



DELIVERABLE D.T2.3.2

**Recommendations for integration of risk
management strategies into territorial
policies**

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1. Introduction

The analysis of potential integration of risk management strategies into national and European policies developed by Italy, Germany, Czech Republic, Croatia, Slovenia, Austria and Hungary was carried out focusing on:

1. Extreme events such as landslides, fire, wind storm and floods.
2. Specific cultural heritage categories analysed including cultural landscapes (terraced and / or coastal landscapes), ruined hamlets (rural and mountainous villages) and historical parks (parks and gardens)

This report outlines also a set of recommendations for the development and setting up of action plans, in line with the Sendai Framework for Disaster Risk Reduction

2. Lessons learnt, capitalisation and approach for recommendations proposal

The STRENCH recommendations have been formulated on the basis of:

- i) the outputs of the STRENCH case studies on risk management of cultural heritage at European and international level (Ref. deliverable D.T2.2.1 and D.T2.2.2);
- ii) the results of the awareness raising events targeting key actors in public and private research entities, policy-makers, international organizations and stakeholders operating on cultural heritage protection from the STRENCH partners' countries (Ref. deliverable D.T2.3.1);
- iii) the recommendations provided in the document DG-EAC "Safeguarding Cultural Heritage from Natural and Man-Made Disasters".

Moreover, as capitalization action, the output of the Interreg CE project BhENEFIT, called "Strategy for sustainable management of HBA in CE Regions" has been considered for the Historical Built Area (HBA) session.

Lessons learnt have been exploited taking into consideration several inputs collected along the project:

- Cooperation at all levels of policy and administration is mandatory.
- Benefits and added value need to be highlighted (not focus only on negative impacts of disasters for cultural heritage, but also on the positive aspects than can be gained by protection and especially preparedness measures – these positive aspects could i.e. include economic benefits – for example through tourism, enhanced feelings of community and identity – caring together for things that are important for us, were important in the past and we want to keep it for future generations; benefits for emergency responders who cooperate could also be more



complex and thus challenging exercises and training if they take on the topic of cultural heritage protection as well)

- Cooperation among emergency responders, cultural heritage experts and owners of cultural heritage as well as the civil society is important
- Working with case studies and past examples can help raising awareness regarding the importance of cultural heritage protection; in order to ensure reaching a broader audience at the local and regional levels it is important to individuate the potential risk scenarios involved and exemplify them (the exemplification of case studies avoids the idea that “this only happens elsewhere and not to us” etc).

The project deliverable’s findings and these recommendations also refer to the specific risks related to the extreme events considered in the project (landslides, fire, wind storm, flood).

3. General Recommendations

The following recommendations are framed in accordance with the Sendai Four Priorities ¹for Action, in particular **Priority 4**:

Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation and reconstruction

The steady growth of disaster risk, including the increase of people and assets exposure, combined with the lessons learned from past disasters, indicates the need to further strengthen disaster preparedness for response, take action in anticipation of events, integrate disaster risk reduction in response preparedness and ensure that capacities are in place for effective response and recovery at all levels. Empowering women and persons with disabilities to publicly lead and promote gender equitable and universally accessible response, recovery, rehabilitation and reconstruction approaches is key. Disasters have demonstrated that the recovery, rehabilitation and reconstruction phase, which needs to be prepared ahead of a disaster, is a critical opportunity to “Build Back Better”, including through integrating disaster risk reduction into development measures, making nations and communities resilient to disasters

Policy Making

Drafting European Standards

Pursuing Priority 4, the definition of European Standards for safeguarding specific categories of cultural and natural heritage assets against the effects of different types of disaster should be

¹ Priority 1. Understanding disaster risk; Priority 2. Strengthening disaster risk governance to manage disaster risk; Priority 3. Investing in disaster risk reduction for resilience; Priority 4. Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation and reconstruction.



promoted. This should build upon research that has already taken place, capitalising on its findings, and include the role of the heritage public or private owners in the risk management system. Particular care should be paid to the implementation of maintenance-oriented standards for the sake of enhancing appropriate disaster preparedness and of engaging the widest range of stakeholders possible including owners and managers in the active protection of cultural heritage.

Take action in anticipation of events, integrate disaster risk reduction in response preparedness

Concerning Priority 4, initiating and encouraging as many cultural institutions as possible to adopt risk maps and vulnerability evaluation for cultural heritage assets in management plans by looking at lessons learnt from previous historic disasters and from the assessment of good and bad practice is of great importance. The use of risk mapping tools like the STRENCH project WebGisTool, namely Risk Mapping Tool for Cultural Heritage Protection (<https://www.protecht2save-wgt.eu/>), should be considered. In the same perspective, the use of a tailored methodology for the assessment of cultural heritage vulnerability should be prompted and a list of possible solutions, like the STRENCH vulnerability evaluation methodology, should be provided to cultural heritage managers.

The creation of specific nationwide programmes addressing specifically the engagement of non-technical users, such as owners and managers through the support of different tools is suggested.

It is recommended to support the implementation of a comprehensive system, at national level, which gathers relevant research outputs and technical products. This would foster the effective use of such tools by heritage institutions and owners in a simple, effective and guided way.

At national level, the allocation of resources mainly to actions addressed to preparedness should be fostered going beyond the mere emergency and post-emergency support to the heritage sites affected by natural phenomena.

Foster the application of satellite services

In support of Priority 4, the use of Earth observation data, mainly from Copernicus services and information for monitoring and assessing the potential impact of natural and anthropogenic disasters and, consequently, enhancing prevention and management is recommended. Systems and tools able to exploit Copernicus services, data and products should be fostered in particular those available for free like the STRENCH Risk Mapping Tool for Cultural Heritage Protection which, for the first time, makes use of Copernicus Climate Change service (C3S) by applying its data and products for the evaluation of climate change impact on cultural and natural heritage.

A unique cross-cutting European satellite service for the monitoring, protection and management of cultural heritage able to bring together different tools addressed to improve the capacities of the public and private sectors is suggested.



Foster climate modelling

In support of Priority 4, research on cultural heritage using climate modelling is recommended for promoting the use of climate data-based tools. Vulnerability indicators are much needed, especially for heritage assets which are particularly exposed to extreme weather events as well as the future scenarios for impact assessment, integrating cultural heritage specificities.

Research level (Academia, scientific and research entities)

In line with the Sendai Priority 4, addressing appropriate and relevant practices on the integration of cultural heritage in the national disaster risk reduction strategies necessitates to:

- **Prioritise monitoring of environmental parameters** (climate and pollution) in relation to the heritage under threat (building material, environmental context/exposure, tourism pressure, cultural and socio-economic value, general economic conditions vulnerability). Spatial and temporal solutions should be defined for each parameter, whether acting individually or in synergy.
- **Gather relevant historic data on the assets under threat** (e.g. construction phases, past interventions) for vulnerability assessment.
- Identify **critical and vulnerable elements of the assets** (chemical-physical, cultural, economic and social).
- Develop **early warning and damage modelling systems** to help safeguarding the assets.
- Develop **high spatial resolution maps of European cultural heritage at risk that link with and relate to existing maps of natural and man-made hazards and the potential risks**. Although this is a fundamental requirement for effective risk management, such integrated information is lacking over much of the European territory.
- Focus **research efforts in order to contribute to the creation of a comprehensive web-based GIS platform** aimed at providing relevant data for the hazard assessment and mapping of cultural heritage in its tangible and intangible manifestations.
- Investigate with multidisciplinary approach on cultural heritage vulnerability, also including different discipline (i.e. socio-economic evaluation) or multi-hazard scenario.
- Reach out to other entities involved in protection of CH – owner, civil society, emergency organisations.

Civil society, volunteers, voluntary organizations and community-based organizations

Pursuing “Build Back Better” approach (BBB) suggested in Priority 4, that reduces vulnerability to future disasters and builds community resilience to address physical, social, environmental, and economic vulnerabilities, it will be necessary to:



- Achieve an acceptable BBB-based preparedness for the CH at risk, exploiting the lesson learnt from disaster events occurred in the past.
- Collaborate actively with the estate owners and/or site managers and with academia, for the effective implementation of the vulnerability assessment aiming at its reduction.
- Consider into recovery plans the socio-economic value of building to define a stronger and more resilient systems.

4. Specific Recommendations

The following recommendations are framed specifically for the heritage categories considered in the STRENCH project (cultural landscape, ruined hamlets and historical parks) and addressed to the four levels of organisation in charge for their safeguard:

- European Authorities
- National Authorities
- Regional and local Authorities
- Operational bodies and owners (as well as site managers)

1.1 Cultural landscapes safeguard

It is recommended European Authorities to be reminded about the

- Gathering field vulnerability data is needed in order to allow effective risk assessment; appropriate vulnerability assessment methodologies should be shared and disseminated, with particular focus on evaluating the characteristics of non-building elements of the cultural landscapes such as retaining walls in terraced landscapes, circulation features (e.g. paths, free standing perimeter walls).
- Availability of adequate training and tailored skills, in order to reach a high level of preparedness in any situation (before, during and after emergency) at different levels (technical, decisional, operational level) for both Natural and Cultural heritage should be created.
- Cultural landscapes like terraced landscape, parks, natural heritage can be heavily impacted during landslides and flash flood and the safeguard measures from those risks should be adopted.

It is recommended that National Authorities be reminded that:

- The planning to allocate adequate economic resources for the implementation of maintenance and care of the public green areas on the basis of adequate management plans is necessary.



- The alignment in the responsibility chain from policy making to practical application is fundamental.
- Regulating the farming practices in the surrounding area for reducing the inter-correlated factor of risks (i.e. reduce potential soil erosion in the event of a flash flood in larger area).

It is recommended that Regional and local Authorities be reminded that/to:

- Safeguarding and maintenance plans, designed with a multidisciplinary approach, are necessary.
- Because of the topographic features of the area, regular maintenance treatment of old facilities or the use of new techniques is recommended.
- Foster synergies among different sectors (tourism, VET schools, etc) is suggested in order to create new ecosystems for the landscape safeguard (training on the use of old and traditional practices for upkeep, the design of special tourism products, etc.)
- Synergy with the various subjects in charge of territorial governance and with the competent technical offices is advocated.
- It is also recommended to inform and possibly involve the local population in the rescue and Emergency preparedness plans to some degree (for emergency situations) and in the participated solutions for the maintenance plans in regular situations.

It is recommended that Operational Bodies and Owners be reminded that:

- Regular maintenance treatment of old trees and periodical census is of priority.
- Preparation for the evolution of the local flora and fauna due to the new climatic conditions is to be achieved.
- Experts should be involved in the maintenance of the area and vegetation in planned and regulated manner.

1.2 Ruined hamlets safeguard

It is recommended that European Authorities be reminded that:

- Gathering field vulnerability data is needed in order to allow effective risk assessment; appropriate vulnerability assessment methodologies should be shared and disseminated, with particular focus on the specific criticalities of ruined hamlets, in particular the managerial ones
- Integration across Cultural Heritage's legislation and urban planning is recommended
- Supporting the creation of appropriate tools for the safeguard of buildings with an historical value is fundamental.



It is recommended that National Authorities be reminded that/to:

- Regulating the farming practices in the area above the mansion could reduce potential soil erosion in the event of a flash flood.
- Fully incorporate the latest approaches of safeguarding cultural heritage by application of climate modelling and Earth Observation data and products in setting up adaptation strategies, as well as in the procedures for the appointment, registration and management of the sites of the World Heritage List in order to ensure a long term sustainable use under climate change scenarios

It is recommended that Regional and local Authorities be reminded that:

- Identifying those heritage sites most vulnerable to phenomena induced and aggravated by climate change and strengthening control systems, through monitoring (in situ and remote) and early warning of impacts is suggested.
- Climate related threats should be considered more intensively in planning processes. Planners need awareness regarding climate change and climate risks.
- Involvement of different professionals for an effective **interdisciplinary** approach in the design phase of safeguarding plans is suggested.
- Providing assistance to owners and caretakers and acting as intermediary between the suggested national campaign and the owners is suggested.

It is recommended that Operational Bodies and Owners be reminded that:

- Improving the physical protection and the condition of external walls of the building is recommended.
- Improving the emergency preparedness plans of the building is recommended.

1.3 Historical parks safeguard

It is recommended European Authorities to be reminded about

- Gathering field vulnerability data is needed in order to allow effective risk assessment; appropriate vulnerability assessment methodologies should be shared and disseminated, with particular focus on evaluating the characteristics of vegetation (e.g. tree species, age and conditions) and other built features typical of historic parks and gardens (e.g. aesthetical item such as fountains, statues, paths, floors, walls etc.).
- The management plan for risk reduction should integrate data on vulnerability level of the natural and built elements co-existing in the same area alongside data from environmental monitoring and climate induced hazards.



It is recommended that National Authorities be reminded that:

- National guidelines for the development and implementation of plans for historical parks safeguard should be promoted.
- An integrated approach for the identification, assessment, conservation and management of natural heritage landscape, like historical parks, within an overall sustainable development framework should be developed.
- Preparation for the evolution of the local flora and fauna due to the new climatic conditions is to be achieved. In particular, the choice of new plant species to be introduced in historic gardens to replace trees to be felled, must take this aspect into account and consider new species more suited to the changed climatic conditions.
- The planning to allocate adequate economic resources for the implementation of maintenance and care of the historical parks on the basis of adequate management plans and of the green and built area is necessary.
- Regulating the farming and other practices (i.e. silvicultural practice) in the surrounding area for reducing the inter-correlated factor of risk (i.e. reduce potential soil erosion in the event of a flash flood in larger area).

It is recommended that Regional and local Authorities be reminded that/about:

- General plans for the protection of parks and landscape, on regional or local level, are fundamental.
- The periodical collection of existing plans and/or its updates by owners is suggested.
- Adaptation measures to preserve site from erosion might include changes in land use (especially abandoned agricultural land) and planting trees to stabilize slopes particularly since the zone is susceptible to landslides, a natural hazard whose frequency and intensity could be enhanced by climate change.
- The need to strengthen monitoring and maintenance of cultural heritage and likely include cultural heritage protection training exercises.
- Improving the Emergency preparedness plans of the mansion building and the green area is necessary.
- Improving the collaboration between public entities and park managers is recommended.
- It is also recommended to inform and possibly involve the local population in the rescue and emergency preparedness plans to some degree (for emergency situations) and in the participating solutions for the maintenance plans in regular situations.



It is recommended that Operational Bodies and Owners be reminded that:

- Scheduled and regular maintenance treatment of trees (prioritizing the old trees and the more vulnerable ones) supported by specific censuses, monitoring and management plans is advocated.
- Cooperation with public authorities and scientific community is essential in order to set up adequate preparedness measures.
- Zoning the green area (historic park) to create risk maps related to specific vulnerabilities (heavy rains and flash floods, landslides and slope instability, strong winds etc).
- Scheduled and regular maintenance treatment of the hydrographic network of the green area is recommended for the correct regulation of rainwater.
- Experts should be involved in the maintenance of the area and vegetation in a planned and regulated manner.

1.4 Recommendation for Action Plan development

Developing an action plan means turning ideas raised during strategic planning or evaluation into reality. This approach should be applied for the integration of risk management strategies into territorial policies, with the development of the Action Plan for the vulnerability assessment of the Cultural Heritage at risk.

The role of all the four levels of organisations (from EU authorities to owners) should be described in the Action plan, in function of their responsibilities in regulation and policy, at EU, national and regional level.

The development of Action Plan for the vulnerability assessment of CH at risk should be considered and defined according to the following points:

- Set objectives – what do you want to achieve?
- Identify gaps – what separates you from what you want to achieve / where you would like to achieve to?
- Identify resources – for achieving the goal / closing the gap
- Identify human and organisational resources to a) achieve objectives, b) keep status you want to reach once you have reached it (upkeep and maintenance)
- Set a positive outline – why is what you want to achieve beneficial for everyone?



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