



# GreenHeritage

The impact of Climate change on the Intangible Cultural Heritage

## Deliverable D2.3 Development of Methodology

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## Executive summary

The report D2.3 “Development of Methodology” presents a comprehensive methodology for managing and adapting Intangible Cultural Heritage (ICH) in response to climate change (CC). It provides a practical, step-by-step guide for establishing a participatory and collaborative process for inventorying and safeguarding ICH.

The methodology is informed by insights from GreenHeritage deliverable D2.2 on climate change impacts to ICH and existing adaptation practices. It addresses the challenges identified by heritage and climate scholars, which include facilitating dialogue between experts and the ICH community and recognizing the dynamic nature of ICH by bridging the tangible-intangible heritage gap amidst evolving capacities and vulnerabilities to climate change.

The methodology integrates elements from established frameworks and incorporates the latest participatory methods and advancements in the field. Specifically, it draws from the UNESCO ICH safeguarding framework and the EU adaptation policy cycle, and Climate-ADAPT decision-support tool. Additionally, it embraces participatory inventorying of ICH elements, as well as participatory assessment of climate-related risks and adaptation measures.

The developed methodological framework is versatile and can be tailored to suit diverse contexts and contingencies. First, it is applicable at different scales, from neighbourhood to administrative regions, and can be seamlessly integrated into existing agendas and frameworks. Secondly, it accommodates variations in the availability of resources and data providing guidance on how to effectively combine scientific and local knowledge and use qualitative and/or quantitative data.

In summary, the report offers a comprehensive, flexible, and inclusive approach to safeguarding and adapting ICH in the face of climate change, drawing from the best of existing frameworks and the latest participatory methods. It is designed to meet the unique needs of different communities and regions while emphasizing the critical role of social processes and tangible assets in preserving our cultural heritage.



## Section 1: Introduction

### 1.1. Document organization

The present document is organized into the following sections:

Section 2: an analysis of the interplay between climate change and cultural heritage, drawing upon the empirical evidence outlined in GreenHeritage deliverable D2.2. Specifically, it outlines how climatic change is impacting various elements of ICH across Europe and associated adaptation practices.

Section 3: an overview of the UNESCO ICH safeguarding framework and its evolution beginning with the 2003 Convention. It discusses the historical context, implementation hurdles, and the measures for enhancing the framework to overcome these challenges.

Section 4: presents the methodology for managing and safeguarding ICH in response to climate change. It draws from existing frameworks for ICH safeguarding and climate adaptation, incorporating primary and secondary research findings from GreenHeritage deliverable D2.2. It offers clear step-by-step guidance to establish a participatory and collaborative process for inventorying and safeguarding ICH from climate change impacts.

The document is supplemented by 4 annexes:

Annex 1. Methodology Overview with Descriptions, Approaches, Implementation Tools, and Methods suggested for each sub-step.

Annex 2. Key Questions for Planning Inventorying Processes.

Annex 3. Climate drivers and related mechanisms of impact with examples of expected effects on (tangible) heritage.

Annex 4. Risk assessment matrices for (a) the level of vulnerability combining the level of capacity and sensitivity (b) the level between exposure and vulnerability, (c) the level of risk combining the level of hazards and exposure and vulnerability, and (d) the rating scale for risk with related acceptability and recommendations.

### 1.2. Reference Documents

Document name	Reference number
GreenHeritage – Annex 1: Description of Work	Grant Agreement nr. 101087596
Green Heritage Deliverable D2.2.	GreenHeritage Primary and secondary data research finding
Green Heritage Deliverable D5.2.	GreenHeritage Stakeholder Analysis



### 1.3. Acronyms and Abbreviations

Acronym	Description
CH	Cultural Heritage
CC	Climate Change
CS	Case Study
EC	European Commission
EU	European Union
GIS	Geographical Information System
G20	Group of twenty
ICH	Intangible Cultural Heritage
ICOMOS	International Council on Monuments and Sites
ICOMOS CCHWG	ICOMOS Climate Change and Heritage Working Group
IPCC	Intergovernmental Panel on Climate Change
IPCC-AR5	IPCC Fifth Assessment Report
JPI	Joint Programming Initiative
M&E	Monitoring and Evaluation
NGO	Non-Governmental Organization
OMC	Open Method of Coordination
PO	Project Officer
UNESCO	United Nations Educational, Scientific and Cultural Organization

### 1.4. Aims of this document and intended users

This document aims to develop and outline a methodology for managing and adapting intangible cultural heritage in response to climate change.

It draws from existing frameworks for ICH safeguarding and climate adaptation, incorporating primary and secondary research findings from the project (GreenHeritage deliverable D2.2) focused on impacts and adaptation solutions for vulnerable ICH in Europe. The document will guide readers through the practical steps to establish a participatory and collaborative process for inventorying and safeguarding ICH from the impacts of climate change.

This document and its proposed methodology are designed for individuals and organizations engaged in the preservation, protection, and adaptation of intangible cultural heritage in the face of significant social and environmental changes, particularly the impacts of climate change. This encompasses the ICH community, experts in heritage and environmental matters, non-governmental organizations (NGOs), as well as governmental agencies and authorities.



## 1.5. Key concepts and definitions

### ICH community

ICH community refers to the community that identifies a tradition as part of its heritage and is concerned with its living practices and transmission. For this reason, the ICH community is often referred to with terms such as culture bearers, keepers, or practitioners acknowledging their agency and role in the ownership, control, and evolution of living cultural traditions (Stefano, 2021).

### Safeguarding

'Safeguarding' refers to measures that ensure the sustainability of intangible cultural heritage. These measures usually include identifying, documenting, researching, preserving, protecting, promoting, enhancing, and transmitting the various aspects of such heritage. They also involve revitalization efforts, especially through formal and non-formal education. This definition encompasses a wide range of activities involving heritage professionals, highlighting the interventionist nature of safeguarding, which may involve revitalizing weakened traditions. Effectiveness in safeguarding implies not only sustaining intangible cultural heritage (ICH) but also ensuring that the safeguarding processes are community-driven, meeting the specific needs and aspirations of ICH communities above all (UNESCO, 2003; 2021).

### Adaptation

The term adaptation refers to adjustments in processes, practices, and structures to moderate potential damages or benefit from opportunities associated with climate change. It refers to adjustments that respond to current and future climate change impacts (IPCC, 2014a).

### Tangible assets

Tangible assets here refer to the tangible elements linked to the living tradition being its basis (e.g., a key ingredient of a recipe, or a specific fish in a traditional fishing practice) or the material artefacts (e.g., the dry-stone walls resulting from the related constructive practice and knowledge or identitarian objects/elements on which a tradition/ritual is based upon)



## Section 2: Climate change and intangible cultural heritage

### 2.1 Climate change and cultural heritage

The intersection between climate change and cultural heritage has gained attention and momentum in recent years. This evolving synergy is evident in a series of impactful developments.

In 2018, the European Commission published the report “Safeguarding Cultural Heritage from Natural and Man-Made Disasters: A Comparative Analysis of Risk Management in the EU” (Bonazza et al., 2018) contributing to integrating cultural heritage into the disaster risk reduction policy agenda.

In 2019, ICOMOS took a pioneering step by presenting the report “The Future of Our Pasts: Engaging Cultural Heritage in Climate Action”, which marked a significant turning point, acknowledging the critical role that cultural heritage plays in addressing climate challenges (ICOMOS, 2019).

Simultaneously, a consortium of cultural and heritage organizations established the Climate Heritage Network, underscoring the collective determination to fuse climate action and cultural preservation.

The year 2021 ushered in several pivotal milestones. The European Commission hosted the meetings of the new Open Method of Coordination (OMC) group of Member States experts on cultural heritage and climate change and published the report ‘Strengthening Cultural Heritage Resilience for Climate change’ accompanied by a catalogue of eighty-four examples of good practices to summarize discussions, information and good practices provided by experts (European Commission, 2022).

In March 2021, Europa Nostra, ICOMOS, and the European Investment Bank Institute collaborated and released the European Cultural Heritage Green Paper, which serves as a clarion call for sustainable strategies to safeguard heritage amidst climate uncertainties [Potts (Lead Author), 2021].

July 2021 witnessed a landmark moment with the publication of the Rome Declaration by G20 Culture ministers, which reverberates with a resounding call to weave cultural considerations into the climate agenda.

In December 2021, IPCC, ICOMOS and UNESCO hosted a co-sponsored meeting on culture, heritage, and climate change to assess the state of knowledge and practice in connecting them, identify research gaps and catalyze research and collaboration. This resulted in the report Global Research and Action Agenda on Culture, Heritage, and Climate change (Morel et al., 2022) and three commissioned white papers focusing on “The Role of Cultural and Natural Heritage for Climate Action” (Sheperd et al., 2022), “Impacts, Vulnerability, and Understanding Risks from Climate change to Culture and Heritage” (Simpson et al., 2022) and “Intangible Cultural Heritage, Diverse Knowledge Systems, and Climate change” (Orlove et al., 2022).

Finally, it is worth noting the recently published white paper “Cultural Heritage and Climate Change: New Challenges and Perspectives for Research” resulting from the collaboration between the two Joint Programming Initiatives “Cultural Heritage and





Global Change” (JPI CH), and “Connecting Climate Knowledge for Europe” (JPI Climate) (Ballard et al., 2022).

This trend underscores the growing recognition and momentum surrounding the intersection of climate change and cultural heritage. As this awareness burgeons, the significance of aligning climate action with the preservation of our cultural legacy becomes increasingly evident.

Nonetheless, a notable gap emerges due to a disproportionate emphasis on built heritage and heritage sites in discussions about climate and heritage policies (cf. European Commission, 2022; Morel et al., 2022; Crowley et al., 2021). This reveals a shortfall in achieving a comprehensive and balanced understanding of cultural heritage within risk assessments and discussions pertaining to losses and damages caused by climate change to cultural heritage. The consequences of climate change on intangible cultural heritage, including indigenous and traditional knowledge and practices related to, for example, nature and the use of natural resources, have thus far been underestimated (Orlove et al., 2022; European Commission, 2022).

Beyond the moral obligation to safeguard communities' shared heritage, tapping into traditional knowledge holders and embracing their resilience practices could substantially reinforce climate adaptation and mitigation efforts as much of this living heritage holds the potential for imparting lessons from historical climate adaptation practices (Goswami, 2022).

Remarkably few initiatives have targeted intangible heritage, community engagement, and climate change. As Crowley et al., (2022, p.9) noted “tools that attempt to incorporate both tangible and intangible heritage are extremely rare. The tangible and intangible are intertwined, and this is important when considering heritage within a risk management lens”.

This report aims to address this gap by delving into methodological strategies for managing and adapting intangible cultural heritage in the face of climate change. To achieve this objective, recent scholarly and policy literature on ICH safeguarding and climate adaptation have been combined with primary and secondary research findings from the project (GreenHeritage deliverable D2.2) concerning ICH vulnerability to climate change impacts in Europe.

Our endeavour focuses on developing a flexible approach that intertwines ICH safeguarding and climate adaptation agendas. To this end, existing frameworks centered around cultural heritage dualities (e.g., tangible and intangible) and the pertinence of diverse knowledge systems (e.g., scientific, traditional, and local knowledge) have been refined, integrated, and extended.

## **2.2 Impacts of climate change on ICH: empirical evidence from Green Heritage**

Climate change's effects extend beyond the physical realm to intangible aspects. For example, it disrupts access to traditional foods and longstanding cultural practices like rituals. When climate change forces the displacement of communities from their territories or alters those areas significantly, it triggers social and cultural losses (Morel et al., 2022). Such disruptions affecting the ability to perform rituals or customary practices affect people's identity and sense of belonging while alteration of specific



landscapes resulting from environmental change or climate mitigation measures can result in changes in the sense of place (i.e., the cognitive and emotional experience of places) and in turn place identities and culture (Adger et al., 2013). In essence, due to the intricate connection between climate change and the social fabric, the effects of climate change also put the community's way of life and knowledge at risk.

As noted in GreenHeritage deliverable D2.2, National inventories of ICH that mention climate change mostly refer to traditions related to food culture, including agriculture, animal husbandry, fishing, and food preparation that requires specific climatic conditions. These are the most endangered practices as underscored in the research carried out in the Green Heritage project deepening the interplay between multiple ICH elements and climate change.

The evidence gathered from these cases paints a clear picture of how climate change can influence or potentially disrupt traditional practices and skills deeply intertwined with local ecosystems and weather patterns. Climate change has the potential to result in the depletion or scarcity of natural resources crucial for various traditions, impacting, among other aspects, traditional cuisines, and dietary habits. Additionally, climate change may disturb the timing and conditions of traditional celebrations closely associated with seasonal shifts. Events such as agricultural festivals or religious ceremonies that hinge on specific weather and seasonal patterns may face disruptions. Furthermore, as climate change can reshape or threaten the cultural landscape through factors like desertification and heavy rainfall it poses a threat to the continuity of practices dependent on these landscapes.

The relationship between climate change and ICH that emerges from the case studies investigated in Green Heritage highlights how extreme climatic events and CC-related phenomena, can influence the habits, traditions, and the behaviors of entire communities. On the other hand, many of these cases showcase how ICH can play a key role and be valuable when adapting to climate change and mitigating its risk.

Here a summary of how changing climatic conditions are affecting such ICH elements (See Table 1) and the type of adaptation measures that have been proposed or implemented (see Table 2), has been provided. For a fuller picture, please refer to GreenHeritage deliverable D2.2.



**Table 1. ICH Elements and Investigated Cases by Green Heritage, along with examples of climate hazards on ICH (drivers and associated Impacts).  
The numbering of case studies (CS) is codified according to GreenHeritage deliverable D2.2**

ICH elements	ICH cases (ID)	Country(ies)	Climate-related hazards (drivers and impacts)
Traditional agriculture and customary practices of food production	Art of Valencian paella (CS14)	Spain	Increasing temperature may cause heat stress and water scarcity, shortening the growing season and yield variability in key ingredients (bean and rice)
	Traditional practice of wild edible plants in Crete (CS6)	Greece	Increasing temperature, heatwaves, and droughts – edible wild plants as a climate-resilient solution to these impacts
	Agricultural and dietary tradition of carob in Crete (CS4)	Greece	Rising temperatures, unpredictable climate, and drought -carob as a climate-resilient solution to these hazards
	Wine culture in the Mosel wine-growing region (CS3)	Germany	Weather extreme phenomena (rainfall and heatwaves) causing droughts or changed freeze /thaw cycles alter soil composition and moisture and in turn the vine productivity, time of ripening and wine taste
Traditional practices of fishing, harvesting, and livestock	Lamprey fishing and preparation skills in Carnikava (CS11)	Latvia	Rising freshwater temperature and changed freeze/thaw cycle affect fish migration patterns and introduction of invasive species and in turn fishing timing and productivity
	Puffin harvesting and hunting (CS1)	Denmark	Increase in ocean temperature and biodiversity loss/decline in the availability of fish as a food source for puffins
	Livestock transhumance in the Cantabrian region (CS13)	Spain	Rising temperatures and changing seasonality cause prolonged droughts and desertification influencing the availability of pasture and the timing of livestock movement
Religious rituals and festive events	Celebrations of the Big Shoulderborne Processional Structures in the historic cities of Nola, Sassari, Palmi, and Viterbo (CS10)	Italy	Extreme and unpredictable weather events (heatwaves and rainfalls) pose a threat to human safety (extreme heat affecting structure carriers) and tangible assets of outdoor performance (e.g., rain ruining wood and paper structures)



	Madonna Avvocata Festival in the Amalfi Coast (CS9)	Italy	Extreme and unpredictable weather events (heatwaves and rainfalls) pose a threat to human safety and tangible assets of outdoor performance (e.g., landslides altering pilgrimage infrastructure and pathway)
	Feast/Race of Ceri in Gubbio (CS8)	Italy	Extreme and unpredictable weather events (heatwaves and rainfalls) may negatively affect tangible assets or outdoor performance (e.g., heavy rain altering the route and decontextualizing the ritual), with the risk for the event celebration and an impact for its identitarian cultural and social meaning
Traditional craftsmanship shaping the cultural landscape and people-place relationships	The art and technique of dry-stone walls for terraced landscapes in Cinque Terre and Amalfi Coast (CS7)	Italy	Weather extremes (rainfall and heatwaves) cause droughts altering soil composition and moisture, causing damage to crops, and increasing the risks of wall failure, erosion, and landslides
	Construction of Mandras (paddocks) on the island of Lemnos (CS5)	Greece	Rising temperatures have adverse effects on biodiversity, agricultural production, and labour
Traditional outdoor leisure practices related to knowledge concerning nature	Mountaineering practice in the Alps (Alpinism) (CS2)	Italy, France, and Switzerland	Rising temperatures and melting glaciers, along with unpredictable weather patterns and shifting seasons, contribute to heightened risks (ice/snow instability, rockfalls and landslides) making the practice risky or inaccessible
	Skating on natural ice (CS12)	Netherlands	Shifts in freeze/thaw cycles, coupled with rising temperatures, result in the thinning or complete loss of inland ice making the practice no longer viable or highly improbable



**Table 2. Categorization of Key Types of Measures (KTM) and Sub Key Types of Measures (SUB KTM) for adaptation, including specifications/explanations and examples from ICH Cases Investigated in Green Heritage. The Categorization of KTM and SUB KTM is based on EEA (2022)<sup>1</sup>**

KTM	SUB-KTM	SUB KTM specifications	Examples from ICH cases
Governance and institutional	<ol style="list-style-type: none"> <li>1. Policy instruments</li> <li>2. Management and planning</li> <li>3. Coordination, cooperation, and networks</li> </ol>	<ul style="list-style-type: none"> <li>• Creation/revision of policies, regulations, technical rules, or standards</li> <li>• Mainstreaming adaptation into other sectors/policies</li> <li>• Creation/revision of coordination formats or stakeholder networks</li> </ul>	<ul style="list-style-type: none"> <li>• Revising regulation and product standards hindering adaptation in the agriculture sector (CS7, CS3)</li> <li>• Revising regulations governing hunting and fishing practices for sustainable resource management (CS11, CS1)</li> <li>• Community-led initiatives and partnerships for co-managing ICH or coordinating economic activities for mutual benefits (CS11, CS7)</li> <li>• Technical coordination table among local policymakers and various stakeholders to monitor, plan, and act to ensure the safe execution of the event (CS8)</li> </ul>
Economic and finance	<ol style="list-style-type: none"> <li>1. Financing and incentive instruments</li> <li>2. Insurance and risk-sharing instruments</li> </ol>	<ul style="list-style-type: none"> <li>• Creation/revision of incentive mechanisms, funding schemes or contingency funds for emergencies</li> </ul>	<ul style="list-style-type: none"> <li>• Funding schemes for the assessment and monitoring of the state of tangible assets (CS1, CS5)</li> <li>• Incentive schemes to support the ICH community and the provision of ICH ecosystem services for risk reduction (CS13, CS7)</li> </ul>

<sup>1</sup> Grey options involve technological and engineering solutions to enhance adaptation. Green and blue options rely on the ecosystem-based approach and make use of services provided by natural ecosystems, respectively land and marine, to improve adaptation.



Physical and technological	<ol style="list-style-type: none"> <li>1. Grey options</li> <li>2. Technological options</li> </ol>	<ul style="list-style-type: none"> <li>• Development, upgrade, or replacement/ rehabilitation of physical infrastructure</li> <li>• Early warning systems, hazard/risk mapping, or services and process</li> </ul>	<ul style="list-style-type: none"> <li>• Monitoring weather forecasts and site conditions to adapt schedules or practices (CS2)</li> <li>• Implementing climate-smart or precision agriculture to adapt to droughts (CS3)</li> <li>• Mapping land use practices and abandonment to tailor interventions (CS5, CS7)</li> </ul>
Nature-based solutions and ecosystem-based approaches	<ol style="list-style-type: none"> <li>1. Green options</li> <li>2. Blue options</li> </ol>	<ul style="list-style-type: none"> <li>• Development or improvement of existing green or blue infrastructure</li> <li>• Natural or semi-natural use and management of land and marine areas</li> </ul>	<ul style="list-style-type: none"> <li>• Use of constructive traditions as climate resilient solutions for enhancing soil fertility and reducing erosion (CS7)</li> <li>• Using resistant crops to adapt to both droughts and heavy rainfall (CS3)</li> <li>• Juvenile repopulation of species (CS11)</li> </ul>
Knowledge and behavioural change	<ol style="list-style-type: none"> <li>1. Information &amp; awareness raising</li> <li>2. Capacity building and empowering</li> </ol>	<ul style="list-style-type: none"> <li>• Research and innovation</li> <li>• Communication and dissemination</li> <li>• Decision support tools, databases, and knowledge-sharing platform</li> <li>• Identification and sharing of good practices</li> <li>• Knowledge transfer/training</li> </ul>	<ul style="list-style-type: none"> <li>• Assessment and monitoring of the state of resources (CS14, CS7, CS12)</li> <li>• Digitization of ICH or R&amp;I for retrofitting (CS7)</li> <li>• Communication and dissemination of scientific information to preserve resources (CS6, CS1)</li> <li>• Sharing of knowledge and good practices between regions sharing traditions (CS7, CS2)</li> </ul>



## Section 3: ICH safeguarding methods and practices

### 3.1 The UNESCO framework and agenda to preserve living traditions

#### 3.1.1 *The 2003 UNESCO Convention for Safeguarding Intangible Heritage*

Two decades ago, the UNESCO Convention for Safeguarding Intangible Heritage (2003) acknowledged the vital importance of preserving ICH as a crucial source of cultural diversity, human creativity, and sustainable development.

The convention brought into focus the peril that globalization, social transformations, and environmental changes were posing to ICH, emphasizing the essential role of protective measures, including: (a) identification and documentation of traditions, (b) research, (c) preservation, protection, and promotion, (d) transmission, particularly through formal and non-formal education; and (e) revitalization of the various aspects of such heritage.

According to the Convention, state parties bear the responsibility of implementing necessary measures to safeguard ICH within their territories while local communities play a key role in its production, safeguarding, and preservation (Article 11). Inventorying is paramount in fulfilling this commitment. State parties must actively engage local communities, groups, and relevant individuals and non-governmental organizations (NGOs) in the identification, cataloguing, and consistent updating of ICH elements (Article 12).

In an inventory, communities identify and define ICH components, assess its viability, and unveil the threats and risks that impact its practice and transmission. This makes possible the design and implementation of a coherent safeguarding plan in response to the identified threats and risks.

Actions to safeguard ICH include: a) Adopting a comprehensive policy integrating ICH safeguarding into planning programs; b) encouraging scientific, technical, and artistic studies and research methodologies aimed at protecting ICH, especially the immaterial heritage that is endangered; c) implementing legal, technical, financial, and administrative measures establishing or reinforcing training institutions and documentation centers for ICH (Article 13). All efforts should prioritize preserving access to and respect for customary practices and traditional knowledge.

The UNESCO 2003 convention emphasizes the aspect of transmission, stressing the need to cultivate an environment conducive to the continuous evolution, interpretation, and transmission of ICH. This stands apart from measures aimed at protecting tangible cultural heritage, although some tangible elements are often intertwined with intangible cultural heritage. For this reason, safeguarding measures should encompass different actions dedicated to education, awareness raising, and capacity building (Article 14), such as:

1. Educational programs, awareness campaigns, and information dissemination tailored for the broader public, particularly the youth.
2. Training initiatives within the concerned communities and groups.
3. Capacity building activities for safeguarding ICH, encompassing management and scientific research.



4. Dissemination and awareness raising on threats faced by ICH and the initiatives undertaken in alignment with the Convention.
5. Advocacy for education to safeguard natural spaces and sites of memory that hold paramount significance in expressing intangible cultural heritage.

The UNESCO 2003 convention emphasizes the pivotal role of ICH bearers and practitioners in heritage preservation and transmission (Article 15) acknowledging that elements of intangible heritage naturally evolve, often giving rise to new expressions. Some components may lose relevance and significance for the community over time, leading to a loss of their status, despite any economic value they might possess. Therefore, safeguarding efforts should be focused on the intangible heritage that the communities themselves recognize as relevant, meaningful, and integral to their culture and traditions.

### *3.1.2 Addressing Implementation Challenges of the 2003 Convention: The Operational Directives and Guidance Note*

The UNESCO convention stands out for its pioneering approach in engaging communities, groups, and individuals directly connected to the creation, maintenance, and transmission of intangible cultural heritage (Blake, 2006).

However, its implementation has met various challenges, recently summarized by Stefano (2021). These challenges predominantly stem from the state-driven implementation and the associated allocation of decision-making authority and unequal framing of expertise in ICH safeguarding, and the potential detachment of ICH from its original context and the risk of commodification and exploitation associated with the UNESCO showcase mechanisms (see Figure 1).

Aiming to strengthen the role of local communities in ICH safeguarding and facilitate the identification of potential threats introduced during the safeguarding process, in 2010 the UNESCO ICH Committee introduced the Operational Directives for the implementation of the Convention. The Directives - which have been periodically updated, with the most recent revision in 2022 – outline clear procedures and establish eight fundamental guiding principles and requirements for inscribing intangible heritage on the lists of the Convention (see Figure 2).



# UNESCO ICH CONVENTION: IMPLEMENTATION CHALLENGES

## UNIVERSALIZING TRADITION

- The convention applies traditional museum "values and methods" to living individuals, knowledge, practices, artifacts, and life spaces.
- Common practices in the heritage sector, such as listing, collection, evaluation, and interpretation, can lead to the detachment of elements from their original contexts.

## STATE-DRIVEN IMPLEMENTATION

- The convention's effectiveness hinges on State buy-in to collaborate with communities.
- State Parties hold significant decision-making power
- Community participation remains a voluntary and state-driven process
- ICH identification, nominations and reporting often lack transparency and strong community involvement
- Limited involvement leads to limited community control over their heritage
- Some communities engage directly with the ICH secretariat to ensure their voices are heard

## INEQUITABLE FRAMING OF ICH EXPERTISE

- ICH expertise is often delegated outside the community
- Designated experts wield significant authority in heritage definition and safeguarding and can serve as traditional academics or facilitators trained by the Unesco Secretariat
- Academics may impose their expertise implying communities require it for safeguarding and valuing their ICH
- Facilitators provide technical guidance and promote participatory approaches to self-determination
- Respecting community ownership, agency, and expertise in safeguarding efforts means adapting to contemporary needs and challenges

## COMMODIFICATION OF ICH

- UNESCO showcase mechanisms could lead to ICH commodification and intensive exploitation (e.g., for global tourism)
- This risks depriving communities of control over their heritage and associated benefits
- Short-term development opportunities may overshadow long-term community-driven approaches

## REFERENCES

Akagawa, 2019; Bortolotto, 2015; Broccolini, 2013; Hafstein, 2009; Kearney, 2009; Lixinski, 2019; Pietrobruno, 2014; Stefano, 2021; UNESCO, 2013b; 2018a; 2018b

Figure 1. Challenges of the UNESCO ICH Convention implementation. Source: own elaboration.

## INVENTORYING GUIDING PRINCIPLES

### 1. COMMUNITY CONSENT

Inventories must be based on elements recognized by communities as heritage. The community's free, prior and informed consent is required before inventorying begins and should be maintained and sustained throughout the process through constant consultation and negotiations.

### 2. COMMUNITY INVOLVEMENT

ICH elements should be identified through active engagement with the concerned communities, groups, and relevant NGOs. Broad participation is requested and should fully inform and engage the communities as equal partners in decision-making, data collection, archiving, and monitoring.

### 3. INCLUSIVE INVENTORYING

Inventories should strive for inclusivity, aiming to represent and document a diverse range of elements including those from minority, less privileged, indigenous, or immigrant groups.

### 4. SUBSTANTIAL INFORMATION

ICH elements should be described comprehensively, including details on transmission, current function and value for the community, and how information has been collected and the community involved.

### 5. SAFEGUARDING OBJECTIVES

Inventories must align with heritage policies and identify elements with a view to safeguarding providing information on ICH state of viability, associated threats and risks, or proposed safeguarding measures. They should aid in selecting elements for safeguarding, strengthening community identity, ownership of ICH, and empowerment.

### 6. UPDATING

Inventories must be regularly updated in collaboration with the concerned communities.

### 7. REPORTING

Every six years, State Parties must submit reports to the UNESCO Committee on measures taken to implement the convention

### 8. ACCESS TO INFORMATION

Inventorying should take into consideration access and respect around customary practices. Communities should have the possibility to restrict or regulate access to information contained in inventories, archives and other publicly accessible places, objects and spaces.

Figure 2. UNESCO guiding principles for inventorying according to the Operational Directives. Source: own elaboration.



Similarly, UNESCO developed the "Guidance Note on Inventorying Intangible Culture" (UNESCO, 2021), to advise governments, non-governmental organizations, and communities on the process of inventorying ICH and provide them with guiding principles and recommendations.

The Guidance Note emphasizes several ethical principles that revolve around the pivotal role of communities. It stresses that engagement with concerned communities should be characterized by **open collaboration, dialogue, negotiation, and consultation**, all underpinned by their '**free, prior, sustained, and informed consent**'. Full consent and meaningful involvement are crucial as public interventions might not accurately reflect the real value and meaning attributed to the community.

Additionally, the Guidance Note emphasizes that the inventorying process should aim to **mitigate potential negative effects**, such as the creation of hierarchies among ICH elements, their decontextualization, commodification, or misrepresentation and exploitation.

**Communities, groups, and individuals should actively participate in identifying threats** to their intangible cultural heritage and have a say in **devising measures to prevent and address these challenges**. Furthermore, they should also **benefit from safeguarding**, particularly in terms of the use, research, documentation, or promotion of heritage by community members and others (Stefano, 2021; UNESCO, 2021).

Although States Parties hold the responsibility for compiling inventories, they can be led by either concerned communities or agencies. To enhance community involvement states are urged to **establish consultative bodies**. For this scope, the identification of community stakeholders involves recognizing those who create, maintain, and transmit the living heritage. In this regard, **two approaches for identifying the ICH community** can be pursued:

The "**Community First**" approach involves relevant authorities initially identifying specific communities and then collaborating with them to identify and document their Intangible Cultural Heritage (ICH).

On the other hand, the "**Heritage First**" approach entails authorities first identifying ICH elements that one or more communities recognize as their cultural heritage. Subsequently, communities who identify with that element are recognized as communities concerned.

Given the diverse nature of communities, it is imperative to ensure that voices from various backgrounds are included in the inventorying process. Descriptions in inventories should mirror this diversity, encompassing a range of perspectives within a community. This approach aligns with the emphasis on community participation and recognition of their expertise in safeguarding intangible cultural heritage.

To conclude, despite multiple criticisms from heritage scholars, the UNESCO convention seems a valuable paradigm for safeguarding ICH. This calls for questions on what methodological approaches can be adopted to safeguard cultural traditions, practices and knowledge in inclusive, ethical, and equitable ways representing living heritage which are threatened by social and environmental change (Stefano, 2021).



## Section 4: Integrating ICH safeguarding and climate adaptation: a new methodological approach

Meaningful ICH safeguarding in the context of climate change requires new methodologies that: (a) bring together different knowledge systems and facilitate dialogue between heritage and environmental experts and the ICH community (Apaydin, 2018; Tengö et al., 2017; Ulloa, 2017; Vogel and O'Brien, 2021), and (b) bridge the gap between tangible and intangible heritage elements, embracing the dynamic nature of heritage in the face of evolving capacities and vulnerabilities to climate change (Crowley et al., 2022).

In this regard, integrating cultural heritage into climate adaptation offers the advantage of recognizing how adaptation could be carried out in a culturally sensitive and appropriate way, leveraging ICH that has a climate adaptive potential, or determining the cultural significance of certain places and natural resources, thus including local and indigenous knowledge and practice in adaptation strategies and financing.

This entails grasping the range of heritage types and their significance from a community standpoint, creating tools that facilitate input from both local-level stakeholders and experts, and finally conducting research that delves into the constructive role of heritage in fostering adaptation and developing resilience (Crowley et al., 2022). It is with this in mind that the methodology was developed by integrating climate adaptation and heritage safeguarding frameworks and the respective methodological underpinnings.

Specifically, widely used, and well-known frameworks: the UNESCO ICH safeguarding framework and the EU adaptation policy cycle and decision-support tool have been considered (Climate-ADAPT, 2022). These frameworks were complemented with participatory methodologies for ICH safeguarding (e.g., Nebot-Gomez de Salazar et al., 2023), assessment of climate-related risks and vulnerabilities of tangible heritage (Boro and Hermann, 2020; Cacciotti et al., 2021, 2018) and identification and assessment of options for cultural heritage adaptation to climate change (e.g., Carmichael et al., 2020; Gravagnuolo, Micheletti and Bosone, 2021).

The methodology comprises six steps as highlighted in Figure 3. A step-by-step overview of the methodology including a description of each sub-step, the type of approach they entail, and the tools and methods suggested for their implementation is presented in Annex 1.



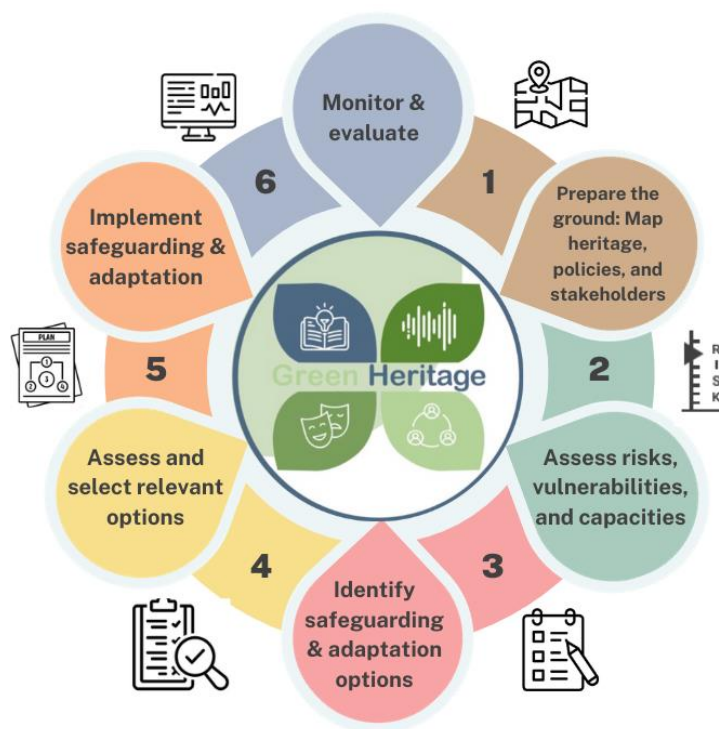


Figure 3. The methodology for safeguarding and adapting ICH and its six steps. Source: own elaboration

#### 4.1. Preparing the ground: Mapping Heritage and Stakeholders

##### 4.1.1 *Securing political and community support and aligning with the political framework*

Political and community support are a prerequisite for both safeguarding cultural heritage and adapting to climate change. **Securing political support** is essential to give them more prominence in the political agenda while **securing community collaboration** is essential for following up and safeguarding the transmission and practice of ICH. To do so, before any action, the whole process should align with the existing policy environment.

It is advisable to first **gather preliminary information on the existing policy framework** about heritage protection, safeguarding, or climate adaptation at the national or local level to ensure that any action taken is connected to and aligned with the existing policy agenda.

National adaptation often requires municipalities and administrative regions to develop their strategies and provide them with financial and technical support for this task. Often these strategies already include the cultural heritage sector as one of the affected sectors or consider sectorial policies and the need for a cross-sectorial integration when planning adaptation (for a comprehensive overview of the integration of ICH/CH in climate change adaptation of EU countries see GreenHeritage deliverable D2.2).



Nevertheless, to date, only a limited number of national adaptation plans incorporate Intangible Cultural Heritage. In the absence of mandated directives from higher-level authorities, the administrators, NGOs, or ICH communities and practitioners may contemplate adopting this methodology as it aligns with mainstream operational frameworks for ICH inventorying and safeguarding and climate adaptation.

In terms of the proposed methodology, while the process can be initiated by political/heritage authorities or community agents, it is advisable to designate one or more leaders with a deep understanding of the local context, and preferably a background in heritage preservation and/or climate adaptation, to oversee and facilitate the process. These individuals will be responsible for facilitating the working group and participatory sessions, as well as for coordinating with the diverse actors involved. They could either be insiders with intimate knowledge of the community's cultural practices and specific circumstances (e.g., a public officer or local NGO representative) or outsiders with expertise in community engagement and facilitation (e.g., a participation practitioner, or an ICH expert facilitator). In any case, the effectiveness of the methodology and the related assessments and planning processes will rely on their ability to implement the methodology while facilitating collaboration and deliberation among experts, political authorities, the ICH community, and its stakeholders. Their role will be instrumental in ensuring that the process unfolds smoothly and that all perspectives are duly considered in the assessment and decision-making processes.

#### 4.1.2 *Identifying heritage community and its stakeholders*<sup>2</sup>

Climate adaptation and ICH safeguarding is a cross-cutting and cross-sectoral issue that is of relevance and interest to a wide range of stakeholders. Their engagement and participation can not only contribute to **co-producing tailored knowledge** for planning but also practically **support the implementation of adaptation and safeguarding actions**. Before starting, **the resources, time, and scale of action should be considered**. For example, a few experts from heritage and climate sectors might be suitable to support the process in low-complexity cases, though more often, a small interdisciplinary team engaged throughout the process and a broader group of advisors and community stakeholders engaged at key points to provide specific expertise, are required.

Therefore, it is crucial to understand from the beginning who the key stakeholders are regarding the cultural heritage domains to develop an appropriate stakeholder management strategy – including for example who is likely to influence or be impacted

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<sup>2</sup> Depending on whether the process begins with a specific heritage element (following the 'heritage first' approach) or a place-based community (the 'community first' approach), this step could either be the initial one or occur after the heritage identification (section 4.1.4).



by the decay or loss of cultural heritage elements, and how their knowledge and agency could be leveraged in safeguarding efforts.

A **stakeholder analysis** should be carried out to identify who needs to be involved and to understand what the interests and positions of respective stakeholders are. This includes the identification of stakeholders, differentiating between and categorizing stakeholders, and identification of relationships between stakeholders.

Cooperation with relevant heritage and climate stakeholders, including public authorities, professionals, interest groups, NGOs or representatives from the community, civil society or private sector can be set up with different levels of involvement.

Next, a well-designed process is needed to involve the many different stakeholders with attention given to transparency, open communication, trust and relationships, roles and responsibilities, and commitment.

The **community should be the primary actor** and placed at the higher level of engagement as it includes who make up cultural organizations and individuals dedicated to preserving, researching, and promoting local culture and its various expressions, transmitting, and promoting the ICH of the community. It is therefore crucial to identify and involve the ICH community from initial reflections and deliberation about the community and its problems and not limiting their participation to consultation moments.

A stakeholder analysis can be carried out through informal contacts and the participation of local activists, cultural organizations, heritage managers and experts to identify the most relevant stakeholders that could have interest and decision-making “power” (cf. GreenHeritage deliverable D5.2 for a detailed overview of stakeholder identification and analysis).

It can be useful also to **make use of existing stakeholder platforms and institutional set-ups**. For example, some cities, provinces, or regions may already have an established stakeholder participation process and institutional set-up for the involvement of stakeholders in sectors such as culture, urban or spatial planning. It is important to highlight that regarding ICH, **NGOs can serve as valuable strategic partners**. NGOs often demonstrate recognized competence in the field of ICH and therefore are accredited by UNESCO in light of their advisory capacity and the potential to enable the voices of the community representatives to be better heard (UNESCO, 2019). NGOs can thus have direct ties to ICH communities, as they may be either partially or entirely based on the ICH community, or they can provide support in identifying and involving these communities (Bortolotto & Neyrinck, 2020). In this regard, national NGOs can be identified in the UNESCO ICH NGOs forum<sup>3</sup>.

After identifying stakeholders, it could be relevant to **identify the relationships between social actors** to understand interdependencies, communication levels, conflicts, financial dependencies, etc. This provides insight into whether stakeholder

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<sup>3</sup> <https://www.ichngoforum.org/ngo-forum/>



relations are of conflict, complementary or cooperation (Reed et al. 2009). Different methods can be used to map these relationships, including actor-linkage matrices, Social Network Analysis, or Geographical Information Systems (GIS). For a more complete overview of these methods, referring to the RESIN methodology<sup>4</sup> is suggested. The use of a web-GIS platform can be a very useful tool to pinpoint all the initiatives and social agents, and their location in the area, with the added advantage of being able to update the map over time. The mapping process can also involve using lines or threads (the sociogram technique) to represent the relationships among social actors. This consists of graphically representing interpersonal relationships in a group of individuals using a set of points connected by one or more lines.

#### *4.1.3 Setting-up a mixed working group*

Based on the knowledge acquired in the first step, a mixed working group can be set up. Given the task at hand, there is a need to team up with experts to fill in knowledge gaps or missing capacities.

The working groups can be made up of experts in participatory management, heritage, and local history experts (e.g., historians, anthropologists), environmental experts (e.g., researchers or environmental authority officials) and social actors from the local ICH community.

The setup should be tailored to the size and capacities of the chosen scale (e.g., village, municipality, administrative region). To **establish a core team**, it is important to **ask who should ideally participate to achieve the best results, and what qualifications are necessary and have access to**. Local community knowledge will be essential in any case, and further stakeholders might be involved depending on who will be responsible for the follow-up. The best results are achieved through establishing a core team with an explicit mandate for the management of the process and liaising with all relevant administrative bodies, as well as identifying further stakeholders to be involved in the adaptation process, including those from surrounding areas.

The precise responsibilities of the core team might be context-specific but can range from steering the process within the public authority to formulating policy drafts, acting as a contact point for adaptation and safeguarding to communicate internally and externally.

#### *4.1.4 Identifying and inventorying elements of intangible heritage value*

Effectively addressing climate risks on cultural heritage and resources requires leveraging both local traditional knowledge and advancing scientific understanding. This combined approach is essential for successful adaptation and preservation efforts (Carmichael, 2015; Leon et al., 2015). From an ethical standpoint, efforts in cultural heritage preservation should prioritize the needs of communities rather than pushing them to take on the role of custodians of traditions to fulfil socio-environmental and

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<sup>4</sup> <http://wiki.resin.itti.com.pl/article/frequently-encountered-challenges/involving-stakeholders/>





cultural aspirations of outsiders (Walter and Hamilton, 2014). Therefore, engaging community members in decision-making processes allows society to determine which aspects of heritage should be prioritized for protection and preservation (Brabec and Chilton, 2015; cf. Annex 2 for key questions to guide the planning of the ICH inventorying process).

**Seeking background information from the community and its stakeholders** presents an excellent opportunity to start engaging with them. Information can include materials on place history and traditions, conservation and heritage policies, and heritage designations (i.e., what in their opinion constitutes the community tangible and intangible heritage).

A **preliminary bibliographic search** can be carried out on the area, its history and cultural heritage. Different sources can be used: books on place history, historical maps, local websites, strategic plans, photographs, etcetera.

However, it is recommended to have a series of informal meetings with the agents of the mixed working group to explain the task at hand, as well as to receive feedback about their vision on potential heritage elements in the area, particularly explaining the concept of intangible cultural heritage – what it is, what it is for and its importance as a tool for identity and social cohesion (cf. Nebot-Gomez de Salazar et al., 2023). Furthermore, it is crucial that the inventorying process considers both traditions and tangible artefacts related to ICH that hold value for climate adaptation and promote ecosystem services. These can encompass infrastructural and architectural elements contributing to thermal regulation, water conservation, protection from desiccation, and support for cultivation. Tangible elements of the rural landscape, such as the wall structures of farms, the socio-spatial architecture of farmsteads, and traditional walled areas, serve as exemplary instances (e.g., CS5 and CS7 from GreenHeritage deliverable D2.2). Similarly, underground spaces or areas carved into rocks, like oil mills, cellars, and caves, provide tangible evidence of knowledge and traditions, offering valuable insights that remain relevant due to their enduring nature and inherent resilience. A walk through the area or community mapping methods guided by experts and locals can be valuable to deepen the sense of place and how traditions can be connected to specific localities or resources.

**Brainstorming meetings** in the form of focus groups with residents and experts from civil society organizations, heritage and research institutions can lead not only to the identification of relevant cultural and natural heritage but also their attributes and value.

Based on the information gathered, its analysis and classification, a series of datasheets for each element with cultural heritage potential can be prepared.

**Preparing inventory sheets for an ICH catalogue** can be realized following the UNESCO criteria asking participants to fill in the sheet during the group discussions or conducting dedicated interviews (UNESCO 2021, see Box 1).

**BOX 1. Inventory sheet adapted from UNESCO (2021)**

**1. IDENTIFICATION OF THE ELEMENT**

1.1. Name of the element used by the community



- 1.2. Short name, descriptive
- 1.3. Groups that recognize the element as part of their ICH
- 1.4. Geographical location
- 1.5. Short description of the element
- 2. CHARACTERISTICS OF THE ELEMENT**
  - 2.1. Associated tangible elements if any (e.g., places, natural resources or material conditions)
  - 2.2. Associated intangible elements if any (e.g., knowledge, skill)
  - 2.3. Modes and forms of transmission (e.g., formal training, exhibitions, informal education, community seasonal practice, etc.)
  - 2.4. Customary practices governing access to the element or its aspects
  - 2.5. Languages, registers, speech levels involved
  - 2.6. Origin of the element according to the community
- 3. INDIVIDUALS, GROUPS, ORGANIZATIONS INVOLVED WITH THE ELEMENT**
  - 3.1. Practitioners/performers (person who know the technique, ritual, etc., and perform them): roles, gender, social status, professional category, etc.
  - 3.2. Other tradition bearers (individuals, groups, and their roles)
  - 3.3. Organizations concerned (NGOs and others)
  - 3.4. Depository transmitters (depositories of physical manifestations of the element or oral transmissions)
- 4. STATE OF THE ELEMENT**
  - 4.1. Threats that endanger the tangible assets associated with ICH (including climate, environmental and social challenges)
  - 4.2. Threats that endanger the practice enactment if any (including climate, environmental and social challenges)
  - 4.3. Threats that endanger the transmission if any (including climate, environmental and social challenges)
  - 4.4. Availability of associated tangible elements and resources
  - 4.5. Viability of associated intangible elements
  - 4.6. Safeguarding measures applied or possible measures to be applied

*PART TO COMPLETE AT THE END OF THE PARTICIPATORY INVENTORYING WHEN HERITAGE VALUES AND ASSOCIATED SHEETS HAVE BEEN CONSOLIDATED*

- 5. DATA COLLECTION/PREPARATION OF SHEETS**
  - 5.1. Consent of communities, groups or individuals that should be required for data collection related to the element
  - 5.2. Communities, groups and individuals involved in the preparation of the inventory sheets and dates and place of data gathering
  - 5.3. Restrictions in any on the use of data
  - 5.4. Modalities for updating information contained in the inventory
  - 5.5. Date of community consent to include heritage on an inventory or policy document
  - 5.6. References to literature, materials, and archives

The interviews with people directly involved in the management and with a deep knowledge of the ICH can cover aspects such as heritage characteristics, related persons or groups, and state of the element collecting existing knowledge in the form of books, documents, pictures, evidence of traditions, oral testimonies.

A parallel exercise can include site visits or participation during the enactment of ICH.

Afterwards, a **group discussion** collating the different inventory sheets that have been compiled can be organized to **determine the significance of each element for its community and beyond**. Defining the cultural significance means defining whether



certain practices are important identity sources for the community or can be important for future generations or populations outside the community, which can be challenging and controversial. The discussion on the cultural significance and value of ICH elements should avoid ranking or prioritization. Instead, it should center on delineating the scope of these elements, guiding the conversation towards defining their value both within and beyond the concerned community. This will help in shaping definitions of inward-facing, outward-facing, and collaborative approaches to heritage safeguarding and promotion in case the methodology is applied at a micro and local level. The significance levels along with the examples presented in Table 3 can be used to structure discussion prompts or find evidence of their significance beyond the community.

**Table 3. Scales of significance of ICH along with descriptions and examples to facilitate discussion**

Significance scale	Description	Examples
1 Local	Considerable value in a local context, potentially recognized by locals as part of their heritage	<ul style="list-style-type: none"> <li>• ICH is noted as cultural heritage in local policies/plans, cultural promotion activities, tourism communication</li> <li>• ICH has dedicated community events and organizations</li> </ul>
2 Regional	Considerable value in a regional context, often recognized by regional/or local designation as cultural heritage	<ul style="list-style-type: none"> <li>• ICH is listed through declarations by the regional competent authority</li> <li>• ICH has significant space in the regional media, tourism communication, or safeguarding policies</li> <li>• ICH has dedicated events having regional resonance and/or regional organizations devoted to its promotion and safeguarding</li> </ul>
3 National	Special value in the national context, often recognized by national and/or regional community as cultural heritage	<ul style="list-style-type: none"> <li>• ICH is listed as heritage through declaration by the national competent authority</li> <li>• ICH has significant space in regional tourism communication or national safeguarding policies</li> <li>• ICH has dedicated events and national organizations or studies dedicated to promoting or safeguarding the element</li> </ul>
4 International	Extraordinary and unique value in an international context, generally recognized by national and/or international organizations as cultural heritage	<ul style="list-style-type: none"> <li>• ICH has UNESCO recognition or has been proposed by the national competent authority for UNESCO recognition</li> <li>• ICH has global recognition including for example significant space in tourism communication, conservation and cultural policies and research in different countries</li> <li>• ICH is targeted by national NGOs in different countries</li> </ul>

#### 4.2 Assessing risks, vulnerabilities, and adaptive capacity

Creating a safeguarding and adaptation plan for ICH should be based on evidence and robust information regarding risk and vulnerabilities. This includes identifying existing



information regarding actual and projected climate change-related effects, ongoing adaptation activities and good practice examples within or outside the geographical area of interest.

For this step, it is recommended **to hold a series of workshops with heterogeneous stakeholders** as they can bring immense benefits to the social appraisal of ICH and associated risks, vulnerabilities and even opportunities to leverage for safeguarding. Workshops can be valuable for gathering people with different knowledge to produce assessments and option appraisals collaboratively.

For this task, a valuable tool can be **the 'impact chain method'** (Frieztche et al., 2014; Zebisch et al., 2021), which has found extensive application in climate risk assessments serving as an effective instrument to communicate climate risk and complex cause-effect relationships, as well as identify and monitor adaptation options (Zebisch et al., 2021).

The impact chain structure represents the cause-effect chain leading to the risk of climate change impacts, namely the risk of specific consequences or impacts that may harm a system (see Figure 4). For example, risk of water scarcity for smallholder farmers due to climate impacts.

In accordance with the IPCC-AR5 definition of risk, **risk** results from the interaction of vulnerability, exposure, and hazard (IPCC, 2014b).

**Hazard** is the potential occurrence of a natural or human-induced physical event, trend or impact that may cause losses, damages, or degradation in a given socio-ecological system or a part of it. A hazard can be a climate event – both rapid such as a heavy rainstorm or slow-onset trends such as the increase in average temperature - or its direct consequence and impact (e.g., flooding).

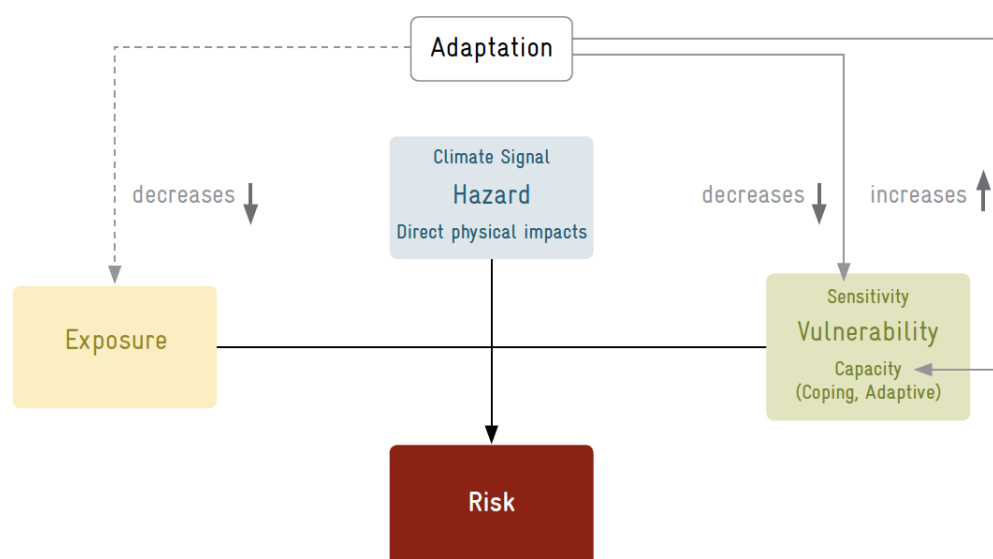
**Exposure** defines the presence of people, species or ecosystems, environmental services, infrastructures, economic, social, or cultural assets in locations that could be negatively affected. It is related to elements at risk and the degree of exposure can be expressed in absolute terms (e.g., population density).

**Vulnerability** refers to the predisposition to be adversely affected and results from the interaction of the sensitivity to harm and the capacity to cope and adapt.

**Sensitivity** is determined by the system factors that directly affect the consequences of a hazard and may include physical attributes – e.g., the ecosystem type, the soil erosion rate, but also anthropic management characteristics such as the existence and quality of dikes, terraces, irrigation systems - and social, economic, and cultural factors, including, for example, the population density, or type of socio-economic activities.

**Capacity** describes the ability of communities and societies to prepare for and respond to present and future impacts. It comprises: (a) coping capacity, namely the ability of people, institutions, and organizations using available resources and capacities (e.g., financial, technical, human resources) to address, manage and overcome negative conditions in the short to medium term; (b) adaptive capacity, that is, the ability of a society or social group to actively adapt or moderate potential damages, leveraging opportunities, or coping with consequences. Adaptive capacity is determined by factors including economy, governance, knowledge, and available adaptation options and moderates the effect of the potential impact – i.e., the consequences ranging

from direct physical impacts of hazards to indirect social consequences that finally lead to a risk.



**Figure 4. Risk composition (Zebisch et al., 2017, p. 19). Adaptation can reduce risks by reducing vulnerability (by increasing capacity and decreasing sensitivity) and to a certain extent exposure**

Following the vulnerability sourcebook and its supplement (Frieztche et al., 2014, Zebisch et al., 2017), the impact chain method provides an operational framework to assess climate risk based on a set of impact chains and indicators co-developed with stakeholders. It allows the integration of different data sources such as measurements, models and expert based as well as participatory appraisals. It consists of eight steps and a key component is the participation of stakeholders with diverse types of knowledge and context information (Menk et al., 2022). Participatory methods are advocated in all steps to include the plurality of perspectives, validate results, and ensure the ownership of the appraisal. Nevertheless, engagement usually varies across the different steps (see Table 4).

**Table 4. The eight steps of the impact chain method: focus and level of participation**

Approach	Step	Focus
Highly participative including active participation from stakeholders	1. Preparing the risk assessment	Co-assessment of the initial situation, definition of objectives, topic, and scope. Estimate of resources needed
	2. Developing impact chains	Co-explore impacts and outline cause-effect relationships
	3. Identifying and selecting indicators	Joint identification and selection of indicators to quantify risk factors
Possibly highly operational and data-driven quantification of indicators and risks	4. Data acquisition and management	Acquire, review, and prepare data and link to chosen indicators
	5. Normalization of indicator data	Transfer and interpretation of data
	6. Weighting and aggregating indicators	Assign weights and aggregate risk components



	7. Aggregating risk components to risk	Aggregate risk components into a composite risk indicator
Highly participative including active participation from stakeholders	8. Presenting risk assessment outcomes	Summarize and present findings

#### 4.2.1 Preparing the risk assessment

The objective of the first step is to define the scope of risk assessment, including its objective or expected outcomes (e.g., developing a municipality adaptation plan or ICH safeguarding plan), the climate-related risks and non-climate drivers to assess, the existence of studies and knowledge as well as the availability of resources (human and financial resources, time frame) and the target group or element of the assessment (the tangible asset of ICH, the people performing it, etc.).

A **scoping workshop** is highly recommended to kick off the process and decide the elements, spatial scales, and temporal scales to be considered and the methodological approach.

As a first step before the workshop, asking stakeholders for background information and materials represents a good starting point to gather data and information on observed weather and climate projections, or on natural hazards and social dynamics that can constitute a threat to ICH.

Prior to any further step, information gathered during the inventorying process should be synthesized and made available, including e.g., information on the tangible assets involved and their broader social context and multifaceted threats. The summary and evaluation of all the information and **knowledge acquired through inventory sheets will provide the basis for the workshop**. A broad first overview will help to trigger the process and develop a case for adaptation, as well as provide a basis for a more in-depth analysis at a later stage.

In addition, it helps to foster the discussion on adaptation policy-relevant aspects such as objectives, priority sectors, vulnerable elements, etc.

Nonetheless, the workshop will itself generate new information which must be documented and evaluated in a continuous process of reconsideration of the baseline knowledge, as knowledge of the heritage assets and multifaceted risks advances.

#### 4.2.2 Developing impact chains regarding ICH risks

The overall risk of the ICH and its community should be subdivided into multiple meaningful risks with dedicated impact chains. The impact chain is composed of different risk components, including hazard, vulnerability and exposure and their underlying subcomponents (see Figure 5). While the impact chain should build on existing scientific knowledge, it can be also developed collaboratively with experts and key stakeholders' representatives of the affected assets and community to fit with the concrete context characteristics.

To give an example, in case of low precipitation trends (hazard), low efficiency of irrigation systems or practice (vulnerability), and high number of farmers or water-

intensive crops (exposure), the risk of insufficient water supply for crops is shaped by factors from the components of hazard and vulnerability and therefore needs to be considered an intermediate impact.

Note that the **intermediate impacts** are not a risk component but auxiliary tools to grasp the cause-effect chain leading to risk as they are a function of hazard and vulnerability components.

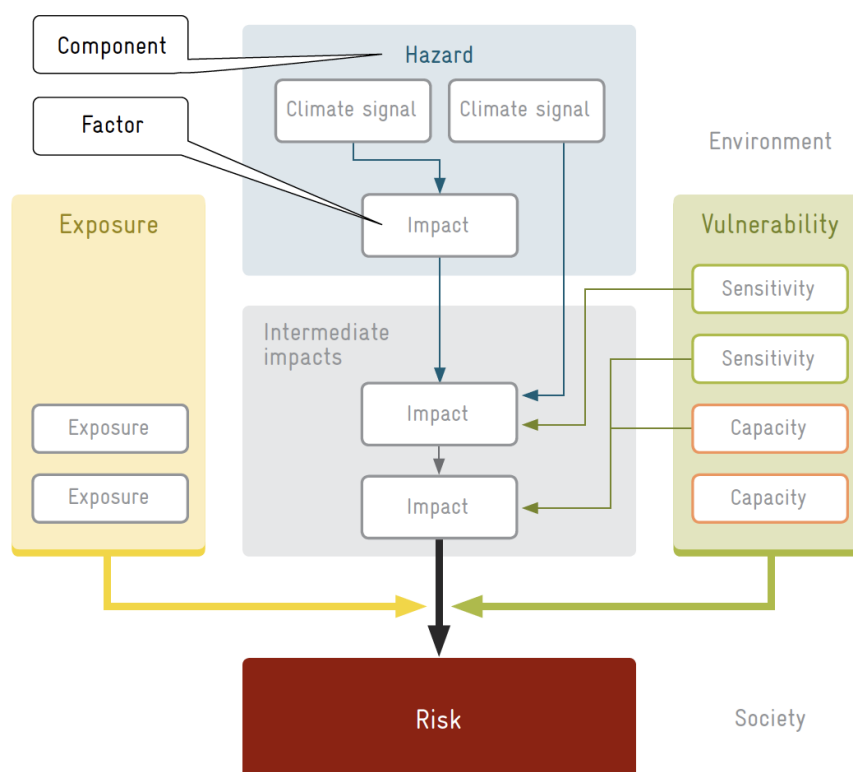


Figure 5. Structure of the impact chain (Zebinsch et al., 2017, p.28)

At a first step, it is necessary to identify climate impacts and risks.

Regarding the climate change impacts and ICH, the assessment can start by **reviewing and brainstorming climate drivers and impacts**, including observed changes in climate drivers and impacts to determine hazards and intermediate impacts. It is advisable to refer to Annex 3 for a compilation of climate drivers and their corresponding impacts constituting hazards to tangible heritage assets. For the identification a **first list should be created and then brainstorming with stakeholders must be considered to extend, probe, and complete** the list of hazards that can be associated with tangible and intangible elements of ICH.

The climatic drivers identified by experts as relevant to the place or tangible elements associated with ICH can be recorded to indicate in descriptive form how these drivers have changed in the more recent past (climate trends observed) and/or how they are expected to change in the future (climate trends projected).





Afterwards (or alternatively if data or expertise are not sufficient at this stage), it is possible to leverage on stakeholders' knowledge of the system at stake. The following questions to record the observed impacts can be used:

- How have weather phenomena and extreme events impacted ICH, including damages or deterioration to tangible assets or disruption to ICH enactment and transmission?
- Have you observed any new trends or recent events in the last decade?
- What impacts have you observed as a result, including social, economic, or cultural impacts?

This can help pooling diverse knowledge systems and experiences about the place and create a commonly agreed basis for discussions, helping concerned communities to gain a better understanding of risks they face and how they might be affected by climate change impacts in the longer term if risks intensify. From the perspective of a workshop facilitator, starting with the participants' contributions acts as an icebreaker, helping to motivate the participants to work together proactively.

If during the assessment more than one topic or sector is addressed, they should be examined separately (e.g., crops as a tangible asset, and human safety for its enactment). Starting from a broad collection of potential climate impacts on a given area or system, **impacts and risks should be narrowed down into clusters and prioritized**. This can be done in a participatory way using standard pinboard moderation techniques (Andrè et al., 2023; Zebisch et al., 2021). The key question concerns which issues affect ICH the most. Each participant in the workshop can be allocated a certain number of votes (e.g., in the form of sticker dots or post-it notes) to indicate the impacts and risks that hold the highest significance for them. Once impacts and risks have been clustered in priority groups, it is essential to identify one or more impacts and risks to focus the assessment. At this stage, it is crucial to **determine the hazard and intermediate impacts**, namely which climate-related hazards (including both abrupt events or slow-onset trends) and their impacts pose a risk to the system subject to the assessment and which intermediate impacts link the hazard to the risk.

A guiding question could be "what are the main contributing factors leading to the risk identified?". To distinguish between hazards and intermediate impacts, a general rule is that factors that are influenced by both hazard and vulnerability should be treated as intermediate impacts (see Figure 6). Hazard factors and intermediate impacts provide the basis to **determine the vulnerability, namely the attributes of the system that contribute to the risk**. These should represent the aspects of sensitivity and capacity that, if possible, should be linked to intermediate impacts. For **sensitivity**, a guiding question can be "which attributes make the system vulnerable to negative impacts of the identified hazard(s)?" Attributes can be related to the physical and socio-economic or cultural aspects (see Figure 6). When considering the **capacity factors**, the key question is: "What abilities does the societal system currently possess or lack to reduce the risk, both now and in the future?". It is imperative to delve into the factors that influence the ability to cope with the current adverse situation or adapt to future ones. Following Zebisch et al. (2017), four dimensions of adaptive



capacity can be explored: the knowledge, technologies, economic resources available or lacking to support, enhance, or implement adaptation efforts, and the institutional environments that contribute to this capacity.

Afterwards, it is necessary to **determine the exposure**. This could be done by asking participants which factors determine exposure and which elements (tangible or intangible) characterizing the ICH are most exposed. To distinguish between exposure and sensitivity subfactor, you should specify the element that is exposed (e.g., fishes, dry-stone walls, crops) and a measure of its exposure (e.g., fish population density, hectares of land covered by walls or cultivated).

Impact chains not only offer an actionable understanding of risks but also stimulate initial brainstorming for potential adaptation measures. It is highly recommended to take notes of any measure proposed during the identification of vulnerability factors or even stimulating an initial brainstorming, with questions like: how can one best address sensitivity and strengthen capacities to mitigate impacts?

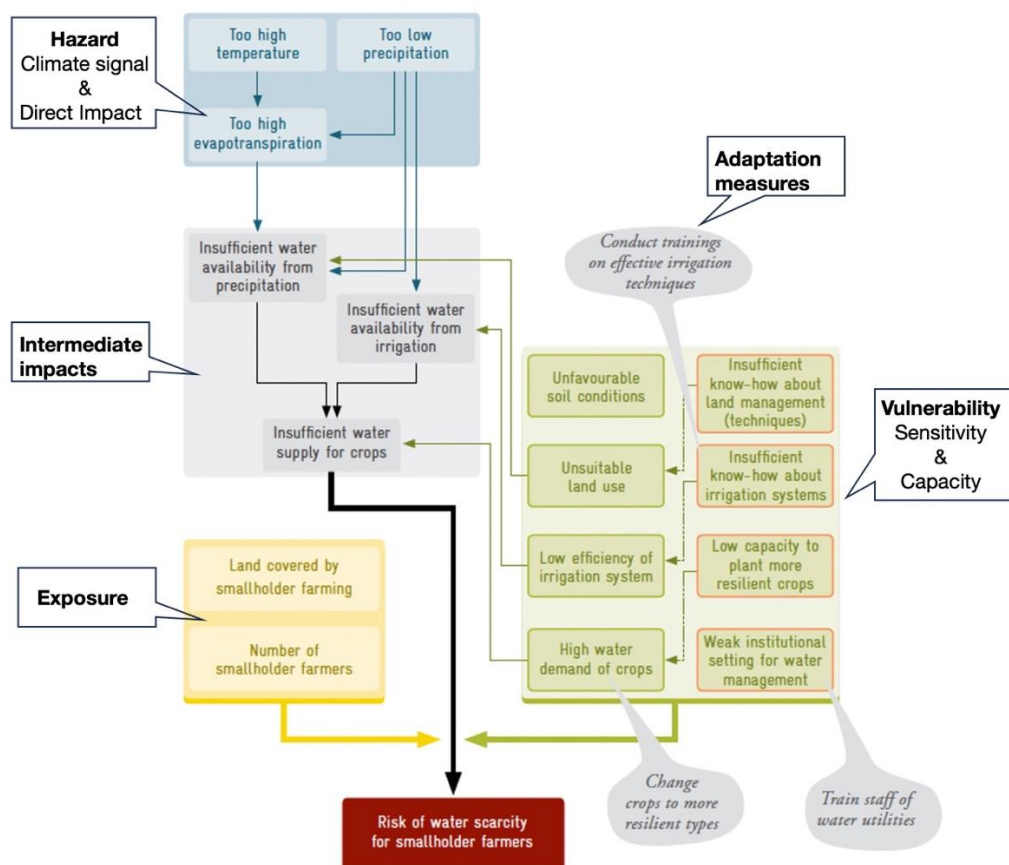


Figure 6. Example of a completed impact chain. Figure adapted from: Zebinsch et al. (2017)



#### 4.2.3 Identifying and selecting indicators/factors for risk assessment

For all the relevant risk components identified in the previous step, an **iterative deliberative process that considers the scientific and local knowledge** can best provide potential indicators or factors for a qualitative assessment.

While in many cases appropriate indicators can be identified for the different components, it is important to acknowledge that not all the risk components can be assessed using existing data and models. Depending on the scope and availability of resources and data, **the impact chain method could use quantitative and/or qualitative data for assessing the risk components**, and entail a fully quantitative, fully qualitative, or semi-quantitative approach.

In case of scarce availability of data and relevant expertise, it is recommended to keep the factor and consider using a proxy indicator or rely on expert-based evaluations in the following steps. Moreover, purely data-driven approaches can only partially cover vulnerability and neglect important aspects of sensitivity and capacity.

Examples of indicators or factors for the assessment are provided in Table 5 taking as an example, the case of terraced agricultural lands with dry-stone walls. Considering the 'failure of terraces' as the main risk, this is influenced by heavy precipitation (climate signal) that can determine floods (direct impact) and affect erosion considered as the intermediate impact. This is particularly relevant for unmaintained dry-stone walls (exposure) that are sited on land with high risk of erosion (sensitivity), due to the low number of human resources and knowledge devoted to maintenance (capacity).

**Table 5. Examples of risk factors and examples of indicators for the case of dry-stone walls**

Risk component	Factor	Possible indicators
Hazard (climate signal)	Heavy precipitation events	Number of days per year with rain greater than 20 mm
Hazard (direct impact)	Floods	Number of flood events per year
Vulnerability (sensitivity)	Land use prone to erosion	% of terraced land with a high risk of erosion
Vulnerability (Capacity)	Maintenance capacity	Number of skilled operators to dry-stone walls maintenance per hectare of terraces
Exposure	Unmaintained terraced slopes	Hectares of abandoned/ unmaintained terraces

#### 4.2.4 Data sources and acquisition

Data sources and methods of data collection for indicators depend on their availability and the characteristics of the assessment such as its scale and resources. Table 6 provides some examples on the types of data or indicators along with potential data sources for different risk components. At first, the focus lies on gathering data and developing **indicators for hazards** including information about climate trends and projections (signal) or locally occurring events (direct impacts).

Depending on the sector, asset, or segment of society at stake, **indicators for exposure** can be derived from different data sources including for example data on population



demographics, land use patterns, and other relevant socio-economic sectors. Typically, useful indicators for exposure are numbers, densities, or proportions.

**Table 6. Examples of data categories and potential data sources for the different risk components**

Component	Examples of categories of data / Indicator	Potential data sources
<b>Hazard (signal)</b>	Climate trends (e.g., temperature, precipitation, etc.)	<ul style="list-style-type: none"> <li>• Climate-ADAPT country pages</li> <li>• Climate adaptation plans</li> <li>• Meteorological agencies/organizations</li> <li>• COPERNICUS Climate Change Service</li> </ul>
	Climate projections	<ul style="list-style-type: none"> <li>• Coordinated Regional Climate Downscaling Experiment (CORDEX)</li> </ul>
<b>Hazard (direct impacts)</b>	Extreme weather events and associated impacts	<ul style="list-style-type: none"> <li>• Climate adaptation plans</li> <li>• Scientific literature</li> <li>• Civil protection / disaster management authorities</li> <li>• Environmental agencies</li> </ul>
<b>Exposure</b>	Land use / cover	<ul style="list-style-type: none"> <li>• COPERNICUS Land monitoring service</li> </ul>
	Infrastructure and assets density and location	<ul style="list-style-type: none"> <li>• Urban planning authorities</li> </ul>
	Population density	<ul style="list-style-type: none"> <li>• Census data</li> </ul>
<b>Vulnerability (Sensitivity)</b>	Demographic (age, education, income)	<ul style="list-style-type: none"> <li>• WorldPop data</li> <li>• National/regional statistics institutes</li> <li>• Urban planning authorities</li> </ul>
	Land use / cover & state of resources (e.g., erosion rate, water retention)	<ul style="list-style-type: none"> <li>• COPERNICUS Land monitoring service</li> <li>• Census and surveys from environmental agencies and government departments (e.g., agriculture, forest, water)</li> </ul>
	Socio-economic data (e.g., income, employment, economic diversification)	<ul style="list-style-type: none"> <li>• Census from EU or national/regional statistics institutes (e.g., EUROSTAT)</li> <li>• Surveys from government economic departments</li> <li>• European Investment Bank</li> </ul>
<b>Vulnerability (Capacity)</b>	Economic resources	<ul style="list-style-type: none"> <li>• National/Regional Statistics Institutes</li> <li>• Municipality Data Repositories</li> <li>• Local Government Websites</li> </ul>
	Governance and institutional (e.g., dedicated policies, personnel, institutional setting)	<ul style="list-style-type: none"> <li>• Census from statistics offices</li> <li>• Municipality Data Repositories</li> <li>• Local Government Websites</li> </ul>
	Knowledge and technology (e.g., R&I organizations; digitalization)	<ul style="list-style-type: none"> <li>• Eurostat Data on Research and Innovation</li> <li>• Census from statistics institutes</li> <li>• Regional/municipality data repositories (e.g., registers on NGOs, educational organizations)</li> </ul>

For **vulnerability indicators (sensitivity and capacity)**, bottom-up methods can serve as an alternative approach employing local knowledge to address or develop



indicators, especially at the local level where detailed statistical data is rarely covered. By ensuring a diverse selection of experts and stakeholders, meaningful results can be obtained. This approach allows for local and scientific knowledge to supplement and sometimes even replace surveys (Fritzsche et al., 2015). **Qualitative assessments are valuable in situations where quantitative data or technical resources are limited.** They also address questions that may not be answered through quantitative measures, including for example institutional weaknesses, lack of know-how, or lack of dedicated personnel and policies. For a qualitative or quali-quantitative assessment a sheet or board with guiding questions to assess risk components can be used to involve stakeholders in deliberation and gather their input on components and related indicators (cf. Table 7).

**Table 7. Sheet or board for stimulating deliberation and gathering input for the qualitative or semi-quantitative assessment of risk (Terrace failure example)**

<b>Qualitative/semi-quantitative risk assessment</b>		
Which risk affects the system? <b>Terrace failure</b>		
<b>Hazard</b>	<b>Climate signals</b> (hazardous events/trends affecting the system)	<b>Direct impacts</b> (physical impacts posing a risk to the system)
	<ul style="list-style-type: none"> <li>Heavy precipitation (n day/year &gt; 20 mm)</li> </ul>	<ul style="list-style-type: none"> <li>Floods from torrential streams</li> </ul>
<b>Intermediate impacts</b>	<b>Intermediate impacts linking hazard to the risk</b>	
	<ul style="list-style-type: none"> <li>Erosion and mass movements (mud flows, debris, landslides)</li> </ul>	
<b>Exposure</b>	<b>Exposed elements</b>	<b>Measure of exposed element</b>
	<ul style="list-style-type: none"> <li>Unmaintained terraces</li> <li>Human settlements close to terraces</li> </ul>	<ul style="list-style-type: none"> <li>Hectares of abandoned land/terraces</li> <li>Population living close to unmaintained terraces</li> </ul>
<b>Sensitivity</b>	<b>Attributes making the system vulnerable to negative impacts of hazards</b>	
	<ul style="list-style-type: none"> <li>Hydrogeological instability/unfavorable soil conditions</li> <li>Effectiveness of water drainage systems</li> </ul>	
<b>Capacity</b>	<b>Missing or available capacities and resources to reduce the risk now or in the future</b>	
	<b>Missing</b> <ul style="list-style-type: none"> <li>Dedicated policies</li> <li>Skilled labor</li> </ul>	<b>Available</b> <ul style="list-style-type: none"> <li>Training initiatives</li> <li>Dedicated resources</li> <li>Institutional cooperation</li> <li>Awareness a</li> <li>Local relevant initiatives/organizations (n associations, volunteers)</li> </ul>



#### 4.2.5 Data treatment

This phase can be highly operational and concern the data-driven quantification of indicators and risks through the steps of **data normalization, weighting, and aggregation** (steps 5 to 7 of the impact chain). For a detailed overview and operational guidance, referring to Fritzsche et al. (2014) and Zebisch et al. (2017) is recommended.

In a purely qualitative risk assessment, deliberation between experts, stakeholders and the ICH community can be used to evaluate in a participatory way the factors associated with each risk component. This process can be facilitated using the framework presented in Table 7 to stimulate deliberation and using a 5-point scoring system, ranging from 'very low' to 'very high', to assess each factor identified (cf. Annex 4). To obtain a comprehensive assessment for each component of risk the value of each factor can be aggregated calculating their average (example provided in Table 8 for terrace failure). Using a deliberative and participatory method in the assessment introduces transparency into the process, which may increase the acceptance of the assessment results and consequent implications for action.

**Table 8. Example of qualitative participatory assessment (terrace failure example)**

<b>Qualitative risk assessment for the risk of Terrace failure</b>	
<b>Hazard</b>	<b>Degree of Hazard – High</b>
	More frequent and heavy precipitations expected ( <i>high</i> ), moderate number of floods from torrential streams expected ( <i>moderate</i> ), and high erosion rates and mass movements expected ( <i>high</i> )
<b>Exposure</b>	<b>Degree of exposure – Moderate</b>
	Substantial amount of uncultivated land and poorly maintained terraces ( <i>high</i> ), few terraces close to torrential streams ( <i>low</i> )
<b>Sensitivity</b>	<b>Degree of sensitivity - High</b>
	Pronounced level of hydrogeological instability and unfavorable soil conditions ( <i>very high</i> ), with moderately effective water drainage systems in place ( <i>moderate</i> )
<b>Capacity</b>	<b>Adaptive capacity - High</b>
	Limited availability of skilled labor but training initiatives and dedicated resources in place for maintenance ( <i>moderate</i> ); High level of risk awareness among the public along with local initiatives and organizations ( <i>high</i> ); lack of dedicated policies but significant cooperation between institutional authorities and established planning processes in place ( <i>very high</i> )

The final output of this step is an evaluation of each component and subcomponent of risk (i.e., hazard and exposure, sensitivity, and capacity) that can be combined to **form composite values for each risk component and the overall risk**. The assessment matrices provided in Annex 4 can be referenced to determine the significance and severity of risk as the outcome.



#### 4.2.6 Presenting outcomes

Outcomes from risk assessment can be presented in different ways. Notably, a **risk assessment report** can be developed with the **results and a detailed explanation of the whole process**. This could include the context in which the assessment was conducted, the objectives, institutions and key stakeholders involved, and the methodology adopted (e.g., selection criteria for stakeholders and experts, number and typology of experts, weighting procedure used, etc.). Results can be presented spatially with maps, in case a spatial assessment was realized, or using tabular data, illustrated by spider web diagrams or similar means. Ideally, these results should be complemented with the results of the qualitative assessment resulting from discussions, interviews etc., that could not be represented with quantitative indicators.

### 4.3. Identifying adaptation and safeguarding options<sup>5</sup>

A detailed plan of action, outlining the specific adaptation and safeguarding measures, along with their timeframe and responsible parties, is crucial.

To formulate this plan, it is imperative to identify a range of potential options capable of addressing the previously identified climate and social challenges that pose a threat to ICH.

#### 4.3.1 Creating a catalogue of relevant options

After identifying climate risks and social challenges through ICH inventorying and climate risk assessment, the identification of adaptation measures can be guided by recognizing available opportunities for leverage. This can be realized by engaging stakeholders in a **discussion to pinpoint specific windows of opportunity and pre-existing agendas to capitalize upon**. Such a discussion can be organized during the event to present the outcomes of the assessment. The safeguarding of certain ICH elements may align with existing political agendas (including mitigation or adaptation to climate change), or initiatives championed by individuals and community-level organizations.

For instance, certain ICH elements that provide potential climate-resilient solutions and ecosystem services are attracting renewed political interest and funding,

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<sup>5</sup> The preservation of ICH can be approached in two distinct manners. Firstly, it involves measures taken by specialists (e.g., in cultural heritage or conservation science) which predominantly focus on conserving the tangible elements associated with ICH. Secondly, it encompasses the community's own desire to safeguard intangible cultural expressions even when it leads to modifications in the corresponding tangible supports. In the context of this methodology, the objective concerning ICH is to adopt a conservation approach that integrates both perspectives. This is contingent upon the condition that the scientific or conservation interest of the material asset aligns harmoniously with the interests of the community.



particularly for supporting scientific research and innovation. Such windows of opportunity need to be identified and discussed upstream of the identification of specific measures.

They can encompass a spectrum of approaches, including efforts to enhance adaptive capacity (such as research and knowledge creation regarding ICH, or the establishment of supportive institutional and community frameworks). This includes ICH management and transmission systems led by and benefiting the community, as well as conservation policies. In all cases, the initial step entails compiling a comprehensive catalogue of measures customized to the specific context, which can then be evaluated and selected for implementation.

In general, these measures can aim for: (a) accepting the climate change impacts or threats to ICH and bearing the losses that result from risks (e.g., digitizing a living practice that could not be practiced anymore); (b) offset losses, avoiding or reducing the exposure and/or sensitivity to climate risks; (c) exploit new opportunities such as changing practices to take the advantage of the changing climate and socio-economic context (e.g., moving cultivation in places with better climatic conditions).

Regarding adaptation actions, these can range from:

- **Soft adaptation measures**, including managerial (e.g., flexible hours of agricultural work during heat waves), strategic (e.g., commissioning new funding mechanisms, research, or activities based on new laws and policies), or temporary (introducing seasonal restrictions in hunting and fishing, or bans to specific activities based on weather conditions)
- **Technical/grey measures**, including e.g., implementing precision agriculture, or introducing water-resistant crops.
- **Ecological/green measures**, such as implementing or expanding green infrastructures for water runoff management and hydrogeological risk reduction, for example, terraced lands with dry stone walls (cf. also Table 2).

Authorities in charge and communities can also decide to focus on **increasing the coping and adaptive capacity**, developing the ability of people, authorities, and specific sectors to respond effectively to multifaceted risks induced by social and environmental change.

This includes actions that regard participation in research projects or accessing results, monitoring data and information sources, raising awareness through education and training activities, or creating supportive institutional frameworks such as changing standards, regulation, funding mechanisms or developing tailored policies, plans and strategies.

In terms of safeguarding measures, they typically encompass:

- **Research**: Involving the development or support of research activities in collaboration with ICH bearers and practitioners. This may include comparative studies of ICH expressions in different contexts, potentially leading to partnerships, knowledge exchange, or collective safeguarding efforts.
- **Documentation**: Encompassing the cataloguing and digitization of ICH expressions with community consent, as well as the creation of archives and document management resources tailored to these expressions.





- **Conservation:** Involves analyzing the state of conservation of tangible assets linked to the living tradition and devising customized responses such as conservation policies or management approaches to preserve the distinctive features of ICH.
- **Dissemination and Promotion:** Encompassing the development of awareness-raising campaigns, local educational and training initiatives, community festivals and celebrations, exhibitions, or even specific programs that promote ICH in collaboration with other community stakeholders such as tourism and food and beverage operators (in line with cultural tourism and Eco museology principles).

When **compiling the catalogue**, it is essential to focus on measures that directly address the identified risks and needs. This involves ensuring a balanced representation of various types of options and prioritizing long-term objectives over short-term political considerations. Adaptation and safeguarding measures can be **sourced from a variety of channels** including literature, input from scientific experts and heritage authorities, or through stakeholder engagement, leveraging existing initiatives and responding to the community's current needs. Compiling the catalogue could start also by **drawing upon repositories of consolidated good practices** in the field of climate adaptation and ICH safeguarding. Among them, the UNESCO Register of Good Safeguarding Practices<sup>6</sup> and the CLIMATE Adapt Catalogue of adaptation options<sup>7</sup> could represent good places to find examples. The value of these repositories is that they provide examples of good practice along with useful information regarding their implementation to learn from their experience and **preliminarily assess their feasibility in context**.

#### 4.4. Assessing and selecting options

Once options have been identified and the catalogue has been created, the following step is to assess and prioritize the options, determining their suitability, and effectiveness in reducing risks or enhancing resilience and safeguarding. This selection should be made in interaction with all stakeholders affected and interested.

##### 4.4.1 *Choosing an assessment framework*

There are many criteria that can be used to assess the suitability of possible measures, for example, effectiveness in reducing vulnerability, costs, and feasibility in implementation. The decision-making process should aim for win-win or no-regret options and each measure can be assessed according to the extent they help achieve

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<sup>6</sup> <https://ich.unesco.org/en/register>

<sup>7</sup> <https://climate-adapt.eea.europa.eu/en/knowledge/adaptation-information/adaptation-options>





the target of adaptation and safeguarding, and what are the broader social and environmental impacts.

The alignment with existing governance mechanisms and policies, as well as the consideration of existing community activities and sectors is essential to ensure the deliverability and feasibility of options.

Indeed, stakeholders may be able to co-finance or actively contribute to the delivery of adaptation and safeguarding options.

Usually, formal methods such as cost-benefit analysis or multicriteria analysis are used for assessing adaptation options. However, they rarely consider local values (Getzner, Spash and Stagl, 2005). Moreover, cost-benefit analysis requires all benefits to be expressed in monetary terms, which may be not appropriate in the case of ICH.

**Adopting a bottom-up participatory approach**, costs should be considered among other variables and implications, such as the consequences of loss or damage to relational values such as identity or sense of place, which are better fit using a deliberative approach. For identifying assessment criteria for the social appraisal on adaptation and safeguarding options regarding ICH, it is recommended to adopt the criteria and guiding questions proposed by Carmichael and colleagues (2020) and derived from existing literature on adapting tangible heritage to climate change:

- **Cost-efficiency.** Is the option affordable? Some options can be technically feasible, but the costs of implementation can be unbearable considering the available financial resources.
- **Goal-oriented.** Does the option meet the goals? Options should be assessed considering the goals and concerns of the community as expressed in previous steps.
- **Practicality.** Does the option require competencies and capacities that are available? For the option to be implemented, specific human resources will be needed, including skills, and management capacities, but also existing facilities and activities at the community level, such as museums, places, or education settings that can contribute to the implementation of specific adaptation or safeguarding measures.
- **Cultural appropriateness.** Is the option a proper way to tackle the problem? Options should be assessed according to their consistency with cultural and social norms of the place. In this area, consideration must be given particularly to the potential commodification, misrepresentation, and intensive exploitation of ICH.
- **Co-benefit provision.** Does the option benefit the community/different actors in other ways? Options that provide co-benefits to multiple community agents should be prioritized. They are more likely to be implemented and supported.
- **Timeliness.** Does the option can be implemented in a reasonable time frame? Depending on the identified risks and vulnerability of ICH, options should be assessed according to their timely response. Short- and medium-term options have usually advantages over long-term options that present greater uncertainty.
- **Robustness.** Will the option work if social and environmental changes accelerate or become worse than expected? Measures that are robust, flexible, or low regret



can satisfy the identified community needs and priorities for safeguarding even if scenarios change.

To rank options with the 7 criteria outlined above, a simple scoring system as advised by Carmichael et al., (2020) can be used giving each option a score: 2 points if the answer to the guiding question is 'yes', 1 point if 'possibly', and 0 points if 'no' (see Table 9).

**Table 9. Scoring system for adaptation options**

<i>Options</i>	<i>1. Cost-efficiency</i>	<i>2. Goal orientation</i>	<i>3. Practicality</i>	<i>4. Cultural appropriateness</i>	<i>5. Co-benefit</i>	<i>6. Timeliness</i>	<i>7. Robustness</i>

The scores for each option given by the different stakeholders can be then added up to generate a total score for each option.

#### 4.4.2 *Selecting options*

Following the assessment of the catalogue of measures, it is imperative to engage in a discussion and selection process to determine the most suitable options. This preferred list of options should be reached through consensus with stakeholders, ensuring that diverse values and criteria are considered during the evaluation.

When it comes to selecting and prioritizing safeguarding and adaptation options for implementation, a cautious approach should be adopted. This involves **recognizing the diversity of viable options and considering their potential combinations**. Prioritization can be achieved through deliberate consideration, assessing whether the measures are effective in mitigating risks and threats, as well as addressing community concerns and needs. Stakeholder deliberation should focus on measures that, even in the face of uncertainties, can minimize risks or threats while providing tangible benefits. During deliberation, it is crucial to identify the following:

- **No-Regret Options:** These are measures that hold value regardless of the extent of social and environmental change, ensuring the sustainability of ICH. An example could be the digitization of ICH.
- **Low-Regret Options:** These measures are worthwhile as their costs are relatively low compared to their potential high benefits.
- **Win-Win or Co-Benefits Options:** These options not only yield results in terms of climate adaptation but also tap into other opportunities, contributing to additional goals, be they social, economic, or environmental.
- **Flexible Options:** These measures are adjustable with low costs if circumstances change.



Prioritizing these measures should establish a foundation for a high level of social acceptance and ownership of decisions. Once measures have been selected and prioritized, they must be integrated into a plan for safeguarding and adaptation.

The identification of feasible actions depends on who is on board and the appropriate identification of community initiatives and windows of opportunity to leverage. This encompasses **identifying which actions can be directly implemented by community agents or authorities**, as well as actions that may require support from other actors or efforts beyond the sphere of influence of community actors, such as regulatory change at a higher political level (e.g., see the CS7 of dry-stone walls and EU regulation on vineyards replanting rights, or the CS3 of Mosel wine culture and national guidelines on cultivation methods on GreenHeritage deliverable D2.2).

#### 4.5. Implementing safeguarding and adaptation

The implementation of adaptation and safeguarding actions should be guided by a dedicated action plan. Alternatively, there is the option to develop a plan for integrating these actions into existing policy fields or strategies. This could involve incorporating them into established cultural heritage or climate mitigation and adaptation policies and plans at the appropriate governance levels (see section 4.5.3).

##### 4.5.1 *Designing the safeguarding and adaptation plan*

After the selection of measures for adaptation and safeguarding, it is essential to develop a coherent framework for implementation. This framework should be informed by the insights gained from earlier phases and should undergo **consultation** gaining **consent from the concerned communities and stakeholders**, and formal **recognition from local authorities**.

The plan serves as a guiding document, delineating the vision, action direction, and anticipated outcomes for the involved ICH. Conversely, the accompanying action plan should clearly outline the steps required to translate the selected options into actionable tasks. Potential components of the plan may encompass:

- An introduction that highlights the significance of the involved ICH elements for the community and beyond. It should elucidate why safeguarding and adaptation are imperative, particularly in the face of the social and environmental changes confronting the community.
- Reflections on the evaluation of risks and vulnerabilities, specifying which aspects of the living tradition and its lifecycle are under threat. This could pertain to tangible elements or the transmission and practice of the tradition. Additionally, it should identify the contributing factors, such as climate-related impacts or social changes like depopulation.
- An overview of the methodology employed in formulating the plan, including the extensive involvement of the concerned community and stakeholders throughout the process. It should also outline the envisioned collaboration between authorities, public entities, and private stakeholders.



- Clear-cut objectives for both safeguarding and adaptation efforts.
- Provisions for the ongoing monitoring, evaluation, and potential revision of the plan.

**If a plan already exists at a national or regional level**, for example, if a regional adaptation plan already considers the heritage sector encompassing tangible, intangible, and natural heritage elements, it can be decided to not develop a dedicated plan. Instead, the focus would be on **developing an action plan that aligns with this pre-existing framework**. The action plans should contain:

- I. Details of each action that has been agreed** and the sub-actions if any and the associated processes and synergies. This includes explaining if and how the action aligns and works in synergy with other actions planned for other sectors or carried out by other community entities, for example in the tourism, school, culture, agriculture, or climate sectors.
- II. Roles and responsibilities** in coordinating and implementing actions. This includes indicating who is the main responsible for coordination and implementation, who supports and cooperates with specific sub-actions and how, etc.
- III. Timeframe** for implementation of each action.
- IV. Assessment of required human and financial resources**, including potential funding sources, co-financing, and endogenous capacities and existing activities at the community level. This latter part includes for example the existing community organizations, heritage management experts, and research and education institutions expected to support action implementation with dedicated resources.
- V. The identified information and knowledge needs** and potential strategies to address knowledge deficiencies. This includes for example making explicit the knowledge gaps regarding the longitudinal diagnosis of the state of conservation of tangible assets of ICH.
- VI. Indicators for monitoring and evaluating** the progress of each action and the success of the plan depending on the types of ICH and the characteristics of the context at stake.
- VII. Timeframe and modalities for monitoring and amending** the plan and its actions including revisiting the value of ICH for the community and their consent and consensus.

#### **4.6 Developing the Monitoring and Evaluation Approach**

To ensure the effectiveness and long-term sustainability of the adaptation and safeguarding plan for ICH, a robust monitoring and evaluation (M&E) approach must be integrated into the plan. This involves the establishment of appropriate mechanisms within the adaptation plan to monitor and evaluate the progress of individual adaptation actions. This typically requires the creation of a dedicated M&E plan to assess whether the proposed adaptation measures have been implemented, the implemented measures have had the expected results, and the objectives have been achieved by the measures. Establishing an effective M&E method necessitates a blend of robust indicators, knowledge management, and ongoing engagement with



stakeholders. It is imperative that all stakeholders with roles and responsibilities in the implementation are integral participants in the M&E process.

#### *4.6.1 Defining Indicators*

Defining suitable indicators can be a complex task due to factors such as data availability and the challenge of measuring progress towards increased resilience. It is crucial to select indicators that serve a clear purpose and are relevant to the specific context. The combination of process (**progress indicators**) and outcome indicators (**impact indicators**) is essential, recognizing that in some cases, the outcomes of adaptation efforts cannot be determined for several years. Additionally, considerations of data collection efficiency and cost-effectiveness must be considered to ensure that the value of the information obtained justifies the resources invested.

#### *4.6.2 Using monitoring results to enhance the process of adaptation*

Authorities and concerned communities can use monitoring results to revise and readjust their adaptation plan ensuring it remains dynamic and adaptive. **Monitoring should occur at regular intervals, ideally on a biennial or triennial basis.** This schedule is aligned with established practices in adaptation and is consistent with the periodic reporting cycle for ICH as outlined by the UNESCO Convention (every six years).

With a well-defined monitoring framework in place, local authorities can address crucial questions such as:

- Are the right actions being prioritized for ICH safeguarding?
- Are the actions effectively executed?
- How is the implementation progressing?
- Is the monitoring framework providing the necessary information efficiently?

Furthermore, monitoring results can empower communities and authorities to reassess the selection and implementation of adaptation actions, and potentially revise the monitoring framework accordingly. It offers a comprehensive overview of the status of implementation, facilitating timely adjustments if outcomes are not satisfactory or veer towards unintended consequences (e.g., exploitation and commodification of ICH).



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## Annexes

### Annex 1: Methodology Overview with Descriptions, Approaches, Implementation Tools and Methods suggested for each sub-step

Step	Substeps	Description	Approach	Suggested tools and methods
<b>1.Preparing the Ground</b>	Analyze the political framework	Gather info on existing heritage and adaptation policies to align action	Deliberative, Analytical	-Review/mapping of policy and planning documents
	Identify heritage community and its stakeholders	Conduct stakeholder analysis to identify ICH community, relevant experts, NGOs, and representatives from civil society and private sector	Analytical, Deliberative	-Review existing platforms/ institutional set-ups -Interviews with stakeholders -Mapping methods (e.g., GIS, sociogram technique)
	Set-up a mixed working group	Define the members of the working group (along with a secretariat or facilitator) and its key responsibilities	Deliberative, Decisional	No specific tools/methods suggested
	Identify and inventory ICH elements	Seek background information on local history and traditions. Revise information, compile inventory sheets and determine the significance of ICH elements	Deliberative, Analytical	-Brainstorm meetings /focus groups -Community or heritage walks and site visits -Inventory sheets (see Box 1, pp.25-26) -Scale of significance (see Table 3, p.27)



<b>2.Assessment of Risks, Vulnerabilities, and Capacities</b>	Prepare the risk assessment	Define scope, gather baseline knowledge for climate and non-climate risks / threats to ICH	Deliberative, Analytical	-Scoping workshop -Inventory sheets (see Box 1, pp.25-26)
	Develop impact chains	Review baseline knowledge and brainstorm hazards to focus the assessment. Determine intermediate impacts and associated exposure and vulnerability	Deliberative, Analytical	-Guiding questions and prompts to facilitate brainstorming, and cluster/prioritize impacts and risks during a dedicated workshop (see Annex 3)
	Identify and select indicators/factors for risk assessment	Identify relevant factors for the different components and elaborate indicators for the assessment	Deliberative and/or Operational	-Brainstorm meeting/focus group (cf. Table 5, p.34)
	Acquire data	Review databases and data sources for relevant indicators or use a deliberative participatory process to assess factors associated with each risk component	Operational or Deliberative	-Databases (cf. Table 6, p.35) -Board to stimulate deliberation and gather input during a dedicated workshop (see table 7, p.36)
	Analyze data	(Normalize, weight and) aggregate data to generate composite values for both individual risk components and the overall risk	Analytical, Operational, or Deliberative	-Board to gather input and scoring system (see Table 8, p.37) -Risk assessment matrices (see Annex 4)
	Present outcomes	Develop report to present the outcomes of the risk assessment and explain the whole process	Operational, Communicative	No specific tools/methods suggested



<b>3. Identification of Adaptation and Safeguarding Measures</b>	Development of a catalogue of options	Brainstorm on capacities and opportunities, identify adaptation options and compile a comprehensive catalogue of measures tailored to the context and identified risks	Deliberative	-Repositories of good practices in climate adaptation and ICH safeguarding (cf. Table 2, pp. 13-14 and footnotes 6 and 7, p.40)
<b>4. Assessment and Selection of Options</b>	Choose and apply the assessment framework	Select relevant assessment framework and criteria or use the suggested one with 7 criteria	Deliberative, Analytical	-Guiding questions and scoring system for assessing adaptation options (see pp. 41-42, Table 9, p.42)
	Select options	Discuss and identify most effective options for risk reduction and tangible benefits. Identify actions that can be implemented by community agents	Deliberative Decisional	-Guiding criteria on measures to prioritize (see pp.42-43)
<b>5. Implementation of Safeguarding and Adaptation</b>	Design the safeguarding and adaptation plan	Develop a coherent framework for implementation detailing actions, roles, responsibilities, resources, and timeframe. Subject to public consultation	Operational, Deliberative	-Guiding structure on the plan content (see pp.43-44)
<b>6. Monitoring and Evaluation</b>	Define indicators	Establish indicators for monitor progress and impact and assess the status of implementation	Operational, Analytical	No specific tools/methods suggested
	Utilize monitoring results to adjust	Present monitoring updates at regular intervals and discuss possible adjustments or revisions	Communicative, Deliberative	-Guiding questions (see pp. 45)



## **ANNEX 2. Key Questions for Planning Inventorying Processes (UNESCO, 2021)**

- What consultative mechanisms will be used or created?
- How will the communities whose intangible cultural heritage will be inventoried, and their representatives, be identified and informed, and how will they be involved in the planning activities?
- How will the communities be involved in the documentation process and in the production of inventory entries related to their intangible cultural heritage?
- When and how will their consent be sought?
- Whose capacities need to be strengthened?
- Which other stakeholders, in addition to the relevant non-governmental organizations, (if any) will be involved?
- What will be the purposes of the inventorying exercise?
- How can the possible negative effects of documentation and of the dissemination of inventory entries (such as standardization, canonization, freezing, misappropriation) on the viability of intangible cultural heritage be avoided?
- Will there be more than one inventory?
- What will the scope of the inventory(ies) be?
- What ordering principles will be used?
- Which criteria for inclusion will be applied?
- How will the size and scope of the elements be determined?
- How much information will be included about each element?
- How will shared intangible cultural heritage be inventoried?
- Which organization(s) or institution(s) will be responsible for the coordination or implementation of the inventory process(es)?
- Will inventories of intangible cultural heritage initiated by communities, institutions, or lower authorities, if any, be integrated into the national inventorying exercise?
- How will the dissemination of and access to the inventory(ies) be organized?
- How will the inventory(ies) be monitored and updated?
- What costs will be involved and how will the inventorying system be financed?



### Annex 3. Climate drivers and related mechanisms of impact with examples of expected effects on (tangible) heritage (ICOMOS CCHWG, 2019)

<i>Climate Driver</i>	<i>Mechanism of Impact</i>
Increased Temperature	<ul style="list-style-type: none"> <li>• Influence on risks linked to frost</li> <li>• Heat-waves and days of extreme heat</li> <li>• Urban Heat Island Effect</li> <li>• Thawing of permafrost (destabilization of buildings, foundations and infrastructure)</li> <li>• In cold and wet regions, the risk of damage to materials by chemical degradation is weak, while the risk of mechanical degradation is relatively high.</li> <li>• In warm and dry regions, there would be a high risk of chemical degradation, but the mechanical degradation would be reduced.</li> </ul>
Sea Level Rise	<ul style="list-style-type: none"> <li>• Coastal erosion leading to the destruction of landscapes, structures and archaeological sites.</li> <li>• Submersion of the littoral zone by over Flooding, crossing and rupture of protective structures.</li> <li>• Invasion and salt inundation of continental zones by marine waters.</li> </ul>
Climate Change (e.g. temperature, precipitation, humidity and wind) and air pollution combined (outdoor)	<ul style="list-style-type: none"> <li>• Erosion of façades in stone, rendering and brick.</li> <li>• Degradation of concrete: carbonation, corrosion of steel rebars.</li> <li>• Soiling and colour change of façades</li> <li>• Alteration of ancient stained-glass windows</li> <li>• Corrosion of metals</li> <li>• Biodegradation of façades</li> <li>• Wind damage</li> </ul>
Climate Change (e.g. temperature and humidity) and air pollution combined (indoor)	<ul style="list-style-type: none"> <li>• Biodegradation of wood.</li> <li>• Bio-infestation and chemical degradation of collections and archives.</li> <li>• Bio-infestation and chemical degradation of decorated caves</li> <li>• Degradation of polymers, papers, films and contemporary artworks</li> </ul>
Precipitation and humidity	<ul style="list-style-type: none"> <li>• Intensity and duration of extreme precipitation events or Droughts</li> <li>• Recurrent fluvial flows and flash-Floods: damages by the force of Flood water, debris, sediments; release of pollutants</li> <li>• Rising of salt loaded moisture (i.e. efflorescence) by capillary action in walls, frescoes, wall paintings, mosaics and statues</li> <li>• Effects of wet-frost on porous materials</li> <li>• Swelling-shrinkage of clay minerals in soils endangering the stability of buildings.</li> <li>• Landslides</li> </ul>



<i>Climate Impacts</i>	<i>Examples of expected effects on heritage</i>
Sea level rise	Sea level rise worsens coastal flooding, storm surge and coastal erosion (see below). Threats include permanent inundation of low-lying coastal communities and displacement of populations. Rising sea levels can cause freshwater drinking supplies for traditional communities to become salinized, especially on islands; rising water tables can cause underground archaeology to be damaged; and buildings and statues may be damaged by capillary action in porous materials. Permanent inundation of low-lying coastal cave art and tidal zone archaeology is likely.
Coastal flooding	Flooding exacerbated by sea-level rise will permanently inundate some areas and increase storm surge damage in others, resulting in damage to or loss of historic buildings and districts, cultural landscapes, archaeology and sacred sites.
Coastal erosion	Coastal erosion Impacts are also increased by sea level rise and more intense or more frequent storms, resulting in damage to or loss of historic buildings and districts, cultural landscapes, archaeology and sacred sites.
Loss of sea ice	Culturally important ice-dependent species may lose habitat and their populations decline; shipping access to sensitive areas may increase. Loss of seasonal ice can expose erodible coasts to winter storm damage, accelerating loss of archaeological resources.
Glacial melt	Glacial melt lakes can overflow, threatening villages and communities; Loss of glaciers jeopardizes vital water supplies for cities, villages and rural areas.
Permafrost thaw, ice patch melt and warming soils	Melting permafrost in mountain or polar environments exposes frozen archaeology to erosion. Warmer soil temperatures accelerate microbial decay of buried organic materials; melting ice patches may expose previously frozen archaeology. Foundations of buildings and structures in permafrost areas will be damaged by softening and subsidence of substrate.
Changed freeze/thaw cycles	Warmer winters increase the frequency of freeze/thaw cycles in some areas thereby increasing likely structural damage to materials such as brick and stone.
Increased ocean temperatures	Increased ocean temperatures affect ecosystems that form important parts of cultural landscapes and provide livelihoods for coastal communities and traditional practices. Warmer seas also have implications for underwater archaeology, for example the increased prevalence of organisms that damage wooden structures, such as shipworm species.
Increased storm intensity and/or frequency	More intense or more frequent storms increase rates of coastal erosion and damage to or loss of historic buildings and districts, cultural landscapes, archaeology and sacred sites. Risk from flooding and wind damage increases.
More extreme rainfall	Worse and more damaging floods and landslides are caused by more rain falling in shorter periods of time. Historic buildings can be damaged or completely lost. Tourist footfall at high visitation heritage sites can cause more damage and erosion in wet conditions.
Increased humidity	Increased humidity is a major threat to indoor collections unprotected by air conditioning or dehumidifying technology; humidity in caves and semi-enclosed archaeological sites can damage pigmented rock art and plastered surfaces.
Increased wind or changes in wind direction	Wind can increase abrasion and degradation of rock art and underwater archaeological sites, cause damage to historic buildings, changes in the dynamics of sand dune systems, loss of agricultural topsoil, and increased wave height and erosion at the coast.
Drought	Drought affects agro-ecological cultural landscapes, may cause loss of forests important for traditional foods or building materials, and may also cause damage to built structures due to cracking or splitting. Drought exacerbates issues of water scarcity and conflict, and it causes internal displacement and migration.
Aridification	Long-term transformation of regions to drier conditions alters cultural landscapes, often drives internal displacement, Migration and abandonment, and can drive conflict. Culturally important species can be lost and water and irrigation systems and structures lose effectiveness.
Heatwaves	Heatwaves are an increasing threat to human health in all types of communities, especially when accompanied by increased relative humidity. Heatwaves can affect agricultural productivity and disrupt traditional festivals.
Changes in seasonality	Changes in season affect agriculture and traditional management in cultural landscapes, disrupt traditional festivals and planting cycles and affect the migration and breeding of culturally important species. Longer summers combined with drier conditions can cause more and larger wildfires. Shorter winters can enable pests to more successfully survive cold spells. Historic gardens and plantings may lose the coherence of their planting plans.
Changes in species distribution driven by climatic changes	Culturally important species used for traditional building, food or spiritual practices may become scarce or be lost. Pests, invasive weeds and insect-borne diseases may move into new areas. Planned landscapes and gardens may lose important species.





**Annex 4. Risk assessment matrices for (a) the level of vulnerability combining the level of capacity and sensitivity (b) the level between exposure and vulnerability, (c) the level of risk combining the level of hazards and exposure and vulnerability, and (d) the rating scale for risk with related acceptability and recommendations**

(a)

Assessment matrix for vulnerability		Level of Capacity				
		Very low	low	Moderate	high	Very high
Level of Sensitivity	Very High	Very High	Very High	High	High	Moderate
	High	Very High	High	Moderate	Moderate	Low
	Moderate	High	Moderate	Moderate	Moderate	Low
	Low	High	Moderate	Moderate	Low	Very Low
	Very Low	Moderate	Low	Low	Very Low	Very Low

(b)

Assessment matrix for exposure & vulnerability		Level of vulnerability				
		Very high	High	Moderate	Low	Very Low
Level of Exposure	Very High	Very High	Very High	High	High	Moderate
	High	Very High	High	Moderate	Moderate	Low
	Moderate	High	Moderate	Moderate	Moderate	Low
	Low	High	Moderate	Moderate	Low	Very Low
	Very Low	Moderate	Low	Low	Very Low	Very Low

(c)

Risk Assessment Matrix		Level of Exposure & Vulnerability				
		Very high	High	Moderate	Low	Very Low
Level of Hazard	Very High	Severe	Severe	Significant	Significant	Moderate
	High	Severe	Significant	Moderate	Moderate	Minor
	Moderate	Significant	Moderate	Moderate	Moderate	Minor
	Low	Significant	Moderate	Moderate	Minor	Negligible
	Very Low	Moderate	Minor	Minor	Negligible	Negligible

(d)

Rating Scale for Risk with acceptability of risks and recommendations	
Rating color and definition	Acceptability
Severe	Unacceptable level of risk requiring immediate attention and adaptation action
Significant	Unacceptable level of risk requiring considering timely adaptation action
Moderate	Barely acceptable level of risk requiring considering active monitoring and/or adaptation
Minor	Acceptable level of risk with monitoring
Negligible	Insignificant level of risk with no action required