank the level of Local Municipalities' participation in the cultural landscapes' community planning activities and/or rural development projects. 11. Within your cultural landscape, what is the number of projects/initiatives engaging nongovernment bodies /community	Relevance for resilience The Governance Key Element examines the resilience of cultural landscapes through various dimensions of governance, which play a critical role in shaping adaptive responses to environmental, social, and economic challenges. Effective governance ensures the sustainable management and protection of cultural heritage while fostering community engagement and collaboration. Specifically, regarding the main topics emerging from the questions: - Land Tenure Systems: Legal frameworks governing land tenure are crucial for managing and conserving cultural landscapes. Strong systems support
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Key Element: Governance Questions 9. To what extent do existing Land Tenure Systems (Land-use Policy and Property Rights) support the protection of cultural landscape heritage in your site? 10. Please rank the level of Local Municipalities' participation in the cultural landscapes' community planning activities and/or rural development projects. 11. Within your cultural landscape, what is the number of projects/initiatives engaging nongovernment bodies /community groups in pre-and post-disaster risk management and protection of cultural	Relevance for resilience The Governance Key Element examines the resilience of cultural landscapes through various dimensions of governance, which play a critical role in shaping adaptive responses to environmental, social, and economic challenges. Effective governance ensures the sustainable management and protection of cultural heritage while fostering community engagement and collaboration. Specifically, regarding the main topics emerging from the questions: - Land Tenure Systems: Legal frameworks governing land tenure are crucial for managing and conserving cultural landscapes. Strong systems support sustainable land use practices, preserving heritage and traditional knowledge, especially where community
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Key Element: Governance Questions 9. To what extent do existing Land Tenure Systems (Land-use Policy and Property Rights) support the protection of cultural landscape heritage in your site? 10. Please rank the level of Local Municipalities' participation in the cultural landscapes' community planning activities and/or rural development projects. 11. Within your cultural landscape, what is the number of projects/initiatives engaging nongovernment bodies /community groups in pre-and post-disaster risk management and protection of cultural heritage and historical sites? 12. Within your cultural landscape,	Relevance for resilience The Governance Key Element examines the resilience of cultural landscapes through various dimensions of governance, which play a critical role in shaping adaptive responses to environmental, social, and economic challenges. Effective governance ensures the sustainable management and protection of cultural heritage while fostering community engagement and collaboration. Specifically, regarding the main topics emerging from the questions: - Land Tenure Systems: Legal frameworks governing land tenure are crucial for managing and conserving cultural landscapes. Strong systems support sustainable land use practices, preserving heritage and traditional knowledge, especially where community ownership prioritizes stewardship. - Municipal Participation: Local government involvement
Key Element: Governance Questions 9. To what extent do existing Land Tenure Systems (Land-use Policy and Property Rights) support the protection of cultural landscape heritage in your site? 10. Please rank the level of Local Municipalities' participation in the cultural landscapes' community planning activities and/or rural development projects. 11. Within your cultural landscape, what is the number of projects/initiatives engaging nongovernment bodies /community groups in pre-and post-disaster risk management and protection of cultural heritage and historical sites? 12. Within your cultural landscape, what is the number of	Relevance for resilience The Governance Key Element examines the resilience of cultural landscapes through various dimensions of governance, which play a critical role in shaping adaptive responses to environmental, social, and economic challenges. Effective governance ensures the sustainable management and protection of cultural heritage while fostering community engagement and collaboration. Specifically, regarding the main topics emerging from the questions: - Land Tenure Systems: Legal frameworks governing land tenure are crucial for managing and conserving cultural landscapes. Strong systems support sustainable land use practices, preserving heritage and traditional knowledge, especially where community ownership prioritizes stewardship. - Municipal Participation: Local government involvement is vital for resilience in cultural landscapes.
Key Element: Governance Questions 9. To what extent do existing Land Tenure Systems (Land-use Policy and Property Rights) support the protection of cultural landscape heritage in your site? 10. Please rank the level of Local Municipalities' participation in the cultural landscapes' community planning activities and/or rural development projects. 11. Within your cultural landscape, what is the number of projects/initiatives engaging nongovernment bodies /community groups in pre-and post-disaster risk management and protection of cultural heritage and historical sites? 12. Within your cultural landscape, what is the number of projects/initiatives on landscape and	Relevance for resilience The Governance Key Element examines the resilience of cultural landscapes through various dimensions of governance, which play a critical role in shaping adaptive responses to environmental, social, and economic challenges. Effective governance ensures the sustainable management and protection of cultural heritage while fostering community engagement and collaboration. Specifically, regarding the main topics emerging from the questions: - Land Tenure Systems: Legal frameworks governing land tenure are crucial for managing and conserving cultural landscapes. Strong systems support sustainable land use practices, preserving heritage and traditional knowledge, especially where community ownership prioritizes stewardship. - Municipal Participation: Local government involvement is vital for resilience in cultural landscapes. Municipalities serve as key stakeholders in decision-



Key Elements and question	s' main topics: relevance for resilience
Generation EU (key instrument to help EU economies emerge stronger and more resilient from the Coronavirus crisis)? 13. To what extent does the current legislation support the implementation of the national adaptation strategies?	 making processes, contributing local knowledge and resources to planning, fostering integrated land use strategies and disaster risk reduction. Community Engagement in Disaster Risk Management: Grassroots involvement enhances disaster resilience. Community-driven initiatives empower residents to identify risks, plan for emergencies, and support response efforts, strengthening overall resilience. Legislative Support: Strong legal frameworks enable proactive adaptation to environmental challenges in cultural landscapes. Legislation integrating landscapes into national strategies supports resilience-building efforts, ensuring sustainable management and resource allocation for long-term resilience.
Key Element: Demographics	
<i>Questions</i> 14. Please describe the population change in your cultural landscape over	Relevance for resilience Understanding demographic changes offers valuable
the last 10 years.	the cultural landscapes. Specifically, regarding the main topics emerging from the questions: - Population Change: Data on population trends informs
15. What is the net migration rate within the cultural landscape during the year?	 resilience planning. Decreases may indicate challenges like outmigration or economic decline, while growth presents economic opportunities but can strain resources. Net Migration Rate: Migration trends reflect landscape sustainability. Positive rates suggest economic
16. What is the ratio between population aged 0-14 years to 15-64 in your cultural landscape?	 opportunities, while negative rates indicate challenges like downturns or environmental degradation, prompting outmigration. Age Distribution Ratio: Workforce dynamics affect resilience planning. More working-age adults imply economic productivity, while aging populations may challenge service provision and economic growth.
Key Element: Intangible Cultural	Heritage
Questions	Relevance for resilience
17. Within your cultural landscape, what is the number of festivals or cultural events connected to traditions/culinary practices/local products with structured messaging, channels, and delivery?	Intangible cultural heritage encompasses festivals, culinary practices, local products, and traditional associations, all of which play pivotal roles in shaping community identity, fostering social cohesion, and promoting economic vitality. Assessing intangible cultural



	Key Elements and questions	s' main topics: relevance for resilience
	 18. Within your cultural landscape, what is the number of local associations connected to traditions/culinary practices/local products? 19. Can you provide a percentage of the shops, restaurants and tourism facilities selling local products? 20. Availability of products with designation of origin or geographical indications (PDO, PGI), traditional specialties guaranteed (TSG). 	 heritage becomes central as it not only preserves traditions but also enhances community engagement and economic sustainability, ultimately strengthening the landscape's ability to adapt to and withstand various challenges. Specifically, regarding the main topics emerging from the questions: Festivals and Cultural Events: The presence of festivals and cultural events connected to traditions, culinary practices, and local products demonstrates the vibrancy of community traditions and the engagement of local residents. Local Associations: The existence of local associations dedicated to preserving and promoting intangible cultural heritage reflects active community involvement and grassroots efforts to safeguard traditional knowledge and practices. Availability of Local Products: Local products support economies, enhance cultural identity, and promote sustainable consumption. Communities with many local product vendors demonstrate a strong commitment to preserving cultural heritage and traditional practices. Designations of Origin and Geographical Indications: Products with PDO (Protected Designation of Origin) and PGI (Protected Geographical Indication), signifies the recognition and protection of unique local resources and traditional products benefit from increased market value, consumer trust, and economic
	Key Element: Social Value	
	Questions	Relevance for resilience
	21. Can you provide a percentage of enterprises/establishments using a voluntary certification/labelling for environmental quality/sustainability and/or Corporate Social Responsibility?	This question falling under the Key Element of Social Value examines enterprises' commitment to environmental quality, sustainability, and Corporate Social Responsibility (CSR). Assessing voluntary certification/labelling reflects businesses' social responsibility and sustainability practices, contributing to cultural heritage preservation, community resilience, and landscape well-being through sustainable economic practices and community engagement.
Ę	Key Element: Training	
	Questions	Relevance for resilience



Key Elements and questions	s' main topics: relevance for resilience
 22. To what extent are Capacity building/ training activities/mentoring opportunities to involve the local community promoted by institutions for improving cultural knowledge? 23. What is the percentage of the population age 25-64 participating in formal and informal education or training in relation with preservation of cultural heritage? 24. What is the percentage of farm managers/ owners with a full-time contract/ commitment in your cultural landscape? 	 Trainings play a pivotal role in equipping communities with the knowledge, skills, and resources necessary to preserve cultural heritage, promote sustainable practices, and navigate various socio-economic challenges. Specifically, regarding the main topics emerging from the questions: Capacity Building: Essential for cultural knowledge and community empowerment, capacity-building activities and mentoring foster skill development, knowledge exchange, and community engagement. Mentorship programs connecting experienced practitioners with emerging talent ensure continuity and vitality within cultural landscapes. Participation in Formal and Informal Training: Reflects community engagement and commitment to learning. Higher participation rates indicate proactive capacity building, fostering lifelong learning and innovation. Tailored educational opportunities empower communities, driving resilience and sustainability in cultural landscapes. Full-Time Farm Managers/Owners: Crucial for sustainable land management and heritage preservation, farm managers' commitment safeguards agricultural heritage. Higher full-time commitment percentages signify greater dedication to heritage conservation. Targeted training and incentives encourage agricultural stakeholders' leadership, fostering ownership and stewardship of heritage
	assets.
Key Element: Education	
Questions	Relevance for resilience
 25. What is the percentage of people aged 15 and older with tertiary education? 26. What is the percentage of people in the age group between 18-24 who leave education and training programs? 27. What percentage of farm businesses in your cultural landscape are owned/ managed by trained farm manager (professional agrarian studies, university agrarian studies, and others). 	 Education serves as a cornerstone for fostering skills, knowledge, and attitudes necessary for heritage preservation, community engagement, and economic empowerment. Specifically, regarding the main topics emerging from the questions: Tertiary Education: Higher tertiary education rates indicate strong knowledge foundations and professional expertise, enabling communities to adapt to challenges and drive sustainable development initiatives effectively.



	Key Elements and question	s' main topics: relevance for resilience
		 Early School Leaving: High rates indicate educational and socio-economic vulnerabilities, potentially leading to disengagement and limited access to vocational training, affecting cultural landscapes' resilience. Percentage of Trained Farm Managers: Crucial for sustainable agriculture, trained professionals ensure effective land management and innovation. Communities lacking trained managers may face challenges in adopting modern techniques and resilience to environmental pressures.
tal	Key Element: Economy	
ide	Questions	Relevance for resilience
Financial Cap	28. Is there a specific budget allocated at the municipal level for pre- and post-disaster risk management and protection of cultural landscapes? If yes, can you please provide details? 29. Is there a specific budget allocated at the municipal level to public spaces and their upkeep, including maintenance of pathways and equipment? 30. Is there a specific budget allocated by the private sector in the preservation, protection and conservation of cultural landscapes? 31. Is there a specific budget allocated by the public/private sector spent in initiatives aimed at raising awareness of site values and weaknesses among tourists and the local population of cultural landscapes? 32. What is the Annual income rate among residents in your cultural landscape? 33. Is there a specific budget allocated at the municipal level for financing the management and protection of your cultural landscapes? 34. Is there any budget coming from a regional/national level for environmental protection? 35. What is the percentage of people that are employed in the cultural and creative sectors and cultural	 Retevance for resilience The economic stability of a region directly influences its capacity to adapt to challenges, invest in protective measures, and maintain cultural practices. A strong economic foundation helps in preserving and safeguarding cultural landscapes, enhancing their overall ability to withstand both climate-related and other challenges. Specifically, regarding the main topics emerging from the questions: Budget Allocation: Reflects governance priorities and resource distribution for addressing economic challenges, preserving heritage, and managing landscapes. Specific budget items for disaster risk management, public space maintenance, and preservation efforts indicate commitment to resilience-building measures and highlight areas for improvement. Economic Indicators: Income rates, housing prices, and employment percentages gauge economic well-being and sustainability. High incomes, affordable housing, and employment signify prosperity and accessibility, enhancing community well-being. Conversely, lower incomes and escalating housing prices indicate economic challenges requiring targeted interventions. Sectoral Analysis: Focuses on economic sectors like agriculture and tourism driving growth and cultural vitality. Understanding sector contributions, resilience, and potential informs development initiatives, fostering sectoral resilience and innovation for inclusive growth and economic sustainability. Resource Support: External support aids environmental
	 management and protection of your cultural landscapes? 34. Is there any budget coming from a regional/national level for environmental protection? 35. What is the percentage of people that are employed in the cultural and creative sectors and cultural occupations? 	 Sectoral Analysis: Focuses on economic sectors li agriculture and tourism driving growth and cultura vitality. Understanding sector contributions, resili- and potential informs development initiatives, fos- sectoral resilience and innovation for inclusive gro and economic sustainability. Resource Support: External support aids environn protection and economic development, enhancing



	Key Elements and question	s' main topics: relevance for resilience				
	 36. What is the average housing price per square meter in the cultural landscape / surrounding area? 37. What is the average housing price per square meter at the national level? 38. Which is the total number of farm businesses in your cultural landscape? 39. What is the percentage of people affiliated to Social Security in the agriculture sector compared to the total number of affiliated people (agriculture, industry, construction and services)? 	resilience and collaboration. Availability and effectiveness of support mechanisms influence communities' capacity to address challenges and implement resilience strategies, strengthening economic resilience and adaptive capacity.				
	Key Element: Tourism					
	Questions	Relevance for resilience				
	40. Is there a designated carrying capacity (or maximum number) for tourists?	The Tourism section evaluates tourism's impact on cultural landscapes, recognizing its economic benefits and potential drawbacks. While driving economic growth, tourism can strain landscapes with overcrowding and				
	41. Is there a visitor management plan in place for the cultural landscape that considers carrying capacity for visitors, or a maximum number of tourists?	cultural loss. Balancing tourism management is vital for preserving authenticity, integrity, and sustainability. Specifically, regarding the main topics emerging from the questions:				
	42. What is the estimated number of days in a year in which maximum tourism carrying capacity has been exceeded?	presence or absence of designated carrying capacities and visitor management plans reflects the extent to which destinations proactively regulate tourism activities to prevent overcrowding, mitigate environmental degradation, and ensure quality visitor experiences.				
		 Over-Tourism Incidents: Instances where the estimated maximum tourism carrying capacity is exceeded, particularly during peak, underscore the challenges associated with over-tourism and its impacts on infrastructure, environment, and resident well-being. Residential Accommodation and Seasonality: Percentage of residential houses used for tourism and seasonal exclusivity show impacts on housing markets, community cohesion, affordability, and cultural authenticity. 				
Eco	logical System					
at	Key Element: Agriculture					
Ž	Questions	Relevance for resilience				



 Looking into agricultural practices within cultural landscapes is vital for understanding their resilience, as agriculture is not only an economic activity but also a custodian of traditional practices and a contributor to landscape sustainability. Specifically, regarding the main topics emerging from the questions: Farming Diversity: Ratio of mixed and organic farms reflects agricultural sustainability. Higher percentages indicate sustainable practices and diversified income sources, enhancing overall resilience. Land Use and Terraced Agriculture: Percentage of arable land and active terraces shows agricultural productivity and landscape preservation. Abandoned terraces signal potential vulnerabilities in maintaining traditional practices. Water Access and Management: Understanding water resources and irrigation practices is crucial for evaluating agricultural resilience, particularly in water- scarce regions. Concerns about water availability underscore the need for sustainable management strategies. Product Certifications: EU-recognized certifications signify quality, tradition, and local economic development. They enhance reputation, support livelihoods, and contribute to economic resilience by promoting value-added agricultural products.
Relevance for resilience The Natural Heritage section explores the ecological and environmental elements within cultural landscapes, recognizing the inherent link between natural features and cultural identity. Natural elements, including protected

typologies in your area?



Key Elements and questions	s' main topics: relevance for resilience	
57. To what extent are planning measures implemented to secure the diversity of cultural landscapes? 58. What is the percentage share of Natura 2000 sites within the NUTS2 or NUTS3 region? 59. What is the percentage of nationally designated protected areas in the cultural landscape?	 areas and diverse landscapes, play a pivotal role in maintaining ecological balance, supporting biodiversity, and enhancing the overall adaptability of the cultural landscape. Specifically, regarding the main topics emerging from the questions: Protected Areas and Conservation Efforts: These inquiries aim to evaluate the preservation of natural habitats and biodiversity, essential for maintaining ecological balance and supporting wildlife diversity. Planning and Management Measures: Examines planning effectiveness in securing landscape diversity and implementing conservation strategies. It evaluates frameworks promoting ecological sustainability and long-term preservation. Recognition of Excellence in Conservation: European and national recognition certifications acknowledge efforts in preserving traditional practices and promoting sustainable land use. Recognizing conservation excellence underscores agricultural heritage's cultural significance and its role in broader 	
	conservation efforts.	
Key Element: Green and blue infrastructure		
Questions	Relevance for resilience	
 60. What is the percentage within the cultural landscape of green areas of high ecological quality (defined as green areas with BTC index higher than 2,4 Mcal/m2 * year with respect to the total surface of the LU.)? 61. What is the share of areas for daily recreation (% of km2 of land potentially used for daily recreation)? 62. Do you have any plans for the conservation and maintenance of the natural habitat and species? 63. Do you have any policy, regulation or plan that considers the value of ecosystem accounts of carbon sequestration as a proxy of global climate regulation? 	 The resilience of cultural landscapes heavily relies on green and blue infrastructure. Factors such as well-maintained green spaces, recreational areas, conservation strategies, and climate policies contribute to the landscape's ability to withstand environmental challenges. These elements enhance landscape well-being and bolster its capacity to cope with uncertainties and environmental shifts. Specifically, regarding the main topics emerging from the questions: Ecological Quality of Green Areas: Higher proportions of ecologically rich green spaces indicate greater environmental resilience and biodiversity support, enhancing landscape adaptive capacity. Recreational Spaces: Availability of designated 	



Key Elements and questions' main topics: relevance for resilience		
Key Element: Topography and m	 Conservation and Maintenance Plans: Comprehensive plans demonstrate proactive efforts to protect biodiversity and cultural heritage, ensuring ecological integrity and landscape resilience. Climate Regulation Policies: Integration of ecosystem- based approaches in policies enhances climate change resilience, contributing to global carbon sequestration and landscape adaptation. 	
64. To what extent do you use Copernicus data or other source of data in your land planning processes?	This section analyses the use of data in land planning, tools for identifying damage during extreme events, areas of ecological fragmentation, and the frequency of fire	
 65. Do you have any tool or service that helps to identify the most affected areas and the severity of damage of the cultural landscape, when an extreme event happens? 66. Are there identified areas of ecological fragmentation generated by urban dispersion? 	 informed decision-making, swift response to extreme events, and mitigation of ecological challenges, ultimately reinforcing the landscape's overall resilience against both climatic and non-climatic pressures. Specifically, regarding the main topics emerging from the questions: Data Utilization and Planning Processes: Reliance on scientific evidence for decision-making, demonstrated by Caparia and the state opurson facilitates 	
67. How often have you experienced a fire event in recent years?	 by copernicus data of other sources, facilitates informed planning and adaptive management practices, enhancing resilience through data-driven approaches. Damage Assessment and Emergency Response: Availability of tools for identifying damage during extreme events enables timely response and effective mitigation, reducing vulnerability and enhancing resilience through preparedness and rapid response strategies. Ecological Connectivity and Fragmentation: Ecological fragmentation can disrupt habitats and ecological 	
	 processes, posing risks to biodiversity and ecosystem health. Identification of fragmented areas informs targeted conservation efforts to mitigate habitat loss and enhance landscape connectivity. Fire Risk Management: Understanding the frequency of fire events helps assess vulnerability and informs fire management strategies to mitigate risks and enhance landscape resilience. 	
Technical System		


Key Elements and question	s' main topics: relevance for resilience
Questions	Relevance for resilience
68. What is the percentage of rented houses in your cultural landscape?	Assessing the dynamics of rented houses, the presence of cultural facilities, and the overall built environment provides insights into socio-economic, cultural, and structural aspects. Specifically, regarding the main topics emerging from the
69. What is the number of cultural facilities open to the public and aiming at promoting arts and heritage of cultural landscapes in your site?	 questions: Percentage of Rented Houses: Higher proportions may signify a diverse and inclusive community, fostering social cohesion and resilience within the cultural landscape's socio-economic fabric.
70. What is the total number of properties (buildings) within the cultural heritage area?	 Presence of Cultural Facilities: Cultural hubs promote community engagement and exchange, enriching cultural life. Evaluating accessibility and quantity offe insights into cultural vibrancy and resilience. Total Number of Properties: Reflects human activity density and landscape significance, indicating socio- economic dynamics and resilience potential within th built environment of the cultural landscape.
Key Element: Infrastructure	
Key Element: Infrastructure <i>Questions</i>	Relevance for resilience
Key Element: InfrastructureQuestions71. What is the percentage of cultural facilities and sites accessible by public transport or other environmentally friendly transport or cycle tracks within the cultural landscape area?72. To what extent are the main urban and rural settlements in your landscape properly served by all necessary emergency operators (civil protection, fire-fighters, rescuers, etc)?73. What is the average time distance from your cultural landscape to the main urban area (access to emergency services), considering different vehicles (car, bike, train, feet, cruise)?	Relevance for resilience Infrastructure serves as the backbone for the vitality and adaptability of the cultural landscapes. Robust and sustainable infrastructure directly contributes to the overall resilience of cultural landscapes, ensuring their vitality while prioritizing the safety and well-being of inhabitants. Specifically, regarding the main topics emerging from the questions: - Accessibility: Evaluates the percentage of amenities reachable by eco-friendly transport, crucial for community engagement and resilience. Higher accessibility reflects easier mobility, enhancing cultural landscape cohesion. - Emergency Services: Measures availability and efficiency of civil protection and fire-fighting services

 Response Time: Assesses average travel distance to urban areas, vital for emergency preparedness. Lower response times denote improved access to services, facilitating swift emergency responses and bolstering resilience.



Key Elements and questions' main topics: relevance for resilience		
Key Element: Tangible Cultural H	leritage	
Questions	Relevance for resilience	
 74. Do you have any plan for the conservation of the historical rural architectural heritage in your cultural landscape, that also includes an inventory of them? 75. Are there measures taken by public authorities to protect, safeguard and manage heritage through their inclusion and recognition in inventories, lists or registers? 76. What is the approximated ratio between the number of dwellings built before 1919 and the total number of dwellings? 	 Tangible cultural heritage is the backbone of a cultural landscape's identity, and preserving tangible heritage is integral for maintaining the essence, cultural richness, and historical continuity of these landscapes. Understanding the conservation plans, protective measures, and the ratio of historical dwellings provides insights into the commitment to safeguarding the unique heritage against diverse challenges. Specifically, regarding the main topics emerging from the questions: Historical Preservation and Conservation Plans: Evaluating the presence and effectiveness of conservation plans for historical rural architectural heritage underscores the landscape's dedication to preserving tangible cultural assets and maintaining their historical integrity. Protective Measures and Management: Examining measures taken by public authorities to protect and manage heritage assets through inclusion in inventories or registers demonstrates the landscape's commitment to heritage preservation and management. 	
Key Element: Energy		
Questions	Relevance for resilience	
77. In your cultural landscape, what is the approximated ratio of the energy consumption from renewable carriers (for space heating, hot water and cooling)?	The energy theme is crucial for resilience as sustainable energy practices contribute to mitigating environmental impact, reducing vulnerability, and fostering long-term adaptability in cultural landscapes. Assessing energy consumption and renewable energy policies offers a lens	
78. In your cultural landscape, is there a policy or plan to improve the share of energy for space heating, hot water and cooling from renewable carriers? If yes, please provide details.	into the landscape's commitment to environmentally responsible practices.	

Each Key Element's set of questions was then evaluated as a group extracting qualitative feedback by applying a qualitative traffic light rating system with three categories, as shown in the table below:



Table 3 – Resilience baseline assessment: traffic light rating system's categories

	It refers to aspects where resilience is already demonstrated or
Positive	evident. It highlights areas where the cultural landscape is effectively
Performance	coping with challenges and maintaining functionality, indicating
	strength and adaptability.
	This category indicates areas that require further observation or
Attention	consideration due to potential vulnerabilities or uncertainties. It
Needed	highlights aspects where additional attention or assessment is
	necessary to ensure comprehensive resilience planning and response.
	It refers to areas where resilience may be lacking or inadequate. It
Identified	highlights areas of concern or potential gaps in resilience, indicating
Weaknesses	areas where additional support or improvements may be necessary to
	enhance overall resilience.

The relevance of the Key Elements' themes and specific topics for the resilience of cultural landscapes, as defined in Table 2, was taken as a reference for good performances (e.g., for the Key Element of "Diversity", if a cultural landscape shows great diversity, accessibility, and gender/age balance, it would be defined as "Positive Performance", since these factors contribute to increased resilience). The more the results deviate from this reference, the more a case of "Attention Needed" or "Identified Weaknesses" may arise, depending on the additional factors as explained above. The results for the five R-Labs are provided in the following chapter.

2.2 Results

The results for each R-Lab are provided in the sub-chapters below in the form of tables preceded by a short summary paragraph. In each table the results are presented in the form of bullet points summarising the key highlights for each Key Element. When one of the three categories (i.e., "Positive Performance", "Attention Needed", "Identified Weaknesses") is not shown, this means that there was nothing relevant to report.

The questionnaire template can be consulted in Annex 6.1. The results presented in the following tables are based on the responses of the individual R-Labs to the questionnaire. They had to be interpreted considering the local context, and were revised and validated by each R-Lab.

2.2.1 Island of Neuwerk in Hamburg

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The Island of Neuwerk, located in the Wadden Sea, 120 km away from Hamburg, demonstrates strengths across various aspects of its social, human, financial, natural, and built capital. For the analysis of the answers for this cultural landscape, its distinctive features were taken into account. In fact, the small population, remoteness, and limited geographical extent are all factors that influence the weight of specific questions, as also explained in the previous chapter.

In general, the island exhibits gender employment equity and robust governance structures, although depopulation trends, coupled with the absence of young people living in the area, may pose challenges for maintaining community vitality and resilience. While efforts to highlight natural and cultural values through local events are underway, further leveraging of EU funding opportunities and environmental quality certifications may be useful.

In terms of human capital, Neuwerk presents a high level of tertiary education attainment and commitment among farm managers but presents a limited promotion of capacity building and professional expertise within the agricultural sector. Given the fact that the island has very low-intensity farming activities, this is not highlighted as an urgent issue.

In financial terms, the island benefits economically from its protected status as a national park and from raising awareness of its cultural heritage, but there is a lack of budgetary resources for disaster risk. Natural capital is enhanced through diverse land use and conservation initiatives, yet data gaps may hinder preparedness for long-term effect of climate change impacts and for human-made hazards, leaving room for improvement in conservation and protection efforts in the area.

Finally, built capital initiatives prioritize tangible heritage preservation and sustainable transport accessibility, although emergency response capabilities require attention and improvement.

Below is the complete table for detailed analysis.



	Island of Neuwerk in Hamburg, questionnaire result analysis		
Socia	Social System		
al	Diversity		
ial Capit	Positive Performance	 Equity in gender employment, with good balance among both genders and presence of plans to ensure that this is maintained. 	
Soc	Attention Needed	 The majority of farm businesses are owned by older individuals, indicating potential vulnerability to demographic shifts if the current status of the island as a tourist destination is maintained. Limited representation of young farmers, and no strategies to encourage their involvement in this sector. NOTE: With such a small population, the age distribution may not have a significant impact on resilience compared to larger communities or landscapes. 	
	Identified	- The site is currently not accessible for people with disabilities,	
	Weaknesses	although there are plans to minimise barriers on the island.	
	Governance		
	Positive Performance	 There is an adequate governance structure: Proper land tenure systems Legislation prepared to support the implementation of national adaptation measures. Good participation of Local Municipalities and non-government bodies in projects and planning activities. 	
	Attention Needed	 Further observation may be required regarding the potential changes in residents' capability and roles in disaster risk management, especially considering the small population size. Funding opportunities are currently being sought, but there is a limit in terms of the capacity by residents and government departments to apply for and implement potential additional funding. 	
	Demographic	S	
	ldentified Weaknesses	- The depopulation trend in the cultural landscape, coupled with the absence of young people living in the area may pose challenges for maintaining community vitality and resilience.	

Table 4 – Island of Neuwerk in Hamburg, questionnaire result analysis



Island of Neuwerk in Hamburg, questionnaire result analysis		
Intangible Cultural Heritage		
	Positive Performance	- There are events being organised by local associations that serve to highlight the importance of the natural and cultural value of the area.
	Social Value	
	ldentified Weaknesses	 Even though the area considered is very small, it is worth mentioning that few or no establishments on the island use voluntary certifications for environmental quality.
al	Training	
Capit	Positive Performance	- A high percentage of farm managers/owners have a full-time commitment.
Human	ldentified Weaknesses	 Low institutional promotion of capacity building and training for local communities, with (almost) no adults participating. This has to be seen in the context of the island's location and its distance to the City of Hamburg, which is 120 kilometres away, while the nearest city, Cuxhaven, is only accessible at high tide via ferry and at low tide via horse cart, making it difficult to attend these activities in person and on a single day. Alternative ways of delivering these training sessions need to be explored.
	Education	
	Positive Performance	- The majority of people on the island have completed tertiary studies.
	Attention Needed	 The low percentage (0-20%) of farm businesses owned or managed by people with professional agrarian studies indicates a potential gap in professional expertise within the agricultural sector. Though the low-intensity farming aspect should also be considered.
al	Economy	
cial capit	Positive Performance	 There is economic support coming from national and local authorities for environmental protection and raising awareness of the site's cultural and natural values.
Financ	Attention Needed	 Overall, there is limited information available regarding any private budget allocated for the preservation, protection, and conservation of cultural landscapes. Further investigation into this matter may be worthwhile.
	ldentified Weaknesses	 Funds at municipal level to reduce disaster risk and better protect the island are distributed across the entire municipal



	Island of	f Neuwerk in Hamburg, questionnaire result analysis
		area, so there is no separate budget for the island. There are
		also no known funds for this purpose at the private level.
	Tourism	
	Positive Performance	 There is a designated carrying capacity that limits the number of people that can access the island. There is a visitor management plan to regulate access to protected areas.
	Attention Needed	 Occasional exceedance of carrying capacity, particularly when ferries cannot return, necessitating overnight accommodations. Further assessment and contingency planning may be needed. The high percentages of residential houses used for tourism, with a significant portion exclusively used in summer, may be further investigated in terms of impact on such a small community.
Ecolo	gical System	
al	Agriculture	
pit	There is no ma	ajor agricultural activity, apart from grazing and some private
Ca	gardens.	
Iral	Natural Herit	age
atu		- Significant coverage of Natura 2000 sites and nationally
z		designated protected areas reflects commitment to biodiversity
	Positive	conservation and environmental protection. There are no
	Performance	diverse landscape typologies in the cultural landscape since it
		is a small territory, but planning measures are being
		implemented to secure the wellbeing of the area.
	Green and bl	ue infrastructure
	Positive	- There are already three different plans that aim to conserve
	Performance	and maintain the natural habitat and species of the area.
		 Currently there is no plan or policy that considers the value of ecosystem carbon sequestration for global climate regulation
	Attention	(although funding opportunities are being sought to explore
	Needed	this topic), and almost no nature-based areas for daily
		recreation. Nevertheless, this needs to be framed in the
		context of a very low populated and small area.
	Topography a	and morphology
	Positive	- There are no areas of ecological fragmentation in the cultural
	Performance	landscape. Though the limited extension of the area plays a
		factor in this situation.



	Island of Neuwerk in Hamburg, questionnaire result analysis		
	Attention Needed	 Currently there are a couple of monitoring systems that are being implemented, such as the monitoring of geomorphologic changes and collection of waste in Scharhörn. Additionally, sources of funding are sought to monitor salt marshes. However, it is foreseen that it will be necessary to use more tools or data sources to identify damage caused by climate events or human-made hazards, in order to enhance resilience and preparedness for managing landscape challenges. 	
Techr	nical system		
al	Buildings		
Built Capit	Positive Performance	 The cultural landscape has a low urban density, which favours the natural environment of the area and reduces the vulnerability when hazard events occur. There are cultural facilities that aim to promote local cultural and natural heritage. 	
	Attention Needed	- While the percentage of rented houses falls within a moderate range, further examination may be required to understand the implications for community stability and socio-economic dynamics, especially during events or crises.	
	Infrastructur	e	
	Positive Performance	 All cultural facilities and sites are accessible by public transport or by other environmentally friendly transport. 	
	Attention Needed	 The main urban area with access to emergency services is only accessible by helicopter or boat during high tide. It takes 20 and 30 minutes, respectively. 	
	ldentified Weaknesses	- The settlements within the cultural landscape are not properly served by emergency operators. This suggests potential weaknesses in emergency response capabilities.	
	Tangible Cultural Heritage		
	Positive Performance	 There are plans for restauration and conservation of the historical rural architectural heritage. These efforts contribute to maintaining the cultural integrity and historical significance of the landscape. There is a Cultural Heritage List that helps to protect, safeguard and manage heritage. This recognition enhances 	
	Energy	awareness and ensures preservation.	



Island of Neuwerk in Hamburg, questionnaire result analysis	
Positive	- There is a strategy for the island aiming to increase the share of renewable energy sources. This demonstrates an awareness of the importance of renewable energy and significant.
Performance	commitment to reducing reliance on non-renewable sources.
Attention Needed	 Part of the energy consumed on the island used for heating purposes, provision of hot water and cooling comes from renewable energy sources, but there is room to increase this
	share.

2.2.2 Defensive system of Zadar

Zadar showcases commendable efforts in various aspects of its resilience, particularly in preserving tangible cultural heritage and promoting sustainable energy practices within its built environment. However, there are crucial areas that require attention and improvement across different dimensions of the cultural landscape.

Socially, while strides have been made in gender equity and governance participation, proactive measures may be useful to address diversity gaps and uncertainties in governance, as well as to promote intangible cultural heritage and address demographic challenges.

Human capital is strengthened by ongoing training activities related to culture and high educational attainment levels among adults, yet participation in educational initiatives may need to be broadened.

Financially, Zadar demonstrates commitment to sustainable development, but attention is needed to address data gaps and the presence of disaster risk management plans.

In terms of natural capital, preservation efforts are commendable, yet vulnerabilities to climate-related events and water resource management gaps call for targeted conservation measures.

Below is the complete table for detailed analysis.



Table 5 – Defensive system of Zadar, questionnaire result analysis

Defensive system of Zadar, questionnaire result analysis			
Social System			
al	Diversity		
Capit	Positive Performance	- Gender equity is currently well balanced.	
Social	Attention Needed	 Even though gender equity is currently well balanced, there are no plans or strategies available to ensure continuity of the good performance of gender employment equity. Low percentage of young people working in agriculture, but there is a development plan that seeks to encourage their participation. 	
	ldentified Weaknesses	 Accessibility for people with disabilities is rated as somewhat accessible, but specific plans for improving the situation are not available. 	
	Governance		
	Positive Performance	 High level of Local Municipalities' participation in cultural landscape development projects. The current legislation supports the implementation of national adaptation strategies. 	
	Attention Needed	 Uncertainty on the suitability of current land tenure systems, which are crucial for managing and conserving cultural landscapes 	
	ldentified Weaknesses	 There is no specific information available for bottom-up disaster risk management initiatives and involvement in EU recovery plans for the protection of cultural landscape heritage, indicating potential gaps in documentation or implementation. 	
	Demographics		
	Attention Needed	 The decrease and ageing of the population may pose challenges for maintaining community vitality, economic activity, and social cohesion, and may require attention to address potential vulnerabilities associated with an aging population. 	
	Intangible Cu	ultural Heritage	
	Attention Needed	 There is few products recognised with designation of origin or other certification. Further investigation is needed to assess whether there is potential for improvement in increasing the 	



Defensive system of Zadar, questionnaire result analysis		
		availability of such products to promote local heritage and economic sustainability.
	ldentified Weaknesses	- The general lack of information regarding Intangible Cultural Heritage may represent a missed opportunity to monitor local economy and tourism, preservation of cultural identity, and community engagement.
	Social Value	, , , , , , , , , , , , , , , , , , , ,
	ldentified Weaknesses	 Lack of data/uncertainty on the social and environmental values of the local enterprises and establishments in the cultural landscape.
al	Training	
Capit	Positive Performance	 Training activities are promoted by institutions for improving cultural knowledge.
Human	Attention Needed	 Approximately half of the farm managers have a full-time contract. While this indicates some level of stability, there may be areas where commitment could be strengthened to ensure more robust management practices within the cultural landscape. While there is some participation, there may be room for improvement in engaging a larger segment of the population in educational activities that help preserving local heritage.
	Education	
	Positive Performance	- A high percentage of adults in the area have completed tertiary studies, indicating that the community has strong knowledge foundations that could be utilised when adapting to future challenges.
	Attention Needed	- There is a lack of information on education early leavers and trained farm owners which may indicate a need for further investigation.
al	Economy	
cial capit	Positive Performance	 There is budget allocated at the municipal level for management and protection of cultural heritage, environmental protection and adaptation to climate change.
Financ	Attention Needed	- Lack of specific information available on people employed in the cultural and creative sectors. Further investigation into this matter may be worthwhile.
	Identified Weaknesses	 Lack of a pre- and post-disaster risk management plan and awareness raising initiatives at the municipality.



Defensive system of Zadar, questionnaire result analysis		
		 No economic support received from regional or national level for environmental protection. The annual income rate among residents is relatively low as opposed to housing prices. This may indicate economic challenges or disparities within the community as well as issues of affordability and accessibility to housing for residents.
	Tourism	
	Attention Needed	 Uncertainty regarding the percentage of residential houses used for tourism and the percentage exclusively used in the summer season underscores the need for data collection and monitoring mechanisms, so that tourism is managed in a sustainable manner.
	ldentified Weaknesses	- Although there is knowledge of the maximum number of people that can be accommodated on the site, no tourist carrying capacity is established nor a visitor management plan has been developed. This may raise concerns about potential over- tourism and strain on infrastructure and resources.
Ecolo	gical System	
le	Agriculture	
Natural Capita	Attention Needed	 The percentage of surface cultivated with vineyards and the one devoted to crops may suggest a balanced land use mix, which may contribute to landscape diversity and resilience. Nevertheless, this needs to be confirmed by addressing the data gap.
	ldentified Weaknesses	 Crops do not have sufficient access to water resources, due to the lack of rivers and creeks running through the land in the area. This may pose challenges for agricultural sustainability and resilience, especially in periods of drought or water scarcity. General lack of information/data on agricultural activities developed in the cultural landscape, which is necessary to analyse the value of agricultural practices.
	Natural Herit	tage
	Positive	- There is a diversity of landscapes, and planning measures are
	Performance	being implemented to secure it.
	Attention Needed	- There are almost no protected natural areas (Natura 2000 sites or nationally designated areas) in the city of Zadar. Further



	Defensive system of Zadar, questionnaire result analysis		
		investigation is needed to determine the potential gap in the	
		protection of natural heritage sites.	
	Green and blue infrastructure		
	Positivo	- The Natural Based Solutions Action Plan for the city of Zadar	
	Performance	includes measures such as tree planting, which helps with	
	r en ormanee	sequestration of carbon emissions.	
	Attention	- The NBS action plan in the city of Zadar strengthens the value	
	Needed	of natural resources, but it does not mention a specific plan for	
	Needed	conserving and maintaining the natural habitat and species.	
	Identified	- There are currently few green areas for daily recreation in the	
	Weeknesses	cultural landscape, which would be beneficial to improve social	
	Weaknesses	well-being and landscape resilience.	
	Topography a	and morphology	
	Positive	- There are no areas of ecological fragmentation generated by	
	Performance	urban dispersion in the area.	
		- The lack of information on tools or data used in land planning	
		processes or in identifying damage caused by climate events	
	Identified	suggests potential gaps and potential limitation in the capacity	
	Meetroesee	to assess and respond to damage promptly.	
	weaknesses	- High susceptibility to fire events, particularly in the summer,	
		some of them being severe. Specific strategies to reduce risks	
		and mitigate the consequences of fires are needed in the R-Lab.	
Techr	nical system		
le	Buildings		
pita	, , , , , , , , , , , , , , , , , , ,	- There are several facilities promoting arts and cultural heritage,	
Cal	Positive	such as museums or palaces which suggests a concerted effort	
ilt	Performance	to preserve and showcase the cultural identity of the	
Bu		landscape.	
		- Uncertainty on the percentage of rented houses, which is	
		important to know when analysing the potential loss of social	
		capital and community ties.	
	Attention	- Information not available on the number of properties within	
	Needed	the cultural landscape, which would help to know the urban	
		density of the area. This highlights a potential gap in	
		understanding the built environment and its role in shaping the	
		socio-economic fabric of the landscape.	
	Infrastructur	e	



Defensive system of Zadar, questionnaire result analysis	
Positive Performance	 Urban and rural settlements are properly served by all necessary emergency operators. Emergency services are easily accessible from any point of the cultural landscape, with a 5-minute drive, 7-minute bike ride, or 15-minute walk.
Attention Needed	 Cultural facilities and sites are generally accessible by environmentally friendly transport, although there is still room for improvement.
Tangible Cul	tural Heritage
Positive Performance	 There is a local management plan titled "Zadar Defense System" for protecting and conserving the medieval walls of the city. Authorities at national level (Ministry responsible for culture) protects and manages heritage through recognition in lists that gathers cultural assets of significance and goods of local importance.
Attention Needed	 Further clarification is required regarding the ratio of dwellings built before 1919 to the total number of dwellings. Understanding this ratio is essential for evaluating the significance of historical dwellings within the cultural landscape and identifying potential conservation needs.
Energy	
Positive Performance	 There are projects and plans that aim to increase the use of renewable energy sources, improve energy efficiency and reduce CO2 emissions in the city of Zadar.
Attention Needed	 Most of the energy consumption comes from non-renewable energy sources. This suggests that there is room for improvement in increasing the share of renewable energy sources in the energy mix.

2.2.3 L'Horta de València GIAHS

L'Horta de València's resilience baseline assessment reveals a multifaceted performance across various aspects of its social, human, financial, natural, and built capital.

Socially, the landscape demonstrates strengths in gender employment equity and governance structures. However, challenges yet persist in enhancing youth involvement,



diversity in agriculture, and ensuring accessibility for people with disabilities. While governance structures show promise, increased participation from local municipalities may be beneficial, although this needs to be considered in the broader context of this cultural landscape which covers a high number of different municipalities. Demographic trends indicate no immediate depopulation issue but underscore the importance of sustainable population management. Intangible cultural heritage is celebrated, yet there may be room for the protection and promotion of local products and sustainability among businesses.

Human capital shows some gaps in adult education data and training program offerings. Additionally, low numbers of full-time contracts in the agricultural sector suggest potential weaknesses in ensuring commitment from farm managers/owners, which could impact management and preservation efforts.

Financially, there is commitment at local, regional, and national levels, with initiatives promoting its value and budget allocations for environmental protection and community well-being, but the low employment rate in the cultural and creative sectors suggests challenges in economic diversification and job opportunities.

In terms of natural capital, the GIAHS excels in terms of PDO and PGI products and protection of its territory, and it is supported by adequate water resources. However, limited agricultural diversification may potentially increase vulnerability.

The built capital shows positive strides in cultural promotion. Still, a specific conservation plan is missing, and more clarity on housing dynamics and renewable energy use may also be useful.

Below is the complete table for detailed analysis.

	L'Horta de València GIAHS, questionnaire result analysis		
Soci	Social System		
al	, Diversity		
oci oci	Positive	- There is a good gender employment equity with frameworks	
v S	Performance	and regulations in place at the municipal and regional levels.	
	Attention	- Regarding diversity in the agricultural sector:	
	Needed		

Table 6 – L'Horta de València GIAHS, questionnaire result analysis



L'Horta de València GIAHS, questionnaire result analysis		
	 Low presence of young people in the agriculture sector, but there are different plans and strategies – for example vocational training programmes – to boost their involvement in this sector. A significant proportion of farm businesses are owned or managed by individuals over 65 years old, highlighting the need for attention to succession planning and support for aging farmers. 20-40% of female farm managers indicate a need for further efforts to promote gender diversity in farm management roles. 	
Identified Weaknesses	measures taken at a municipal level but not at a cultural landscape level.	
Governance		
Positive Performance	 The current legislation is well prepared to support the implementation of the national adaptation strategies. There are 24 Local Civil Protection Volunteer Groups within the scope of the area supporting regional emergency services in disaster risk management, specifically in prevention and intervention activities. There are also two associations in the city of Valencia working on this field. There are different civil society entities that work on the protection of the cultural heritage of l'Horta de València (not linked to risk management). 	
Attention Needed	 Land tenure systems provide moderate support for the protection of cultural landscape heritage. There may be margin for improvement. Further investigation needed on projects/initiatives under the NEXT Generation EU recovery plans, which would contribute to the resilience-building efforts made by the R-Lab. 	
ldentified Weaknesses	 Low level of participation of Local Municipalities in cultural landscapes' community planning activities and rural development projects. NOTE: The high number of Municipalities falling under the cultural landscape needs to be taken into account, given the complexity to find coordination between all the municipalities. 	
Demographic	S	



L'Horta de València GIAHS, questionnaire result analysis		
Attention Needed	 The population has increased in the last years; it is important to manage population growth in a sustainable manner, minimizing the disadvantages and maximizing the advantages. Further observation may be needed to understand the underlying factors driving migration patterns and to assess potential impacts on community dynamics and infrastructure. There is an increase of the migration rate, which could be a good signal, meaning that the area offers life and/or work opportunities for people coming from outside the landscape territory. However, the poor working conditions often offered to migrants in the agricultural sector and the phenomena of unregulated migration flows need to be carefully taken into consideration. 	
ldentified Weaknesses	 Low and decreasing percentage of young people living in the cultural landscape. While a higher concentration of working- age adults can contribute to economic productivity, it also raises concerns about the dependency ratio and the capacity to support aging populations and youth development initiatives. 	
Intangible C	ultural Heritage	
Positive Performance	 Apart from the patron saint festivals of each municipality, where different cultural and culinary activities take place, there are many other cultural events and festivals organised in the cultural landscape or in the surrounding areas. There are many organisations that are committed to protecting the cultural and natural heritage of the area, for example by promoting local products and traditions. For this purpose, these organisations plan different types of events throughout the year as well, which contribute to cultural preservation and community engagement. 	
Attention Needed	- The protection and awareness of local products needs to be improved, as there are only a few markets where they are sold, and people therefore have little access to them. Additionally, there is not a special recognition of the food products produced at the GIAHS territory (Horta and Albufera), beyond the 2 PDO and 1 PGI. There is not a "HORTA product" quality brand that permits to recognise and give visibility to these Km0 products.	



	L'Horta de València GIAHS, questionnaire result analysis		
	ldentified Weaknesses	 There is a minor percentage of establishments using a voluntary certification for environmental quality indicating a potential weakness in prioritizing sustainability and social responsibility among businesses operating within the cultural landscape. There is a lack of centralized and accessible information on this regard. 	
al	Training		
an Capit	Attention Needed	 There is a lack of information about adults participating in formal and informal education related to the preservation of cultural heritage. 	
Huma	ldentified Weaknesses	 Insufficient training programs offered to the local community in the cultural landscape. Low number of farm owners working with full-time contract suggesting weaknesses in ensuring a substantial commitment from farm managers/owners within the cultural landscape, which could impact effective management and preservation efforts. The agricultural areas are predominantly structured as smallholdings, meaning that there are many farmers who also have other jobs and only farm their land part-time. 	
	Education		
	Attention Needed	 A relatively low percentage of adult population has completed a tertiary education program, compared to the national level, and there is a lack of data on young people that leave educational programs. Relatively low level of professional training among farm managers, since most of the owners are of an older age and probably acquired the necessary knowledge from practice and previous generations. However, this can pose challenges when it comes to adapting agricultural activities to current circumstances and, for example, facilitating the introduction of innovative agricultural practices and sustainability initiatives. 	
al	Economy		
Financial capite	Positive Performance	 There are different initiatives at the local level, such as placing signs at the entrance of L'Horta to indicate that people entering the area needs to respect the space, and the European project Valsipam, which identifies and offers a series of experiences that value the cultural and gastronomic heritage of the area. This shows that there are funds spent in initiatives to raise 	



L'Horta de València GIAHS, questionnaire result analysis		
	 awareness of the site's value among tourists and the local population. A recognition to that is that Valencia has been proclaimed as the European Green Capital 2024. At the regional level, both governmental bodies (Department of Environment, Water, Infrastructure and Territory; and Department of Agriculture, Livestock and Fisheries) have budgets for protecting the environment. At the national level the State Secretariat of Environment has also a budget for this purpose. There is budget available at the municipal level for the maintenance of parks, public gardens, and green areas, indicating a commitment to public space upkeep and community well-being. 	
Attention Needed	 Budget allocated at the municipal level for protection services and equipment, but not specifically allocated on risk prevention or disaster recovery. Regarding the private sector, limited investment is observed for the preservation and conservation of the cultural landscape. However, there are some private initiatives that have helped to restore traditional farmhouses, promote local products and develop cultural activities. Housing affordability level is getting more expensive every year in the city of Valencia and in the cultural landscape, which can pose a challenge for the inhabitants when accessing to affordable housing opportunities. 	
ldentified Weaknesses	 The low percentage of people employed in the cultural and creative sectors may indicate challenges in economic diversification or job opportunities within these sectors. There is no sufficient budget to manage and protect the cultural landscape linked to the GIAHS declaration or the protection of the Horta through the Horta Law. 	
Tourism		
Attention Needed	 Uncertainty regarding the percentage of residential houses used for tourism and those exclusively used in the summer season indicates a lack of comprehensive data on residential housing conversion trends. Further research and monitoring efforts may be needed. 	



	L'Horta de València GIAHS, questionnaire result analysis		
	ldentified Weaknesses	- There is neither a designated carrying capacity nor a visitor management plan to ensure that visitors do not threaten the natural, physical, economic and socio-cultural environment.	
Ecolo	gical System		
al	Agriculture		
Natural Capit	Positive Performance	 There are agricultural firms producing food that have either a PDO or a PGI, such as the Arroz de València, Chufa de València and València Citrus, which supports the promotion of local practices and products. Crops have adequate access to water resources throughout the year, and the high percentage of surface devoted to crops indicates an important agricultural sector with significant land under cultivation, supporting local food production, economic livelihoods, and landscape maintenance. 	
	Attention Needed	 There is a low percentage of organic farms, which would help enhancing sustainable practices and diversifying types of agricultural activities carried out. 	
	ldentified Weaknesses	 The low ratio of farms with mixed activity may indicate limited agricultural diversification, potentially increasing vulnerability to market fluctuations, climate variability, and pest outbreaks. 	
	Natural Herit	age	
	Positive Performance	 The cultural landscape has obtained national and global recognitions that help protect the territory. The whole area is a GIAHS site, and within it there are two natural parks: l'Albufera Natural Park and River Turia Natural Park. There are diverse landscape typologies with high agricultural and natural value, and planning measures are being implemented to protect this diversity. 	
	Attention Needed	- The percentage share of Natura 2000 sites within the NUTS2 or NUTS3 region is relatively low, indicating potential areas where additional conservation efforts may be needed.	
	Green and bl	ue infrastructure	
	Positive Performance	 There are some plans for the conservation and maintenance of the natural habitat and species in the cultural landscape: Natural Resources Management Plan in l'Albufera, Territorial Action Plan for Planning and Dinamization of l'Horta de València, and Agrarian Development Plan for l'Horta de València. The conservation and maintenance of the natural 	



	L'Horta	a de València GIAHS, questionnaire result analysis
		habitat and species in this area must be managed according to the sectorial environmental regulations.
	Attention Needed	 There are greenhouse gas emissions inventory per municipality, which details the amount of CO2 absorbed by forest land, but there is no regulation or policy on that. Uncertainty regarding the percentage of green areas of high ecological quality according to the Bioclimatic Terrestrial Capacity (BTC) index, and areas designated for daily recreation suggests a need for further assessment or data collection.
	Topography a	and morphology
	Positive Performance Attention	 The cultural landscape makes use of Geospatial data in its land planning processes, suggesting strong efforts in leveraging advanced data for informed decision-making in landscape management. The existence of the Territorial Action Plan for Planning and Dinamization of l'Horta (PATODH), which identifies ecological corridors to prevent further fragmentation of the territory, indicates a proactive approach to address ecological fragmentation and maintain landscape connectivity. Risk and emergency departments have tools to monitor and analyse extreme events and their risks. There is also an open viewer for collecting and showing information that could be helpful to identify fire and flood risks in the region, although it does not give information on the past flood events. The cultural landscape experiences some fire events, but these
	Needed	are neither very frequent nor very severe.
Techr	nical system	
al	Buildings	
Built Capita	Positive Performance	- There are several cultural facilities dedicated to promoting local arts and culture: museums, cultural centres, exhibition halls, a monastery and a palace. Some of these facilities serve as hubs for community engagement and contribute to enhancing cultural resilience.
	Attention Needed	 Uncertainty on the percentage of rented houses, which is important to know when analysing the potential loss of social capital and community ties. Information not available on the number of properties within the cultural landscape, which would help to know the urban



L'Horta de València GIAHS, questionnaire result analysis	
	density of the area. This indicates a potential gap in understanding the built environment's extent and its role in shaping the socio-economic landscape.
Infrastructur	e
Positive Performance	 Urban and rural settlements are adequately served by all necessary emergency operators.
Attention Needed	 It is not known how accessible the sites and cultural facilities are by public transport. Further assessment or information gathering may be necessary. The main urban area where emergency services can be accessed is on average, around 25-minute drive from any point in the cultural landscape, but it takes longer by public transport (about 40-50 minutes).
Tangible Cul	tural Heritage
Positive Performance	- There is a general inventory at the regional level that includes and recognises a varied type of local relevant assets, which are relevant when defining preservation and conservation plans
ldentified Weaknesses	 The absence of a specific plan for the conservation of historic rural architectural heritage may indicate potential gaps in safeguarding tangible cultural heritage assets.
Energy	
Positive Performance	- There is a Sustainable Energy Plan for the Valencian Community that aims to improve the energy share from renewable carriers.
ldentified Weaknesses	 Currently there is a small presence of renewable energy sources in the energy mix.

2.2.4 Portovenere, Cinque Terre and the Islands

The resilience baseline assessment of Cinque Terre reveals both strengths and areas needing improvement across various dimensions. In terms of social capital, gender equity initiatives and regional strategies to engage youth in agriculture demonstrate positive efforts, but challenges persist in governance, with limited engagement by the municipality and inadequacies in land tenure systems with regards to proper accessibility for people with disabilities. Demographic data gaps make a comprehensive understanding difficult, while the declining population trend harbours the risk of depopulation. Intangible cultural heritage is celebrated, but accessibility issues and legislative gaps remain.



Human capital faces challenges in training and education, particularly in farm ownership and tertiary education attainment. Financially, community engagement in landscape preservation is promising, but irregularities in budget allocations and tourism pressures require attention.

In the ecological domain, agriculture benefits from the products recognised by the EU, but there are concerns about the diversification of agriculture and water scarcity. While natural heritage enjoys national protection, green infrastructure and topographical planning require more attention, especially in terms of climate resilience and disaster management.

Built capital showcases accessible infrastructure but lacks comprehensive heritage conservation plans. Energy transition initiatives are underway but may need to be intensified to achieve a significant impact.

Below is the complete table for detailed analysis.

	Portovenere, Cinque Terre and the islands, questionnaire result analysis		
Soc	Social System		
al	Diversity		
Social Capite	Positive Performance	 There is a balanced gender equity, and different strategies are being implemented by stakeholders, ensuring that both genders have fair opportunities in the cultural landscape. There are existing strategies at the regional level to encourage young people to engage in agricultural activities, which would help conserving it over the years. 	
	Attention Needed	 The R-Lab experiences a lack of data about farm business owners (age diversity, gender equality, etc.), which would help to find potential gaps in the sector. 	
	Identified Weaknesses	- The cultural landscape has low accessibility for people with disabilities and there is a lack of comprehensive strategies to improve it.	
	Governance		
	Positive Performance	 Good engagement with European funding resources such as the NEXT Generation EU, which help support on resilience-building processes. 	

Table 7 – Portovenere, Cinque Terre and the islands, questionnaire result analysis



	Portovenere, Cinc	que Terre and the islands, questionnaire result analysis			
		 Non-government bodies are involved in disaster risk management projects indicating a proactive approach to community engagement, allowing for diverse perspectives and experiences to be considered. 			
	Attention Needed	 Local municipalities within the cultural landscape do not fully participate in community planning activities and/or rural development projects. 			
	ldentified Weaknesses	 Current land tenure system provides limited support to the protection of cultural heritage. The current legislation provides does not fully support the implementation of national adaptation strategies. 			
	Demographics				
	Attention Needed	 Lack of data on aspects such as net migration rate or age distribution ratios which may limit the comprehensive understanding of demographic dynamics of the cultural landscape as a whole. Decrease on the number of inhabitants, which can lead to problems related to depopulation (decline in quality of life, abandonment of crops, environmental degradation, increased risk of forest fires, etc.). 			
	Intangible Cultural Heritage				
	Positive Performance	 There are numerous events organized throughout the year that are connected to local practices, with various associations and municipalities involved. Good base for protecting and promoting local products, with a high percentage of establishments selling them and many products having a designation of origin. 			
	Social Value				
	Attention Needed	- While the rather high percentage of companies/institutions using voluntary certification/labelling for environmental quality/sustainability and/or corporate social responsibility shows that social values are integrated into the economic framework of the cultural landscape to a moderate extent, there is still room for improvement.			
u r	Training				
Hume	Attention Needed	- Uncertainty on the number of farm-managers that possess a full-time contract, which would help identifying gaps on the level of commitment to safeguard agricultural heritage.			



	Portovenere, Cinque Terre and the islands, questionnaire result analysis	
	ldentified Weaknesses	 Low number of capacity building trainings, with a small percentage of adults attending them, which are essential to foster cultural knowledge and community empowerment.
	Education	
	Attention Needed	- Small percentage of dropouts, but the percentage of people with tertiary studies is relatively low, at a similar level compared to region and country level, but below the European average.
	ldentified Weaknesses	 Most of the farm owners have not completed a professional training course. This could pose challenges in terms of implementing sustainable farming practices, adopting modern agricultural techniques, and ensuring the long-term viability of traditional farming methods.
al	Economy	
Financial capita	Positive Performance	 Private citizens, landowners, and farmers contribute to the maintenance of land, terraces, and buildings, demonstrating community engagement and decentralized efforts in landscape preservation. The increasing number of farm businesses may suggest a potential growth and economic opportunities within the agricultural sector.
	Attention Needed	 There is not quantified budget allocated in the private sector to cultural heritage preservation. There are irregularities in the budget for environmental protection coming from both regional and national levels. The average housing price per square meter in the territories of the UNESCO Site, in particular Cinque Terre's villages and Portovenere varies significantly, potentially contributing to housing affordability challenges and disparities within the community. Limited data availability regarding certain economic indicators, such as the percentage of people employed in cultural and creative sectors and the specific budget allocated by the private sector for landscape preservation, suggests a need for improved data collection and monitoring mechanisms.
	ldentified Weaknesses	 The limited resources of the local administration results in the absence of specific budgets for disaster risk



	Portovenere, Cinc	que Terre and the islands, questionnaire result analysis
		management, the protection of cultural landscapes and initiatives aimed at raising awareness among tourists and the local population. Only funds for the maintenance of public spaces are available.
	Tourism	
	Attention Needed	 High tourism pressure on peak season, from May to October, which generates economic benefits but at the same time can produce negative impacts on infrastructure, environment and resident well-being. High percentage of houses used only for tourism purposes, which influences the housing market and the level of affordability of local people to buy a house, among other things.
	ldentified Weaknesses	- There is no Visitor Management Plan to ensure that tourism does not threaten the natural, physical, economic and socio-cultural environment. However, a specific study of the tourism carrying capacity of the entire UNESCO Site area is underway, which is expected to provide guidance for better tourist flow management.
Ecol	ogical System	
al	Agriculture	
Natural Capits	Positive Performance	- The cultural landscape has agricultural firms producing EU- recognised food products of high quality, which strengthens local agricultural practices.
	Attention Needed	 Agricultural activity is principally focused on vines and olive trees, with low presence of other crops and livestock activities. This could lead to a lack of diversification of agricultural activities. Limited available data on organic farms and the ratio of farms with mixed activity suggests a need for improved documentation and monitoring of agricultural diversity and sustainable practices.
	ldentified Weaknesses	 A percentage of the terraces which are not maintained and are currently abandoned may raise concerns about landscape degradation, loss of biodiversity, and the erosion of traditional agricultural knowledge. Some areas suffer from insufficient water resources due to an ineffective water supply suffer



	Portovenere, Cinque Terre and the islands, questionnaire result analysis			
	Natural Heritage			
	Positive Performance	 Almost the entire territory of the cultural landscape is a nationally designated protected area, with high presence of Natura 2000 sites in the territory. There are planning measures in place and being implemented to secure the diverse typologies of landscapes. 		
	Green and blue ir	nfrastructure		
	Positive Performance	- Plans for conservation and maintenance of the natural habitat and species are managed by the different national and regional parks located in the cultural landscape. This indicates proactive efforts towards conservation and maintenance of natural habitats and species		
	Attention Needed	- Lack of clarity regarding the percentage of green areas of high ecological value suggests the need for further assessment or data collection. However, a high percentage of green areas is guaranteed in the territory.		
	ldentified Weaknesses	 There is no regulation that considers the value of ecosystem accounts of carbon sequestration as a proxy for climate regulation. This may indicate a gap in climate-related resilience planning, potentially limiting the landscape's ability to mitigate and adapt to climate change. 		
	Topography and morphology			
	Positive Performance	- There is no ecological fragmentation caused by urban dispersion.		
	Attention Needed	- Although every municipality has a civil protection plan and tools for reviewing the impacts of extreme event, potential gaps exist in effective assessment and response to landscape damage.		
	ldentified Weaknesses	- The cultural landscape was affected by fires in the last year, with an average of one 63ccurring per year, which clearly demonstrates the regions vulnerability to fire risk.		
ech	echnical system			
י ב	Buildings			
na	Positive Performance	- There is a low density of buildings in the cultural landscape and therefore the level of vulnerability against unexpected shocks or disruptions is lower, compared to high-density		



Portovenere, Cinque Terre and the islands, questionnaire result analysis		
Attention	 urban areas, where there are more assets that can be affected by them. Existence of cultural facilities open to public, promoting arts and culture. These facilities likely contribute to community engagement and enhance cultural resilience. Lack of data on the percentage of rented houses, which is 	
Needed	important for analysing the potential loss of social capital and community ties.	
Infrastructure		
Positive Performance	 Cultural facilities are highly accessible by public transport or other environmentally friendly transport. The urban and rural settlements are very well served by emergency operators. The urban area where emergency services can be accessed is within a 20-minute drive away by car or train from any point of the cultural landscape. 	
Tangible Cultura	l Heritage	
Positive Performance	 Public authorities take measures to protect, safeguard, and manage local heritage, including landscape and monumental property. The Ministry of Culture works to protect it by including it in special lists using the procedures set out in formal Laws (42/2004). The national and local legislative system, and regional and local planning instruments ensure the preservation of historical architectural heritage. 	
Identified Weaknesses	 Although there are numerous buildings more than 100 years old (half of the total), currently there is no specific plan in place for protecting the historical rural architectural heritage. 	
Energy		
Positive Performance	 There have been some projects initiated to start transitioning to environmentally friendly energy sources. 	
ldentified Weaknesses	 Currently, most of the energy consumed comes from non- renewable sources. 	



2.2.5 Psiloritis Geopark

Psiloritis Geopark also reveals a blend of strengths and areas for improvement in the resilience baseline assessment . Socially, initiatives promoting gender equity and youth engagement in farming demonstrate positive efforts, though accessibility to the areas of the cultural landscape can be improved. Governance structures exhibit adaptability to national strategies and active municipal involvement, yet challenges persist in land tenure systems supporting heritage protection.

Despite a slight population decrease, Psiloritis maintains a notable youth presence, while vibrant intangible cultural heritage, like local traditions and culinary practices, earns UNESCO recognition. However, gaps in data on local product promotion hinder comprehensive analysis. In terms of human capital, while some farm owners possess stable contracts, bolstering management practices and engaging locals in educational activities remain imperative.

Financially, commendable budget allocation for landscape safeguarding is supported by regional and national funding, although some economic data gaps require attention. Attention is also needed in tourism to manage peak-season pressures and ensure sustainable practices.

Regarding natural capital, while agriculture boasts diversity, there are concerns over water scarcity and landscape diversity planning. Built capital showcases various facilities promoting cultural heritage, yet transportation and accessibility improvements are necessary.

Below is the complete table for detailed analysis.



Psiloritis Geopark, questionnaire result analysis		
Social System		
al	Diversity	
Social Capit	Positive Performance	 There is a balanced gender equity in the cultural landscape, with existing plans to promote it. Fair percentage of young people in farming activities, endorsed by subsidized programs. This indicates that a commitment is being made to the future to maintain the importance of the agricultural sector.



Psiloritis Geopark, questionnaire result analysis		
Attention Needed	 There is margin for improvement regarding the level of accessibility. Currently there are some existing local plans aiming at that. 	
Governance		
Positive Performance	 The current legislation is well prepared to adapt to national strategies. The level of participation of local municipalities in community planning activities and rural development projects is adequate There are some projects involving non-government bodies in cultural landscape protection. The cultural landscape is currently making use of different European funding opportunities, with many projects on rural development and heritage protection being funded partially or fully by these funds. 	
Identified	- Land tenure systems offer low support to the protection of	
Weaknesses	cultural landscape heritage.	
Demographic	CS	
Positive Performance	 Notable presence of young people living in the area, indicating that the problem of an ageing population is relatively low in the cultural landscape. 	
Attention Needed	 Slight decrease in population in the last decade, which might be reflected in challenges like economic decline, environmental degradation and reduction of quality of life Lack of data on migration rate, which is necessary when analysing demographic trends 	
Intangible C	ultural Heritage	
Positive Performance	 There are numerous events and local associations that relate to local traditions and culinary practices. The work done with local products is recognized by obtaining designations of origin or other certificates. There is a local practice (art of dry-stone walling, knowledge and techniques) included in UNESCO's list of intangible cultural heritage. Additionally, there are other traditional activities, such as the ceramic art in Margarites village, that are hallmarks for the villages and that they are conserved and protected. 	
Attention	- Data regarding the percentage of shops, restaurants, and	
Needed	tourism facilities selling local products is not available, which	



Psiloritis Geopark, questionnaire result analysis			
		limits the understanding of the accessibility and promotion of local cultural products.	
	Social Value		
	ldentified Weaknesses	- There is a minor percentage of businesses using a voluntary certification for environmental quality indicating a potential weakness in prioritizing sustainability and social responsibility among businesses operating within the cultural landscape.	
al	Training		
Human Capit	Attention Needed	- Approximately half of the farm owners have a full-time dedication to agricultural activities. While this indicates some level of stability, there may be areas where commitment could be strengthened to ensure more robust management practices within the cultural landscape.	
	ldentified Weaknesses	 No (or very few) training programs offered to citizens to improve their knowledge on cultural heritage preservation. Along with the low participation of adults, this may suggest weaknesses in engaging the local population in educational activities focused on cultural heritage preservation. 	
	Education		
	ldentified Weaknesses	 A very low percentage of adults have completed tertiary studies. This may suggest limited access to higher education institutions or challenges in educational attainment among residents, potentially impacting the development of specialized skills and knowledge necessary for cultural heritage preservation and sustainable development initiatives. Many young people are leaving education and training programs, meaning that they have completed at most a lower secondary education and were not in further education or training. This may indicate underlying issues such as educational disengagement, lack of educational opportunities, or economic factors influencing educational choices. Most of the farm owners have not completed a professional training course. This could pose challenges in terms of implementing sustainable farming practices, adopting modern agricultural techniques, and ensuring the long-term viability of traditional farming methods. 	
LL	Economy		



Psiloritis Geopark, questionnaire result analysis		
Positive Performance	 For the protection of the cultural landscape, an allocated budget is available at the municipal level for different purposes, such as natural disaster recovery, maintenance of public space and the organisation of planning programs and cultural events. The cultural landscape receives support from the regional and national level for environmental protection and planning to climate change. Participation in European programs and partnerships indicates a commitment to securing external funding and resources for landscape protection and sustainable development initiatives. 	
Attention Needed	 Limited awareness of private sector budget allocations for landscape preservation suggests a need for enhanced collaboration and data sharing between public and private entities to support conservation efforts. Variability in housing prices between regions may indicate disparities in affordability and housing accessibility within the community, warranting further investigation into factors influencing pricing dynamics. 	
ldentified Weaknesses	 Lack of data on certain economic indicators, such as the percentage of people employed in cultural and creative sectors and the specific budget allocated for public awareness initiatives, highlights gaps in information availability and monitoring systems, hindering comprehensive economic assessment and planning. 	
Tourism		
Attention Needed	 There is no designated carrying capacity of visitors for the cultural landscape area, but there was a Tourism Development Plan which includes measures for tourist education and training. In addition, some areas within the cultural landscape have a daily limit of visitors. High pressure of tourists on peak summer weeks (from mid-July to end of August). This underlines the importance of implementing measures to distribute tourist flows more evenly throughout the year and reduce peak-season pressures. The low percentage of residential houses used for tourism and those exclusively used in the summer season may suggest a relatively low level of residential displacement due to tourism-related accommodation, which may contribute to maintaining 	



Psiloritis Geopark, questionnaire result analysis		
		community cohesion and preserving local character.
		designation of a corrying conscitutof visitors and visitor
		management plans
Ecolo	aical System	
	Agriculture	
oita	Agriculture	- The agricultural activities are very diverse, with olive trees and
Cap		crops taking centre stage, but there are also livestock farming
al (activities. This indicates higher diversified income sources.
tur		which contributes to enhance communities' resilience against
Na	Positive	climate hazards.
	Performance	- There are agricultural companies generating EU-recognized
		food products with PDO, such as the Graviera Cheese and the
		extra virgin olive oil "North Mylopotamos Rethymno Crete",
		which are important to protect and promote local agricultural
		activities.
		- The percentage of terraced areas and vineyard coverage
	Attention	suggest the preservation of traditional agricultural landscapes,
	Needed	but monitoring and management efforts are needed to prevent
		agriculture
		 Crops do not have sufficient access to water because of the
		decrease in rainfalls and droughts. Concerns regarding water
	Identified	availability and management, highlight vulnerabilities to
	weaknesses	drought and over pumping, posing significant risks to
		agricultural productivity and livelihoods.
Natural Heritage		tage
	Positive	- The cultural landscape is generally protected by different
	Performance	recognitions, since it is a UNESCO Global Geopark and there are
		also Natura 2000 sites and nationally designated areas.
		- There are numerous types of landscape typologies within the
	Attorntions	cultural landscape, but there are only some planning measures
	Attention	being implemented to secure this diversity of landscapes.
		- The low percentage of total protected areas surface (and
		vulnerabilities in conserving and protecting natural heritage
	Green and bl	ue infrastructure



Psiloritis Geopark, questionnaire result analysis		
	Positive Performance	 Efforts are made to prevent the cultivation of foreign species and so to protect the existing and indigenous species of flora and fauna. The Regional Plan for Adaptation to Climate Change (PeSPKA) contains points and guidelines for protecting natural habitats and species.
	ldentified Weaknesses	- Absence of a policy or plan considering the value of ecosystem accounts of carbon sequestration represents a gap in climate- related resilience planning, which could hinder the landscape's ability to address climate change impacts effectively. Low percentages of green areas of high ecological value and areas designated for daily recreation suggest potential areas where additional attention may be needed, in order to enhance the quality and accessibility of green and blue infrastructure.
	Topography	and morphology
	Positive	- There are no areas of ecological fragmentation generated by
	Performance	urban dispersion in the area.
	Attention Needed	 While a tool showing geospatial data for the Region of Crete is available, it is not sufficiently/effectively used in land planning processes, and the absence of a specific tool or service to identify the most affected areas and severity of damage during extreme events suggests potential gaps in assessing and responding to landscape damage effectively. Fire events occur annually, but they are usually small-scale forest fires.
Techr	nical system	
al	Buildings	
Built Capita	Positive Performance	- There are different facilities promoting arts and cultural heritage, going from culture centres and museums to monasteries. These facilities likely contribute to community engagement and strengthen cultural resilience.
	Attention Needed	- Uncertainty on the percentage of rented houses, which is important to know when analysing the potential loss of social capital and community ties.
	Infrastructur	e
	Positive Performance	- Urban and rural settlements are well served by necessary emergency operators.



Psiloritis Geopark, questionnaire result analysis		
		 Accessing emergency services from any location within the cultural landscape requires an average 20-minute drive.
	ldentified Weaknesses	 With only a small percentage of accessibility to cultural facilities and sites by public or environmentally friendly transport, there may be limitations in connectivity and accessibility within the cultural landscape. Further efforts may be needed to improve transportation options and enhance accessibility for residents and visitors.
	Tangible Cul	tural Heritage
	Positive Performance	 There are plans and programs that aim to conserve and protect traditional settlements, constructions and crops in terraced areas. Public authorities have recognized natural and cultural assets, such as the designations of Natura 2000 areas and the UNESCO geopark.
Energy		
	Positive Performance	- Both, at the municipal and national level, are plans on energy saving and a transition to sustainable energy sources.
	Attention Needed	 Part of the energy consumed for heating spaces, hot water provision and running air-condition units, comes from renewable energy sources. However, there is room for improvement in this aspect.

2.2.6 Observations of the results

As it can be observed in the previous tables, all the R-Labs exhibit resilience in certain areas, although there is room for improvement in other facets. While there are some recurrent challenges, such as accessibility for people with disability, it can be said that the R-Labs currently face different realities.

The results manifest that it is beneficial to make an individual assessment for each R-Lab, as it has facilitated the collection of more detailed information from them. Although the R-Labs have provided similar answers to some questions, the responses to the questionnaire need to be interpreted based on the physical, ecological and socio-economic context, as well as on the hazards faced, as detailed next in the impact chains. Therefore, comparisons between them were avoided, as the aim was not to find out which R-Lab is the most resilient, but to identify the strengths and weaknesses of each of them individually.



The traffic light system employed served to provide a detailed picture of the performance of each R-Lab per Key element, considering both strengths and weaknesses. The definition of these points classified as "Attention Needed" or "Identified Weaknesses" should be used as a starting point for the upcoming activities to be carried out in the project, such as T4.3, "Application and co-evaluation of the Resilient Landscapes serious game for co-creation of resilience strategies in the case studies", and in T4.4, " Co-creation of local resilience measures and solutions". The objective of these tasks is to design solutions and strategies that will assist R-Labs in enhancing their resilience for their cultural landscape. This will be achieved by addressing weaknesses while reinforcing strengths.

As previously stated, the evaluation has indicated that each R-Lab encounters challenges that are influenced by the local context. Consequently, the solutions and strategies developed within the project must also be adapted to and aligned with this context. It is postulated that it would be challenging and perhaps not the most optimal approach to design universal strategies for all R-Labs, given that the scope of application will differ. Nevertheless, the insights gained from the strategies and solutions devised for a specific R-Lab should be disseminated to the wider community, thereby facilitating the identification of effective strategies to enhance resilience.


3 Impact Chains

3.1 Overview of impact chain creation process

The work involved in this subtask included the co-creation of two impact chains per R-Lab in two distinct and consecutive workshops per R-Lab, accompanied by several pre- and post-processing steps. The first step of this process was to define the hazard and risk to be analysed in the workshop as well as the main exposures to be considered in the process. This was done in bilateral meetings with the R-Labs based on their local knowledge, taking into account other project results so far such as the stakeholder mapping in T2.3.1. At the same time the workshop modalities were defined together with the R-Labs, e.g. the selection of stakeholders for each workshop, the language of the workshop, if the workshop should be held in person or as an online meeting, and the facilitation plan. In the first round of workshops, only climate-related hazards were included in line with the original proposition of the impact chain method (Zebisch et al., 2021). In the second round of workshops the methodology was extended to anthropogenic hazards to address the most pressing issues in the R-Labs.

Depending on the local situation in the individual R-Labs, the workshops were conducted either online or in person with 4 to 20 participants, i.e. local stakeholders. The workshops were held in English where possible. Task partners with appropriate language skills were asked to (co-)facilitate the workshop if it seemed sensible to hold the workshop in the local language. For this purpose, a train-the-trainers workshop was organised in advance to prepare the respective facilitators in the impact chain methodology. FhG was also present at each workshop held in the local language, if requested by task partners, to provide support in case of questions or clarification.

An overview of all impact chain workshops can be found in Table .

The workshops were prepared by FhG in collaboration with the R-Labs and, where necessary, relevant task partners (i.e. TEC, ICLEI, LINKS). This included the preparation of presentations (on the impact chain method and the hazard in question), the moderation plan and workshop material, i.e. a pinboard for creating an analogue impact chain with initial risk elements. The latter was also prepared as a collaborative online whiteboard by



using Conceptboard². During the workshop the workflow was as follows: In a three-step process, the exposures, impacts, sensitivities, and coping capacities of the R-Lab were developed and discussed for the specific hazard that was pre-defined before the workshop. As a secondary effect, potential adaptation measures were included in the impact chains. Please refer to (Zebisch et al., 2021) for more information on the method.

In a final step, the workshop results were revised and finalised in an iterative process with several feedback loops between FhG, the R-Labs and their local stakeholders, as well as relevant task partners. All final impact chains are available online (as a Conceptboard² whiteboard) and as a PDF in English and, where needed, local language.

Table 9: Overview of all impact chain workshops

R-Lab	Risk	Format	Language	Date	No. of stake- holders per workshop	Additional partners involved				
Workshop I										
Portovenere, Cinque Terre and the Islands	Hydrogeological risk (area of Tramonti)	Online	Italian	Oct 23 (M9)	20	LINKS, FhG				
L'Horta de València GIAHS	Change in precipitation patterns	In person	Spanish	Sep 23 (M8)	8	TEC, FhG				
Island of Neuwerk in Hamburg	Sea level rise and storm surges	In person	German	Sep 23 (M8)	5	FhG				
Psiloritis Geopark	Heat waves and temperature rise	In person	Greek	Oct 23 (M9)	13	ICLEI, FhG				
Defensive system of Zadar	Heatwaves	Online	English	Sep 23 (M9)	4	FhG				

² <u>https://conceptboard.com/,</u> © Copyright Conceptboard 2024

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Workshop II										
Portovenere, Cinque Terre and the Islands	Hydrogeological risk (area of Corniglia)	Online	Italian	Feb 24 (M13)	9	LINKS, FhG				
L'Horta de València GIAHS	Abandonment of agricultural activity	In person	Spanish	Feb 24 (M13)	12	TEC, FhG				
Island of Neuwerk in Hamburg	Pollution	In person	German	Feb 24 (M13)	6	FhG				
Psiloritis Geopark	Socio-economic implications of temperature rise related to agriculture and tourism	In person	Greek	Feb 24 (M13)	12	FhG				
Defensive system of Zadar	Urban flooding and storms	Online	English	Feb 24 (M13)	5	FhG				

The next section (Chapters 3.2 to 3.6) presents the selected hazards and exposures as well as the stakeholders involved in both workshops. The final result of this subtask, i.e. the final impact chains can be found in the Annex (Chapter 6.2).

3.2 Island of Neuwerk in Hamburg

3.2.1 Hazards, exposure, and stakeholders

Hazards

In workshop 1 the risk of "too much water" was analysed in two scenarios for the Island of Neuwerk in Hamburg. The first scenario was a disaster scenario in which the flooding of a dyke by a storm surge was assumed. The second scenario was a slow-onset scenario that assumed a sea level rise of up to one metre.



The islands of Neuwerk, Scharhörn and Nigehörn and their surrounding tidal flats (constituting the area of the Hamburg Wadden Sea National Park) are exposed to the impacts of a climate change-related sea level rise as well as the increase in the occurrence and intensity of severe coastal storm events within the southern German Bight. Sea level rise poses a significant hazard to the Wadden Sea as it can lead to more and longer periods of coastal flooding of the foreshore areas. An increase in the water level together with a severe storm event can undermine the structural integrity of the coastal defence systems: rock revetments, wooden seawalls and a ring dyke that surrounds the buildings of the island of Neuwerk and the grazing areas. The islands of Scharhörn and Nigehörn are protected bird sanctuaries and are therefore uninhabited (apart from the bird warden on Scharhörn) while the island of Neuwerk has a small number of permanent residents and non-resident employees from the mainland.

In workshop 2, the risk of pollution was analysed in three scenarios. The first scenario was based on a major oil spill, the second scenario on a small pollution accident (e.g. toxic liquids) and the third scenario on other types of pollution (e.g. microplastics and macroplastics).

The hazard of "pollution" was chosen as the potential for a small-scale pollution event or major accident near the national park are possible due to the close location of the island to three ports: the Port of Hamburg on the River Elbe (third largest in Europe) and the two smaller but still significant ports of Bremerhaven and Wilhelmshaven. The hazard pollution was split into three different pollution events to better understand the different impacts these scenarios are having on the islands and the surrounding tidal areas.

Exposures

In workshop 1, the exposure systems collected were: residents and workers, tourism, ecologically significant areas on Neuwerk (such as bird breading areas, flora fauna habitat areas, salt marshes), accessibility of the island, general flora and fauna, infrastructure for supply and disposal systems, infrastructure for the protection of the island (such as dykes, rock revetments) and private infrastructure.

In workshop 2 the exposure systems collected were: people (residents, workers, visitors), different infrastructure types such as coastal protection structures (dykes and seawalls/revetments), accessibility to the island (tidal river, walking/horse cart way over the tidal flats, pumping stations and gates), other systems such as the waterbody and the tidal flats, and the different economic sectors (tourism, shipping, use of pasture).

Stakeholders

Workshop 1 was attended by four stakeholders from four organisations: 76 – RescueME – D4.3 Local Resilience Baseline and Local Impact Chains for R-Labscapes – 03/05/2024



- District Office Hamburg-Mitte (Bezirksamt Hamburg-Mitte)
- Hamburg Port Authority HPA Polder Hamburg ("Stackmeisterei")
- State Office for Real Estate and Property (Landesbetrieb für Immobilien und Grundvermögen)
- BUKEA National Park Administration, Climate Adaptation Unit (BUKEA Nationalparkverwaltung, Stabsstelle für Klimaanpassung)

Workshop 2 was attended by six stakeholders from five organisations:

- Hamburg Port Authority
- BUKEA Pollutant Management (Schadstoffmanagement)
- BUKEA National Park Administration including National Park ranger on the island
- Authority for Justice and Consumer Protection, Veterinary Services (Behörde für Justiz- und Verbraucherschutz, Veterinärwesen)
- District Office Hamburg-Mitte, Civil Protection and Disaster Control (Zivil- und Katastrophenschutz)

3.2.2 Impact chains

The final impact chain can be found in the Annex (Chapter 6.2).

3.3 Defensive System of Zadar

3.3.1 Hazards, exposure, and stakeholders

Hazards

In workshop 1 the risk of heat waves and related hazards, e.g. drought, was analysed for the City of Zadar. Due to the climate and geographical position of the City of Zadar, heat waves are the most significant hazard that negatively affects various aspects of the local area – such as cultural heritage, tourism, agriculture, health of the residents etc. The City of Zadar has in recent years faced an increase in periods of extreme heat waves during the summer season. This is becoming an increasing problem.

In workshop 2 the risk of pluvial flooding and storm surge events was analysed. Pluvial flooding and storm surge events are the second largest hazards that negatively impact the local area and the life of both, residents and tourists. This hazard also negatively impacts on various aspects of the local area such as cultural heritage, tourism, agriculture etc. Extreme storms, which occur regularly in the Zadar region, pose a particularly high risk.



These storms consist of extreme wind speeds and heavy rainfall events that cause flooding.

Exposures

In workshop 1 the exposure systems collected were ecosystems, infrastructure, agriculture, and economy. In workshop 2, the exposure systems collected were ecosystems, infrastructure, business sectors (agriculture, tourism) people, cultural heritage, and buildings.

Stakeholders

Workshop 1 was attended by four stakeholders from four organisations:

- Department of Culture Expertise in the field of culture, culture heritage, and protection of culture heritage.
- Department of Energy Efficiency, Physical Planning and Construction Expertise in the field of energy efficiency.
- Department of Utility and Environmental Protection Expertise in the field of environmental protection and participation in the co-creation of some of the important strategical environmental documents of the City of Zadar.
- Department of EU funds Expertise in the field of EU funded project preparation and implementation.

Workshop 2 was attended by five stakeholders from five organisations:

- Department of Culture and Sports Expertise in the field of culture, culture heritage, and protection of culture heritage.
- Department of EU funds Expertise in the field of EU funded project preparation and implementation.
- Department of Communal Services and Environmental Protection Expertise in the field of environmental protection and has participated in the co-creation of some of the important strategical environmental documents of the city of Zadar.
- Department of Spatial Planning, Construction and Energy Efficiency Expertise in the field of energy efficiency.
- Zadar Tourist Board Expertise in the field of tourism.
- University of Zadar Expertise in the field of geography and geospatial analysis

3.3.2 Impact chains

The final impact chain can be found in the Annex (Chapter 6.2).



3.4 L'Horta de València GIAHS

3.4.1 Hazards, exposure, and stakeholders

Hazards

In workshop 1 the risk of changing precipitation patterns was analysed for the Horta de València and the Albufera. The Mediterranean climate alternates between periods of water scarcity and short periods of heavy rainfall, so that periods of drought and flooding, which usually occur cyclically, are normal. Farmers are used to these alternations and know how to manage these patterns, it can therefore be said that they are somehow adapt to this precipitation pattern. The climate is currently changing these patterns, so that location, frequency and intensity of precipitation are changing. This results in drought periods getting longer, precipitation events more extreme and occurring at different times than previously known, i.e. rain during times when it has not rained before and vice versa.

In workshop 2 the risk of abandonment of agricultural and fishing activity was analysed for the Horta de València and the Albufera. This is a non-climatic hazard that has existed at the territory for some time. Many factors affect agriculture at l'Horta and traditional fishery at l'Albufera. Some of them have been urban expansion of the city, that historically has grown over the Horta that surrounds it, and the expansion of urban infrastructures, such as highways, railways, or the enlargement of the port infrastructures. The low profitability of primary activities, the lack of generational change and the difficult access to the land are obstacles for young people to take up economic activity in agriculture or fishing. In addition, the lack of public policies and funding, the dependence on the global food market for the commercialization of products, as well as the pricing, vulnerability and lack of appreciation and influence of the agricultural sector, contribute to the abandonment of the agricultural activity in l'Horta and traditional fishing activity at the Albufera Natural Park.

Exposures

In workshop 1 the exposure systems collected were infrastructure, soils, biodiversity and ecosystems, agriculture and fishery activities, as well as built environment. In workshop 2 the exposure systems collected were cultural heritage, economic sectors (agriculture, tourism, fishery), ecosystem services, infrastructure, people, and other exposed systems such as the public sector.

Stakeholders

Workshop 1 was attended by eight stakeholders from seven organisations:



- Valencia City Council / Parcs, Gardens and Natural Areas Department / Devesa-Albufera Service: related to the Albufera Natural Parc ecosystem management, since the Devesa is an ecosystem - under the local government management - which is a part of the Natural Park - under the regional government management.
- València Clima i Energia Foundation: experts on climate change management. They give information and training to the citizenship on climate change, and propel the ecological transition at the city of València. Public Foundation depending on the València City Council.
- Consorci del Consell de l'Horta de València: the supramunicipal Horta management body, created by the Horta Law.
- Valencia City Council / Civil Protection Department: public service oriented to the study and prevention of situations of collective risk, catastrophe or public calamity and to the protection and relief of people and property in cases where such situations occur.
- Regional Department for Environment, Water, Infrastructure and Territory/ General Directorate for Quality and Environmental education/ General Subdirectorate of Climate Change/ Service for 2030 Climatic Agenda: to carry out the development, monitoring and implementation of the 2030 Agenda in the Valencian Region. Related to Climate Change policies and actions.
- Global Nature Foundation: national foundation with an important office in València, experts on nature protection, biodiversity and relations between climate change and agriculture.
- Water User Association Water Court (Tribunal de las Aguas): local water court declared Intangible Cultural Heritage of Humanity in 2009 by UNESCO. They are responsible of the irrigation water management of a great surface of the GIAHS territory. They are very respected by farmers and as a court, they help them manage water conflicts.

Workshop 2 was attended by 12 stakeholders from 11 organisations:

- Albufera Natural Parc/Management Board representative: the responsible body for the management of the Natural Park. Experts on management of all the activities developed at the Natural Park: biodiversity, agriculture and fishing, tourism, etc.Together with the Consell de l'Horta they could conform the GIAHS management body.
- Valencia City Council / Agriculture Area / Agriculture and Huerta Section: responsible for the agricultural management at the city council. In great coordination with the Consell de l'Horta.
- Visit València Foundation: they boost the strategic management and promotion of tourism at the city of València. Very interested in sustainable tourism. (Public



Foundation depending on the València City Council, that includes most of the touristic stakeholders at the city and its surroundings).

- Regional Department for Environment, Water, Infrastructure and Territory / General Directorate for Urbanism, Landscape and Environmental Assessment/ General Subdirectorate for Green Infrastructure, Landscape and Territorial Management / Service of Green Infrastructure and Landscape: department at the regional level, responsible for the green infrastructure and the landscape management.
- Regional Department for Environment, Water, Infrastructure and Territory / General Directorate for Urbanism, Landscape and Environmental Assessment / General Subdirectorate for Green Infrastructure, Landscape and Territorial Management / Service of Land Management: department at the regional level, responsible for the management of the Action Plan for l'Horta.
- Regional Department for Agriculture / Technical department: department at the regional level, responsible for agriculture grants and subsidies, management and dinamization.
- Global Nature Foundation (NGO)
- La Unió de Llauradors: Valencian Farmer's Union interested in finding ways to adapt agriculture practices to climate change, and make farmers activity more profitable and sustainable.
- Universitat Politècnica de València / CSIC INGENIO: research department at the university related to rural studies and social processes linked to farmers and rural development.
- Universitat Politècnica de València / "Tierra Ciudadana" Chair: chair at the university that gave support to the GIAHS candidature and gives some support to its management.
- "El Palmar" Fishing Community (2 people): fishermen community that practices traditional fishing activity at the Albufera Natural Park lagoon. Deep knowledge on the traditional fishing activity and the cultural heritage value that represents.

3.4.2 Impact chains

The final impact chain can be found in the Annex (Chapter 6.2).



3.5 Portovenere, Cinque Terre and the Islands

3.5.1 Hazards, exposure, and stakeholders

Hazards

In workshop 1 the risk of landslides due to extreme precipitation was analysed for the area of Campiglia Tramonti. In workshop 2 the same risk was analysed but with a focus on a different area, i.e. the area of Corniglia. The chosen risk and hazard are present throughout the entire territory of the UNESCO site. Various parts of the territory are susceptible to slope and soil instability with dormant or active landslides widely present in the area. The causes that determine these destabilization processes are multiple, complex, and often combined with each other. In addition to an increase in the amount of rain, deforestation and fires are also a cause for landslides: on slopes covered by vegetation and trees the rootsystem of trees consolidate the soil and absorb excess water. The territory of the UNESCO site ist exposed to the risk of landslides also due to the nature of the rocks and the slope, which can give the slope a certain instability. Furthermore, the climatic characteristics and the annual distribution of rainfall contribute to the increase in vulnerability of the territory. Weather phenomena have also increased in intensity in recent years. Human activity can also cause landslides. The alteration of areas by humans, often without prior consideration of the environment, can lead to land subsidence; in addition, the abandonment of agricultural activities and the deterioration and collapse of dry-stone walls can increase the vulnerability of the area.

Exposure

In workshop 1 and 2 the exposure systems collected were agriculture, cultural heritage, people, and infrastructure. The value system of the site is diverse and complex, and several elements are put at risk by the hazards. They range from rural infrastructure and agricultural sector (dry-stone walls, terraces, pedestrian paths, vineyards, and olive trees) to the coastal villages with their inhabitants, tourists and built heritage.

Stakeholders

Workshop 1 was attended by twenty stakeholders from nine organisations:

- National Park of 5Terre
- La Spezia Municipality



- Per Tramonti Association
- Vivere Tramonti Association
- Campiglia Association
- Albana La Torre farmer
- Primaterra farmer
- CAI La Spezia
- Association of Environmental Hiking Guides Liguria

Workshop 2 was attended by nine stakeholders from eight organisations:

- National Park of 5Terre
- ProLoco Monterosso
- ProLoco Vernazza and Corniglia
- ProLoco Manarola-Riomaggiore
- Engineer who works with the National Park of 5Terre and Municipality of Riomaggiore
- Geologist who works with the National Park of 5Terre and Municipality of Riomaggiore
- Primaterra farmer
- Municipality of Riomaggiore (one contact person for Culture, Events and trail; one contact person for Agriculture and Environment)
- Municipality of Vernazza
- Mountain rescue (one contact person for 5Terre and one contact person for Liguria Region)
- Uniti per Corniglia Association
- Manarola 5Terre Foundation

3.5.2 Impact chains

The final impact chain can be found in the Annex (Chapter 6.2).

3.6 Psiloritis Geopark

3.6.1 Hazards, exposure, and stakeholders

Hazards

In workshop 1 the risk of heat waves and average temperature rise was analysed for parts of the Municipalities of Mylopotamos and Rethymno . The area of the Eastern Mediterranean, where the island of Crete is located, is expected to suffer more from the

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effects of climate change than any other region in Europe. Models (RCP4.5) predict an increase in the mean annual temperature (MAT) of up to 2,4 °C by the end of the century, combined with more intense and longer heat waves. With respect to precipitation, a reduction of up to 16 % is estimated for 2100 compared to the 1981-2000 values. Those two effects are expected to intensify the lack of available water and contribute to severe droughts resulting desertification, especially at the southern coast. Thus, heatwaves and rising temperatures, intensified by other factors such as water shortages, will threaten all economic and productive activities in the area, the health of residents and visitors, and the social cohesion and cultural continuity in this area. For the first impact chain, stakeholders from research and academic institutions, public services of environment, forestry, agriculture and civil protection, the Geotechnical Chamber, the local municipalities, cultural groups and productive sectors of the area.

In workshop 2 the risk of heat waves and temperature rise for parts of the Municipalities of Mylopotamos and Rethymno was analysed, but with a specific focus on agriculture and tourism. The area of Psiloritis Geopark and especially its northern coastal areas, where the two main economic activities of the island are concentrated, i.e. tourism and agriculture, , face great challenges as a result of climate change. Based on the first impact chain, the risks on the agricultural and tourism sectors were those highlighted as the most important for the territory. Both are the crucial parameters for the social and economic wealth of the small villages that exist in the area, the continuation of human presence in the countryside and related cultural features, most of which are related to traditional sheep and goat raising and agricultural products. Given that these two sectors, tourism and agriculture, are competing with each other with respect to their needs on space and natural resources (i.e. water), certain stakeholders from the local municipalities, the civil protection, experts and entrepreneurs on tourism and agriculture, and local producers were invited for the second workshop on impact chains.

Exposure

In workshop 1, the exposure systems collected were agriculture, culture, people, ecosystems, tourism, infrastructure, economy. The focus of workshop 2 was only on agriculture and tourism.

Stakeholders

Workshop 1 was attended by 13 stakeholders from 11 organisations:

- Region of Crete, Department of Climate Change and Energy Planning
- Region of Crete, Civil Protection, Rethymno



- Municipality of Rethymno (Climate Change and Civil Protection)
- Municipality of Mylopotamos (Technical Service)
- Ephorate of Antiquities of Rethymno
- Geotechnical Chamber of Greece
- Forest Services of Heraklion
- Association of Graduate School Architects Panhellenic Union of Architects, Rethymno Department
- Asomaton Research Center
- Epimenidis Non-profit Cultural Company
- Kretanthos Olive oil products

Workshop 2 was attended by 12 stakeholders from 11 organisations:

- Beekeeping Cooperative of Rethymno
- Bali Travel
- Region of Crete, Fisheries Department, Rethymno
- Municipality of Rethymno, Tourism Department
- Dalabelos Estate (agritourism accommodation)
- Municipality of Mylopotamos, Department of Local Economic Growth
- Municipality of Rethymno (Climate Change and Civil Protection)
- Rooms for Rent Association of Rethymno Municipality
- Region of Crete, Civil Protection, Rethymno
- Geotechnical Chamber of Greece
- Kourkoulou Winery

3.6.2 Impact chains

The final impact chain can be found in the Annex (Chapter 6.2).

3.7 Overview of hazards and exposures of all workshops

Figure 2 and Figure 3 summarise which hazards and which exposures were focused on during all impact chain workshops.





Figure 2: Overview of hazards and fields of exposure of the first round of impact chain workshops. Explanation of the abbreviations: IDEON (Psiloritis Geopark), Neuwerk (Island of Neuwerk in Hamburg), PV5T (Portovenere, Cinque Terre and the Islands), València (L'Horta de València GIAHS), Zadar (Defensive system of Zadar).



Figure 3: Overview of hazards and fields of exposure of the second round of impact chain workshops. Explanation of the abbreviations: IDEON (Psiloritis Geopark), Neuwerk (Island of Neuwerk in Hamburg), PV5T (Portovenere, Cinque Terre and the Islands), València (L'Horta de València GIAHS), Zadar (Defensive system of Zadar).



4 Conclusions

Firstly, the development of the questionnaire to conduct the resilience baseline assessment in the five R-Labs (ST4.2.1) was based on the RescueME Framework indicators (Egusquiza & Gandini, 2023), providing valuable insights on possible starting points for strengthening their overall resilience to climate change and reducing risks. Utilising also insights from previous projects such as the ARCH RAD (Milde, Lückerath, & Ullrich, 2020) and the SHELTER indicators (Egusquiza & Gandini, 2022) as well as feedback from R-Lab coordinators and RescueME partners, which was instrumental in tailoring the questionnaire to the specific needs of each R-Lab's context, the final questionnaire was developed to ensure a nuanced understanding of local social, economic, territorial, and organizational factors.

The analysis of the questionnaire's responses revealed substantial differences among the R-Labs, emphasizing the need for tailored approaches to address the different social, geographical and administrative challenges. In line with the structure of the questionnaire based on the RescueME framework (D1.1), the analysis process did not involve ranking individual questions separately. Instead, both quantitative and qualitative responses grouped under each Key Element have been analysed providing general feedback according to three main categories: "Positive Performance", "Attention Needed", and "Identified Weaknesses". The responses were analysed in the context of the physical, ecological and socio-economic characteristics of each R-Lab. Knowledge of these contexts has facilitated a correct interpretation of the responses received, which has been validated by the R-Labs.

The identification of weaknesses and strengths of each cultural landscape provides the basis for further activities related to the co-creation of strategies and solutions to make them more resilient. Moreover, beyond guiding subsequent tasks within the RescueME project, the local resilience baseline assessment serves as a valuable reference for local planning and goal setting towards robust adaptation to climate change. This holistic approach focuses primarily on safeguarding areas of cultural heritage significance, thus ensuring the preservation of invaluable cultural assets within evolving environmental and socioeconomic challenges.

Secondly, the implementation of eight impact chain workshops showed once again that the value of co-creating impact chains is manifold: impact chains enable the understanding and visualisation of cause-effect relationships between a hazard and its impact on a system. This understanding is fostered by the fact the impact chain is a product of the work of different local stakeholders who develop "their" impact chain. It represents the local characteristics as well as the experience and knowledge of the stakeholders involved. 87 – RescueME – D4.3 Local Resilience Baseline and Local Impact Chains for R-Labscapes – 03/05/2024



Impact chains also serve as an awareness raising tool and can be used as a means of communicating hazards and risks in a system, thus contributing to climate change education. The value particularly emphasized by the participants was that the different stakeholders came together "at one table" to discuss the topic of climate risks. In some cases, the workshops provided the first opportunity for stakeholders to come together for a cross-organisational discussion. In this sense, co-creating impact chains can help to break down silos.

Some of the impact chain workshops were held in English language, while for other it was considered useful to hold them in the local language. Although the coordination effort was higher in these cases (e.g. train-the-trainer workshops, translation of the impact chains, etc.), it proved to be very useful to hold some of the workshops in the local language. Apart from making the participants feel more at ease to articulate their opinions and provide specific information, it had the great advantage that the facilitators (who in some cases were the R-Labs) were trained in the methodology applied in these workshops. As a result, the R-Labs are able to conduct further impact chain workshops themselves, even after the project has ended.

In RescueME, the original impact chain method was further developed by applying the impact chains to other types of hazards than climate-related hazards. Specifically, the anthropogenic hazards "pollution" and "abandonment of agricultural activity" were analysed using the impact chain approach. The difference between analysing climaterelated hazards compared to non-climate-induced hazards, such as those caused by humans, is that the former organically form the starting point of an impact chain, i.e. a cause-and-effect model: Climate-related hazards, e.g. heavy precipitation, have natural causes and their occurrence is not directly influenced by external, anthropogenic factors. An anthropogenic hazard in turn, e.g. pollution, is always the result of multiple factors (natural, political, social, etc.), some of which can be influenced by human action aiming to prevent or alleviate the impact. This difference requires a careful adaptation of the method by tailoring the terms "hazards", "exposures", "impacts", "sensitivities", and "coping capacities" to the situation being analysed. Overall, it proved very useful and successful to expand the impact chain method to other types of hazards, as this allowed the project being committed to the most important issues in each R-Lab. Furthermore, it showed that impact chains can not only be used as a tool to analyse climate-related hazards, but that this method generally brings forward the relationships between the important factors in a system and has therefore the potential to be adapted in different contexts.

Although the co-creation of impact chains contributes to the values mentioned above (awareness raising, promoting understanding of risks, etc.), more sustainable and long-term benefits can be achieved if they are applied firstly for other tasks and purposes in the RescueME project and secondly also beyond the scope of a workshop. Other ways to apply 88 – RescueME – D4.3 Local Resilience Baseline and Local Impact Chains for R-Labscapes – 03/05/2024



impact chains can be by using them as a visual tool for communicating risks and hazards and their interconnectedness, or by using the identified impacts and vulnerabilities as a basis for a subsequent (quantitative) risk assessment.



5 References

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6 Annex

6.1 Local Resilience Baseline Questionnaire

On the following pages, the questionnaire template from the resilience baseline assessment is presented.



Introduction

This questionnaire has been created to shape the local resilience baseline by better understanding local knowledge/ awareness, gauging interest, and informing the most appropriate approach for co-creating resilience measures.

In this document you will find the original version in English and the respective translation in the local Rlabscape language for each question. You are free to use it as you see fit: it can be the main draft for collecting information and details on the questions before filling in the <u>online final questionnaire</u>, or you can even make copies tailored to specific relevant stakeholders (for example keeping just the questions of their interest) to collect their answers.

Before you start, please note that:

- Each time you will find the term "cultural landscape", the question is referred to territory of interest in the RescueMe Project, not to a specific municipal territory.
- All the questions are compulsory, but you have the possibility to specify if some of them are not applicable to your specific context.



Questionnaire

SOCIAL SYSTEM

- Diversity
 - How accessible is the cultural landscape area to people with disabilities (e.g. mobility challenges)? (1 = not accessible, 3= some areas are accessible, 5 = every part of the cultural landscape is accessible).
 - \Box Not sure
 - □ 1
 - □ 2
 - □ 3
 - □ 4
 - □ 5
 - □ Not applicable
 - 2. Are there existing or forthcoming plans/strategies to ensure or improve accessibility to local sites within the cultural landscape for people with disabilities? If yes, please provide details. If not applicable or not available, please specify. Click or tap here to enter text.
 - 3. How equitable across gender is employment in the cultural landscape area and broader region? (1 = no gender parity, very imbalanced; 5 = high gender parity, gender-balanced among those employed).
 - \Box Not sure
 - \Box 1
 - □ 2
 - □ 3
 - □ 4
 - □ 5
 - □ Not applicable
 - 4. Are there existing or forthcoming plans/strategies to improve gender employment equity within the cultural landscape or in the surrounding area? If yes, please provide details. If not applicable or not available, please specify. Click or tap here to enter text.



- 5. **Context-Specific Question:** What percentage of farm businesses in your cultural landscape area are owned or managed by people over 65 years old?.
 - \Box Not sure
 - □ 0-20%
 - □ 20-40%
 - □ 40-60%
 - □ 60-80%
 - □ 80-100%
 - \Box Not applicable
- 6. **Context-Specific Question:** Considering to the total number of farm managers/ owners in your cultural landscape, what is the percentage of female managers?
 - □ Not sure
 - □ 0-20%
 - □ 20-40%
 - □ 40-60%
 - □ 60-80%
 - □ 80-100%
 - $\hfill\square$ Not applicable
- 7. **Context-Specific Question:** What percentage of farmers working in your cultural landscape area are young (from 21 to 36 years old)?
 - □ Not sure
 - □ 0-20%
 - □ 20-40%
 - □ 40-60%
 - □ 60-80%
 - □ 80-100%
 - \Box Not applicable
- 8. **Context-Specific Question:** Context-Specific Question: Are there existing or forthcoming plans/strategies to encourage young people to work in agriculture within the cultural landscape or in the surrounding area? If yes, please provide details. If not applicable or not available, please specify. Click or tap here to enter text.
- Governance



- To what extent do existing Land Tenure Systems (Land-use Policy and Property Rights) support the protection of cultural landscape heritage in your site? Ranking from *1-5 (With 1 indicating minimum/not available, and 5 indicating high level of support)
 - $\hfill\square$ Not sure
 - □ 1
 - □ 2
 - □ 3
 - □ 4
 - □ 5
 - $\hfill\square$ Not applicable
- 10. Please rank the level of Local Municipalities' participation in the cultural landscapes' community planning activities and/or rural development projects. Ranking from *1-5 (With 1 indicating minimum/not participating, and 5 indicating a high level of engagement).
 - □ Not sure
 - □ 1
 - □ 2
 - □ 3
 - □ 4
 - □ 5
 - Not applicable
- 11. Within your cultural landscape, what is the number of projects/initiatives engaging nongovernment bodies /community groups in pre- and post-disaster risk management and protection of cultural heritage and historical sites? Please list examples if any. If not applicable or not available, please specify. Click or tap here to enter text.
- 12. Within your cultural landscape, what is the number of projects/initiatives on landscape and Cultural Heritage included in the NEXT Generation EU (key instrument to help EU economies emerge stronger and more resilient from the Coronavirus crisis)? Please list examples if any. If not applicable or not available, please specify.

Click or tap here to enter text.

13. To what extent does the current legislation support the implementation of the national adaptation strategies? Ranking from *1-5 (With 1 indicating minimum level of support, and 5 indicating a high level of support).



 \Box Not sure

- □ 1
- □ 2
- □ 3
- □ 4
- □ 5
- □ Not applicable
- Demographics
 - 14. Please describe the population change in your cultural landscape over the last 10 years, specifying whether it has increased or decreased and providing a percentage if possible. If this information is not available, please specify. Click or tap here to enter text.
 - 15. What is the net migration rate within the cultural landscape during the year? This rate is calculated as the difference between the number of people coming and leaving, divided by the population, and expressed per 1000 inhabitants. If this information is not available, please specify. Click or tap here to enter text.
 - 16. What is the ratio between population aged 0-14 years to 15-64 in your cultural landscape? If not applicable or not available, please specify. Click or tap here to enter text.

• Intangible Cultural Heritage

17. Within your cultural landscape, what is the number of festivals or cultural events connected to traditions/culinary practices/local products with structured messaging, channels, and delivery? Please list examples if any. If not applicable or not available, please specify.

- 18. Within your cultural landscape, what is the number of local associations connected to traditions/culinary practices/local products? Please list examples if any. If not applicable or not available, please specify. Click or tap here to enter text.
- 19. Can you provide a percentage of the shops, restaurants and tourism facilities selling local products?



- \Box Not sure
- □ 0-20%
- □ 20-40%
- □ 40-60%
- □ 60-80%
- □ 80-100%
- \Box Not applicable
- 20. Availability of products with designation of origin or geographical indications (PDO, PGI), traditional specialties guaranteed (TSG). (1 = we have very few or none of these products available, 5 = we have many of these products available).
 - □ Not sure
 - □ 1
 - □ 2
 - □ 3
 - □ 4
 - □ 5
 - \Box Not applicable

• Social Value

- 21. Can you provide a percentage of enterprises/establishments using a voluntary certification/labelling for environmental quality/sustainability and/or Corporate Social Responsibility?
 - □ Not sure
 - □ 0-20%
 - □ 20-40%
 - □ 40-60%
 - □ 60-80%
 - □ 80-100%
 - \Box Not applicable

• Training

- 22. To what extent are Capacity building/ training activities/mentoring opportunities to involve the local community promoted by institutions for improving cultural knowledge? Ranking from *1-5 (With 1 indicating minimum/not available, and 5 indicating high level of promotion).
 - □ Not sure
 - □ 1



- □ 2
- □ 3
- □ 4
- □ 5
- □ Not applicable
- 23. What is the percentage of the population age 25-64 participating in formal and informal education or training in relation with preservation of cultural heritage?
 - □ Not sure
 - □ 0-20%
 - □ 20-40%
 - □ 40-60%
 - □ 60-80%
 - □ 80-100%
 - \Box Not applicable
- 24. **Context-Specific Question:** What is the percentage of farm managers/ owners with a full-time contract/ commitment in your cultural landscape?
 - □ Not sure
 - □ 0-20%
 - □ 20-40%
 - □ 40-60%
 - □ 60-80%
 - □ 80-100%
 - \Box Not applicable

• Education

- 25. What is the percentage of people aged 15 and older with tertiary education?
 - \Box Not sure
 - □ 0-20%
 - □ 20-40%
 - □ 40-60%
 - □ 60-80%
 - □ 80-100%
 - \Box Not applicable
- 26. What is the percentage of people in the age group between 18-24 who leave education and training programs?
 - \Box Not sure



- □ 0-20%
- □ 20-40%
- □ 40-60%
- □ 60-80%
- □ 80-100%
- □ Not applicable
- 27. **Context-Specific Question:** What percentage of farm businesses in your cultural landscape are owned/ managed by trained farm manager (professional agrarian studies, university agrarian studies, and others).
 - \Box Not sure
 - □ 0-20%
 - □ 20-40%
 - □ 40-60%
 - □ 60-80%
 - □ 80-100%
 - \Box Not applicable

• Economy

- 28. Is there a specific budget allocated at the municipal level for pre- and post-disaster risk management and protection of cultural landscapes? If yes, can you please provide details? If not applicable or not available, please specify. Click or tap here to enter text.
- 29. Is there a specific budget allocated at the municipal level to public spaces and their upkeep, including maintenance of pathways and equipment? If yes, can you please provide details? If not applicable or not available, please specify. Click or tap here to enter text.
- 30. Is there a specific budget allocated by the private sector in the preservation, protection and conservation of cultural landscapes? If yes, can you please provide details? If not applicable or not available, please specify. Click or tap here to enter text.
- 31. Is there a specific budget allocated by the public/private sector spent in initiatives aimed at raising awareness of site values and weaknesses among tourists and the local population of cultural landscapes? If yes, can you please provide details? If not applicable or not available, please specify.



32. What is the Annual income rate among residents in your cultural landscape? If not applicable or not available, please specify.

Click or tap here to enter text.

- 33. Is there a specific budget allocated at the municipal level for financing the management and protection of your cultural landscapes? If yes, can you please provide details? If not applicable or not available, please specify. Click or tap here to enter text.
- 34. Is there any budget coming from a regional/national level for environmental protection? Please define if possible. If not applicable or not available, please specify.

Click or tap here to enter text.

- 35. What is the percentage of people that are employed in the cultural and creative sectors and cultural occupations?
 - □ Not sure
 - □ 0-20%
 - □ 20-40%
 - □ 40-60%
 - □ 60-80%
 - □ 80-100%
 - \Box Not applicable
- 36. What is the average housing price per square meter in the cultural landscape / surrounding area? If not applicable or not available, please specify. Click or tap here to enter text.
- 37. What is the average housing price per square meter at the national level? If not applicable or not available, please specify.

- 38. **Context-Specific Question:** Which is the total number of farm businesses in your cultural landscape? If not applicable or not available, please specify. Click or tap here to enter text.
- 39. **Context-Specific Question:** What is the percentage of people affiliated to Social Security in the agriculture sector compared to the total number of affiliated people (agriculture, industry, construction and services).



- \Box Not sure
- □ 0-20%
- □ 20-40%
- □ 40-60%
- □ 60-80%
- □ 80-100%
- □ Not applicable
- Tourism
 - 40. Is there a designated carrying capacity (or maximum number) for tourists? If not applicable or not available, please specify.

- 41. Is there a visitor management plan in place for the cultural landscape that considers carrying capacity for visitors, or a maximum number of tourists? Please provide details if possible. If not applicable or not available, please specify. Click or tap here to enter text.
- 42. What is the estimated number of days in a year in which maximum tourism carrying capacity has been exceeded? If not applicable or not available, please specify. Click or tap here to enter text.
- 43. What is the estimated percentage of houses of residents that are now being used as accommodations for tourist?
 - $\hfill\square$ Not sure
 - □ 0-20%
 - □ 20-40%
 - □ 40-60%
 - □ 60-80%
 - □ 80-100%
 - □ Not applicable
- 44. What is the estimated percentage of houses of residents that are only used in the summer season (e.g. for vacations)?
 - □ Not sure
 - □ 0-20%
 - □ 20-40%
 - □ 40-60%
 - □ 60-80%



□ 80-100%

□ Not applicable

ECOLOGICAL SYSTEM

- Agriculture
 - 45. What is the ratio of farms with mixed activity (agriculture and livestock) in relation to the total number of farms by municipality? If not applicable or not available, please specify..

- 46. What is the ratio of organic farms in relation to the total number of farms by municipality? If not applicable or not available, please specify. Click or tap here to enter text.
- 47. **Context-Specific Question:** In your cultural landscape, what percentage of the total crop surface is dedicated to arable crops (cereals for grain, pulses, tubers, industrial crops, flowers and ornamentals, fodder crops, vegetables, nurseries)?
 - □ Not sure
 - □ 0-20%
 - □ 20-40%
 - □ 40-60%
 - □ 60-80%
 - □ 80-100%
 - \Box Not applicable
- 48. **Context-Specific Question:** If your cultural landscape features terraced areas, what percentage of these terraces are currently abandoned?
 - □ Not sure
 - □ 0-20%
 - □ 20-40%
 - □ 40-60%
 - □ 60-80%
 - □ 80-100%
 - □ Not applicable
- 49. **Context-Specific Question:** If viticulture is present in your cultural landscape, what portion of the vineyards is comprised of terraced areas?
 - □ Not sure



- □ 0-20%
- □ 20-40%
- □ 40-60%
- □ 60-80%
- □ 80-100%
- □ Not applicable

50. **Context-Specific Question:** In your cultural landscape, what percentage of surface is cultivated with vineyards?

- \Box Not sure
- □ 0-20%
- □ 20-40%
- □ 40-60%
- □ 60-80%
- □ 80-100%
- □ Not applicable

51. **Context-Specific Question:** In your cultural landscape, what percentage of surface is cultivated with olive trees?

- □ Not sure
- □ 0-20%
- □ 20-40%
- □ 40-60%
- □ 60-80%
- □ 80-100%
- $\hfill\square$ Not applicable

52. **Context-Specific Question:** In your cultural landscape, what percentage of the surface is devoted to crops?

- □ Not sure
- □ 0-20%
- □ 20-40%
- □ 40-60%
- □ 60-80%
- □ 80-100%
- □ Not applicable
- 53. **Context-Specific Question:** Do you believe that crops in your cultural landscape have sufficient access to water resources throughout the year? Please provide an explanation. If not applicable or not available, please specify.



Click or tap here to enter text.

54. **Context-Specific Question:** If there are agricultural firms in your cultural landscape that produce EU-recognized excellence in food production, such as those with Protected Designation of Origin (PDO) or Protected Geographical Indication (PGI), please specify the number. If not applicable or not available, please specify. Click or tap here to enter text.

• Natural heritage

- 55. What is the percentage of total Protected Areas Surface for cultural landscapes in your site?
 - \Box Not sure
 - □ 0-20%
 - □ 20-40%
 - □ 40-60%
 - □ 60-80%
 - □ 80-100%
 - \Box Not applicable
- 56. What is the number of landscape typologies in your area? Please name the typologies of landscape you have. If not applicable or not available, please specify. Click or tap here to enter text.
- 57. To what extent are planning measures implemented to secure the diversity of cultural landscapes? Ranking from *1-5 (With 1 indicating minimum/not available, and 5 indicating high level).
 - □ Not sure
 - □ 1
 - □ 2
 - □ 3
 - □ 4
 - □ 5
 - □ Not applicable

58. What is the percentage share of Natura 2000 sites within the NUTS2 or NUTS3

- region?
- \Box Not sure
- □ 0-20%
- □ 20-40%



- □ 40-60%
- □ 60-80%
- □ 80-100%
- □ Not applicable

59. What is the percentage of nationally designated protected areas in the cultural landscape?

- □ Not sure
- □ 0-20%
- □ 20-40%
- □ 40-60%
- □ 60-80%
- □ 80-100%
- \Box Not applicable

• Green and blue infrastructure

- 60. What is the percentage within the cultural landscape of green areas of high ecological quality (defined as green areas with BTC index higher than 2,4 Mcal/m² * year with respect to the total surface of the LU.)?
 - Not sure
 - □ 0-20%
 - □ 20-40%
 - □ 40-60%
 - □ 60-80%
 - □ 80-100%
 - \Box Not applicable
- 61. What is the share of areas for daily recreation (% of km² of land potentially used for daily recreation)?
 - □ Not sure
 - □ 0-20%
 - □ 20-40%
 - □ 40-60%
 - □ 60-80%
 - □ 80-100%
 - □ Not applicable



62. Do you have any plans for the conservation and maintenance of the natural habitat and species? If yes, please provide details. If not applicable or not available, please specify.

Click or tap here to enter text.

63. Do you have any policy, regulation or plan that considers the value of ecosystem accounts of carbon sequestration as a proxy of global climate regulation? If yes, please provide details. If not applicable or not available, please specify. Click or tap here to enter text.

• Topography and morphology

- 64. To what extent do you use Copernicus data or other source of data in your land planning processes?
 - \Box Not sure
 - □ 1
 - □ 2
 - □ 3
 - □ 4
 - □ 5
 - \Box Not applicable
- 65. Do you have any tool or service that helps to identify the most affected areas and the severity of damage of the cultural landscape, when an extreme event happens? If yes, please provide details. If not applicable or not available, please specify. Click or tap here to enter text.
- 66. Are there identified areas of ecological fragmentation generated by urban dispersion? if yes, please provide details. If not applicable or not available, please specify.

Click or tap here to enter text.

67. How often have you experienced a fire event in recent years? If not applicable or not available, please specify.



TECHNICAL SYSTEM

- Buildings
 - 68. What is the percentage of rented houses in your cultural landscape?
 - □ Not sure
 - □ 0-20%
 - □ 20-40%
 - □ 40-60%
 - □ 60-80%
 - □ 80-100%
 - \Box Not applicable
 - 69. What is the number of cultural facilities open to the public and aiming at promoting arts and heritage of cultural landscapes in your site? If yes, can you please provide details? If not applicable or not available, please specify. Click or tap here to enter text.
 - 70. What is the total number of properties (buildings) within the cultural heritage area? If not applicable or not available, please specify.

Click or tap here to enter text.

• Infrastructure

- 71. What is the percentage of cultural facilities and sites accessible by public transport or other environmentally friendly transport or cycle tracks within the cultural landscape area?
 - □ Not sure
 - □ 0-20%
 - □ 20-40%
 - □ 40-60%
 - □ 60-80%
 - □ 80-100%
 - □ Not applicable
- 72. To what extent are the main urban and rural settlements in your landscape properly served by all necessary emergency operators (civil protection, fire-fighters, rescuers, etc.)? Ranking from *1-5 (With 1 indicating that they are not properly served, and 5 indicating that they are properly served).
 - □ Not sure
 - □ 1



- □ 2
- □ 3
- □ 4
- □ 5
- □ Not applicable
- 73. What is the average time distance from your cultural landscape to the main urban area (access to emergency services), considering different vehicles (car, bike, train, feet, cruise)? If not applicable or not available, please specify. Click or tap here to enter text.

• Tangible Cultural Heritage

- 74. Do you have any plan for the conservation of the historical rural architectural heritage in your cultural landscape, that also includes an inventory of them? If yes, please provide details. If not applicable or not available, please specify. Click or tap here to enter text.
- 75. Are there measures taken by public authorities to protect, safeguard and manage heritage through their inclusion and recognition in inventories, lists or registers? If yes, can you please name any? If not applicable or not available, please specify. Click or tap here to enter text.
- 76. What is the approximated ratio between the number of dwellings built before 1919 and the total number of dwellings?
 - \Box Not sure
 - □ 0-20%
 - □ 20-40%
 - □ 40-60%
 - □ 60-80%
 - □ 80-100%
 - □ Not applicable

• Energy

- 77. In your cultural landscape, what is the approximated ratio of the energy consumption from renewable carriers (for space heating, hot water and cooling)?
 - \Box Not sure
 - □ 0-20%
 - □ 20-40%


- □ 40-60%
- □ 60-80%
- □ 80-100%
- \Box Not applicable
- 78. is there a policy or plan to improve the share of energy for space heating, hot water and cooling from renewable carriers? If yes, please provide details. If not applicable or not available, please specify.

Click or tap here to enter text.



6.2 Impact Chains

On the following pages, the final two impact chains for each R-Lab are presented in the following order:

- 1. Island of Neuwerk in Hamburg (English and German)
- 2. Defensive System of Zadar (English)
- 3. L'Horta de València GIAHS (first impact chain: English and Spanish, second impact chain: English)
- 4. Portovenere, Cinque Terre and the Islands (English and Italian)
- 5. Psiloritis Geopark (English)



Exposure



Impact Chain 1 -- Island of Neuwerk in Hamburg

Impact of "too much water" on the island Neuwerk (Scenario 1: Storm surge | Scenario 2: Sea level rise)



Another scenario linked to "too much water" is coastal flooding in combination with heavy rainfall. This scenario was not considered in the impact chain.



Einfluss von "zu viel Wasser" auf die Insel Neuwerk (Szenario 1: Sturmflut | Szenario 2: Meeresspiegelanstieg)



Betroffenheiten



Impact Chain 1 -- Die Insel Neuwerk (Hamburg)



Ein weiteres Szenario im Zusammenhan mit "zu viel Wasser" ist Küstenhochwass in Kombination mit Starkregen. Dieses Szenario wurde in der Wirkungskette nicht betrachtet.



Impact Chain 2 -- Island of Neuwerk in Hamburg

Risk of the effects of pollution on the environment and humans in three scenarios





Impact Chain 2 -- Die Insel Neuwerk (Hamburg)

Risiko der Auswirkungen von Verschmutzung auf die Umwelt und den Menschen in drei Szenarien



Impact Chain 1 -- Defensive system of Zadar



Impact Chain 2 -- Defensive system of Zadar

The risk of pluvial flood events and storm sturge events on the defensive system of Zadar



Impact Chain 1 -- L'Horta de València GIAHS

The risk of changing precipitation patterns on the l'Horta de València and Albufera landscapes, people, and connected practices



Impact Chain 1 -- L'Horta de València GIAHS

El riesgo del cambio en los patrones de precipitación sobre los paisajes de l'Horta de València y la Albufera, las personas y las prácticas conectadas



Impact Chain 2 -- L'Horta de València GIAHS

Risk of abandonment of agricultural and fishing activities in the socio-ecological system of Valencia

Legend Hazard Exposure Impact under both scenario assumptions Impact under scenario assumption 'in which agricultural loss involves changes of use to buildings, nfrastructure or other non-natural systems" mpact under scenario assumption "Cultivated areas are converted into accessible and healthy green areas" Sensitivity Capacity Adaptation Measure **Exposure category** Other external stressor Especially important elements Relation between ---- impact and specific exposed element Cascading effect (colors for better visability) Allocation of adaptation

measure to impact(s) / vulnerability

Impact Chain 1 -- Portovenere, Cinque Terre and the Islands



The risk of landslides caused by (extreme) precipitations in the area of Campiglia Tramonti

Vineyards	
Olives cultivation	
Saffrons cultivation	



Catena d'impatto 1 -- Portovenere, Cinque Terre and the Islands



Rischio di frane causate da (forti ed estreme) precipitazioni nell'area di Campiglia Tramonti

Legenda		
	Minacce	
	Esposizioni	
	Impatti	
	Sensibilità	
	Capacità	
	Misure di adattamento	
Cat	egorie di	
esp (so	osizione no in differenti	
gra	dazioni di giallo	
dis	tinguibili)	
Potenziali misure di		
ada	attamento	
	Relazione tra gli impatti	
\rightarrow	Legame di sensibilità / capacità di impatto	
	Assegnazione della misura di adattamento all'(agli) impatto(i) / vulnerabilità	
	Relazione tra le minacce (e dalle minacce agli impatti)	

Impact Chain 2 -- Portovenere, Cinque Terre and the Islands

The risk of landslides caused by (heavy/extreme) precipitations in the area of Corniglia







Catena d'impatto 2 -- Portovenere, Cinque Terre and the Islands

Rischio di frane causate da (forti ed estreme) precipitazioni nell'area di Corniglia









Impact Chain 1 -- Psiloritis Geopark

The risk of impacts from heatwaves and temperature rise on parts of the Municipalities of Mylopotamos and Rethymno



Impact Chain 2 -- Psiloritis Geopark

Socio-economic implications of temperature rise related to agriculture and tourism in parts of the Municipalities of Milopótamos and Rethymno





Relation between hazards

Hazard information (replicated from hazard cards for better overview)



7 Partners





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