Safeguarding Cultural Heritage from Natural and Man-Made Disasters

A comparative analysis of risk management in the EU

Executive Summary
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Preface

The present Study responds to the request by the Council of the European Union to the European Commission to conduct a study on “Risk assessment and prevention for safeguarding cultural heritage from the effects of natural disasters and threats caused by human action”, in the framework of the Work Plan for Culture (2015-2018)\(^1\) - Priority area B cultural heritage.

Heritage assets and resources are of great value to society from a cultural, environmental, social and economic point of view, and their safeguarding from the continuous pressures of natural hazards, anthropogenic effects and extreme events due to global changes is of paramount importance.

Since 2007, cultural heritage has been a priority for European cultural cooperation, as highlighted by the European Agenda for Culture\(^2\). Furthermore it is considered a strategic resource for a sustainable Europe\(^3\), as stated in the Council Conclusions of May 2014, and the European institutions have decided to celebrate it in 2018 with the European Year of Cultural Heritage.

At global level, the Sendai Framework for Disaster Risk Reduction 2015-2030 (Sendai Framework)\(^4\), the current global agreement on disaster risk management, adopted by the United Nations in 2015, includes among its priorities the protection of cultural heritage, and invites national authorities to cooperate in increasing an awareness of cultural heritage impacts in the context of exposure to hazards.

On 17 June 2016, the European Commission published an Action Plan on the Sendai Framework\(^5\). Covering a five-year period, the Plan provides for a more systematic disaster-risk-informed approach in EU policy making. One of the implementation priorities concerns the development of good practice regarding the essential integration of cultural heritage in national disaster risk reduction strategies to be developed by EU Member States.

Therefore, this Study can contribute to the integration of cultural heritage as a new focus area in the Sendai framework.

Objective and adopted methodology

The overall objective of this Study is to contribute to the development of good practices to integrate cultural heritage into national disaster and risk reduction strategies developed by EU Member States.

In order to support and achieve this aim, the following specific Study objectives were accomplished by:

1) Providing an overview of the information available at EU and international level on risk assessment and prevention to safeguard cultural heritage from the effects of natural disasters and threats caused by human action (Chapter 2);

\(^3\) Council conclusions of 21 May 2014 on cultural heritage as a strategic resource for a sustainable Europe (2014/C 183/08).
\(^4\) Adopted on 15 March 2015 at the third United Nations World Conference on Disaster Risk Reduction and adopted by the UN General Assembly on 3 June 2015 A/RES/69/283; http://www.unisdr.org/we/coordinate/sendai-framework
To achieve these objectives, the 12-month study was structured in 3 main Tasks:

- **Task 1** draws an overview of the information available at EU and international level on risk assessment and prevention for safeguarding cultural heritage from the effects of natural disasters and threats caused by human action, using a State-of-the-Art approach (Chapter 2).

- **Task 2** maps the existing strategies and practices in all 28 MS on disaster risk management of cultural heritage, with a focus on existing competence centres and tools. This task was conducted through surveys and interviews with key actors in public and private research entities, policy-oriented international and national organisations (including UNESCO, ICCROM, ICOMOS, Council of Europe, Europa Nostra, National Ministry of Culture, etc.) and stakeholders operating on cultural heritage protection (e.g. Blue Helmets, Blue Shield, National, Regional and Local Authorities, Civil Protection, Private Associations) (Chapter 3).

- **Task 3** identified strengths and weaknesses through information exchanges and consultations amongst team members with the final aim of formulating conclusions and recommendations for Europe (Chapter 1 and 4).

Diverse risk factors are taken into consideration. Acting individually and in combination, these are linked to threats caused by natural and man-made disasters (e.g., climate change, air pollution, flood, landslide, earthquake, volcanic eruptions, fire, armed conflicts and illicit trafficking). Special attention is also given to the impact of climate change as a consequence of human activity modifying the intensity and frequency of the occurrence of slow and extreme events damaging cultural heritage (e.g. surface recession and erosion by precipitation, bio-deterioration, de-cohesion and fracturing due to salt crystallization, sea level rise and thermal stress amongst other factors.).

**Key Lessons learnt during the Study**

The integration of cultural heritage into national disaster and risk reduction strategies developed by EU Member States still suffers from:

- **The lack of coordination between and across the different (European, National and Regional) strategies of risk management policies in most countries.**

- **The lack of alignment in the responsibility chain from policy making to practical application.**

- **The low current priority of cultural heritage in risk management planning.**

- **The lack of integration of cultural heritage protection measures into risk management strategies.**

To maximise synergies between the political, governmental and operational levels in the field of disaster awareness an integrated approach is required, as illustrated in the diagram below:
General recommendations

The Study findings and recommendations aim at addressing and overcoming existing gaps in policy making, administration and managerial implementation, practical application and knowledge/research levels of interest and activity.

The Recommendations are framed in line with the Sendai Four Priorities:

**Priority 1 - Understanding disaster risk**

*Raise awareness*

Promote dissemination activities, targeting all responsible stakeholders (public authorities, at European, national and regional and local level, public officers and owners) allowing them to acquire an in-depth understanding of the importance of cultural heritage, and the need for protecting it against all potential risks.

*Support targeted projects*

Support at EU and national level research and innovation programmes addressing all categories of risks, and undertake pilot testing and reporting at local level.

**Priority 2 - Strengthening disaster risk governance to manage disaster risk**

*Promote collaboration of competent authorities*

Foster collaboration by each country’s competent authority (e.g. Ministry of Culture, Civil Protection, Police, Fire Dept.) for planning preparedness, emergency reaction and recovery and encourage coordinated actions among EU member states.

*Support structural documentation*

Support the documentation of structural aspects of built heritage through the use of IT tools, including the digitalisation of archival records and on-site laser scanning. This will facilitate operational procedures and ensure more easy and timely access to the required
information. Preferably, such activities should be carried out in advance of any disaster incident occurring.

**Priority 3 Investing in disaster risk reduction for resilience**

*Establishment of priorities for protecting cultural heritage asset*

Define priorities of cultural heritage assets to be rescued and make this information ready available to the relevant authorities.

**Enhance education**

The education of all those potentially affected by the consequences of disasters is a primary prerequisite for all categories of risk. Competent authorities should deliver:

- Actions to educate specialists
- In-post training for employees
- Education programmes targeting the wider public and school children

**Priority 4 Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation and reconstruction**

*Draft European Standards*

European Standards for safeguarding specific categories of cultural heritage assets against the effects of different types of disaster should be drafted, building upon the results of previous and new research.

*Foster the application of satellite services*

Explore and pursue the potential of the Copernicus Programme for monitoring and assessing the impact of natural and anthropogenic disasters, humanitarian crisis and conflicts that can affect the cultural heritage sector and, consequently, enhance prevention and management, and facilitate early warning and recovery operations.

*Support and enhance research*

In order to address appropriate and relevant practices on the integration of cultural heritage in the national disaster risk reduction strategies, it is necessary to support and enhance research in the following issues:

- Prioritise environmental monitoring parameters in relation to the impact on heritage.
- Gather relevant historic data on assets under threat.
- Develop early warning and damage modelling systems to help safeguard the assets.
- Develop locational 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.
- Create measure-oriented database information on the criticalities of cultural heritage and intervention priorities to strengthen resilience.
- Design, standardise and adopt recording systems for disaster-damaged heritage with existing systems.
- Address enhanced efforts on creating recovery measure preparedness in advance of an incident taking place.
- Develop assessments methodologies to consider and incorporate the financial impact of disasters, taking into account intangible and tangible heritage values.
**Identified Gaps and Required Activities**

Specifically, the Study found key gaps where issues concerning natural and man-made disasters affecting cultural heritage are not taken into consideration. Many such gaps were consistently and repeatedly identified in each of the studied risks.

In support of the above diagram and divided into policy making, administration and managerial implementation, practical application and knowledge/research these are collectively illustrated below:

**Policy Making**

In political and managerial terms there is a need for:

- General advancements in a trans-national understanding that cultural heritage requires protection from a wide range of potentially damaging multi-risks scenarios.
- Greater universal integration of cultural heritage requirements into existing and future funded research, information and mapping development programmes.
- Developing and promoting long-term cultural heritage measures and strategies to address the impact of both natural and man-made consequences.
- Improvements in collaboratively unifying the accessibility of National and Regional/Local strategic, guideline, and regulatory documentation that also overcomes the "linguistic obstacle" where texts are only available in local languages, not in English.
- The implementation of amendments to Eurocodes and other relevant standards to take into account the physical features, and the cultural and socio-economic value of traditional and historic assets, when addressing disaster scenarios.
- The recognition that the lack of maintenance and remedial work leading to negligence and/or abandonment, can be overcome through innovative financial incentives, including tax relief.

- An evaluation of the potential economic loss caused by all forms of physical damage.
- Supporting Long-Life pan-professional disaster training for experts in the built heritage and landscape field, covering the full range of relevant risks.

**Administration and Managerial Implementation**

There is a need for:

- Promoting, creating and piloting an effective co-ordinating methodology for all potential disaster related incidents, including those that transcend operational boundaries.
- Significant improvements in public awareness of disaster risk management issues through informed educational programmes.
- Training responsible employees on emergency disaster planning and how to respond accordingly.
- Digitising documentation related to cultural heritage by creating and making available electronic archival reference material.
- Setting up informed criteria and techniques for prioritising and securing valuable items and assets in the event of an emergency.
- Monitoring vulnerabilities to support preparedness and to assist in recovery procedures in emergency situations.
**Practical Application and Knowledge/Research**

Regarding practical requirements and knowledge related research there is a need for:

- The creation of a comprehensive inventory of cultural heritage assets that have been pre-assessed to be disaster endangered.

- The development of an effective risk management of cultural assets strategy that fully takes into account the true cost of loss and damage, along with an assessment of the non-market nature of related cultural heritage values.

- Collating and improving inspection and diagnostic observational data to establish an integrated methodology for the comprehensive modelling of the impact of disasters.

- Prioritising an understanding of multi-risk complex-system scenarios in urban historic centres, archaeological sites, and cultural landscapes regarding climate change impacts and other jeopardising factors.

- Creating and developing an effective early warning system to specifically address safeguarding Cultural Heritage from multi-risk and disaster situations.

- Developing appropriate quantitative design data, codes and procedures to ameliorate induced damage and establish funding action priorities.

- Overcoming the absence and promotion of pre-planned analysis and preventative measures required for the development of efficient plans to protect cultural heritage against disasters.

- Developing and promoting pre- and post-event informative documentation, based on soundly research findings, to enhance awareness raising in all levels of interested parties.
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