INTERNATIONAL CONFERENCE
DANUBE UNIVERSITY KREMS

# Study on Safeguarding Cultural Heritage from Natural and Man-Made Disasters

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2018 EUROPEAN YEAR OF CULTURAL HERITAGE #EuropeForCulture

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Black crust on Carrara Marble - Milan Cathedral

Bell tower of Finale Emilia (Italy) – Earthquake 2012 www.ilgiornale.it/

La Rochelle's 15th c. City Hall devastated by fire. France, 2013. (The History Blog ©)

Temple of Bel – Palmyra (Syria) 2014 vs 2016. (Getty Images ©)

# OBJECTIVES

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;

Mapping the existing strategies in all 28 MS for **disaster risk management of cultural heritage**, with a focus on existing competence centres and tools;

Putting forward recommendations on possible **measures to improve the risk management** of cultural heritage at European level.


Contributing to the development of good practices on the integration of cultural heritage in the national disasters risk reduction strategies to be developed by EU MS - one of the implementation priorities of the Action Plan on the Sendai Framework

# Sendai Framework for Disasters Risk Reduction, 2015-2030


Adopted by United Nations Member States in March 2015: is the basis for a *disasters risk–informed approach* to policy-making, offering a **coherent agenda** across different EU policies to strengthen resilience to risks and shocks and supporting the EU priorities of investment, competitiveness, research and innovation.

There is **need for focused action within and across sectors** by States at local, national, regional and global levels in the following four priority areas:

# Sendai Framework for Disasters Risk Reduction, 2015-2030

- Priority 1: Understanding disaster risk

KNOWLEDGE

National and local levels:

*Paragraph 24(d) .....*understand .....cultural heritage impacts, in the context of event-specific hazard-exposure and vulnerability information.

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

- Priority 3: Investing in disaster risk reduction for resilience

PUBLIC/PRIVATE STRUCTURAL/NON MEASURES

National and local levels:

*Paragraph 30 (d)* To protect or support the protection of cultural and collecting institutions and other sites of historical, cultural heritage and religious interest;

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

# Action Plan on Sendai Framework

*Key policies and practices contributing to the implementation of*

**Priority 3:** Investment for resilience – cultural heritage restoration

**Priority 4**: Protection of cultural heritage - This Study-H2020 calls to mitigate impact on CH

| **Key Area 4 - Supporting the development of a holistic disaster risk management approach** (Sendai Priority 4 "Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation and reconstruction") | | | | |
|---|---|---|---|---|
| **IMPLEMENTATION PRIORITY** | **ACTIVITY** | **TIME-FRAME** | **OUTPUT** | **SENDAI TARGET** |
| **17.** Develop good practices on the integration of **cultural heritage in the national disaster risk reduction strategies** to be developed by EU Member States | **17.1** Ensure exchange of information among Member States on existing strategies and practices for risk assessment and prevention for safeguarding cultural heritage from natural and man-made disasters in the framework of the European Agenda for Culture, also drawing on EU-funded research projects | 2016 - 2020 | Increased consideration of cultural heritage safeguarding in the national disaster risk reduction strategies | (e), (g) |

| Targets | | | | | | |
|---|---|---|---|---|---|---|
| Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality between 2020-2030 compared to 2005-2015 | Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 between 2020-2030 compared to 2005-2015 | Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030 | Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030 | Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020 | Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of this framework by 2030 | Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to people by 2030 |

## Organization of Work and Resources

| Team Member | Legal Entity | Main expertise in the field of cultural heritage | Countries under Responsibility |
|---|---|---|---|
| **Alessandra Bonazza** (Leader of the group) | Italian National Research Council, Institute of Atmospheric Sciences and Climate (**CNR-ISAC**) | Climate change<br>Air pollution<br>Volcanic eruption<br>Environmental degradation | Spain, Portugal, Malta<br>**Italy** |
| Cristina Sabbioni | Italian National Research Council, Institute of Atmospheric Sciences and Climate (**CNR-ISAC**) | Climate change<br>Air pollution<br>Anthropic pressure | France, Croatia, Luxembourg |
| Miloš Drdácký | Institute of Theoretical and Applied Mechanics of the Academy of Sciences Czech Republic (**ITAM**) | Flood<br>Wind<br>Landslide<br>Earthquake | **Czech Republic**, Poland, Slovakia, Baltic states, Hungary, Romania |
| Christian Hanus | Danube University Krems (**DUK**) | Armed conflicts<br>Earthquake | **Austria**, Slovenia, Germany, Belgium, The Netherlands, Denmark |
| Ingval Maxwell | Officially retired in 2008. Engaged in wide range of voluntary and related conservation activities | Fire Conservation<br>Risk Management | **United Kingdom**, Ireland, Finland, Sweden, Norway, Iceland |
| Elisabeth Vintzileou | National Technical University of Athens, Faculty of Civil Engineering (**NTUA**) | Seismic risks | **Greece**, Cyprus, Bulgaria |

**Skills and expertise of the team members in the field of natural and man-made disasters impact on cultural heritage.**

## Task 1 – Literature review and existing initiatives at EU and international level

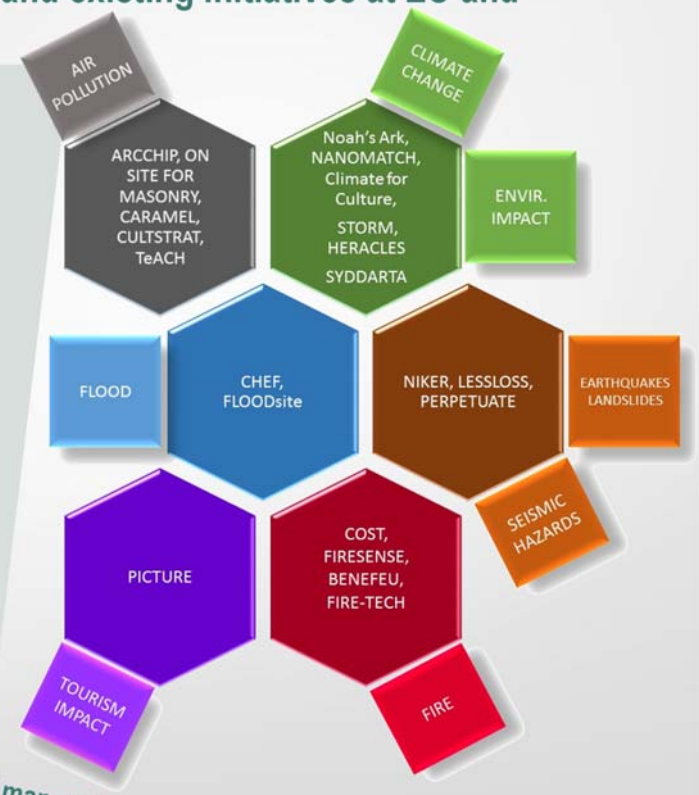

***Tangible heritage assets – monumental complexes, archaeological sites and cultural landscapes in remote/urban/coastal areas***

***Climate change, air pollution and environmental degradation, flood, Landslide, earthquake, volcanic eruption, fire, armed conflicts***

**Main criteria driving the selection of relevant studies and initiatives to be reviewed**

## Task 1 – Literature review and existing initiatives at EU and international level

Initiatives, research and innovation projects performed at international, European and national level have been the primary scientific reference of the study. Focus on Cultural Heritage, but also many other projects related to effects of natural disasters and of threats caused by human action.




Selection of EU-funded projects on natural and man-made disasters relevant to the study in object

## Task 1 - Literature review and existing initiatives at EU and international level

### Work progress and achievements during the period

*The approach adopted aimed at the realization of a state of art concerning the following issues:*

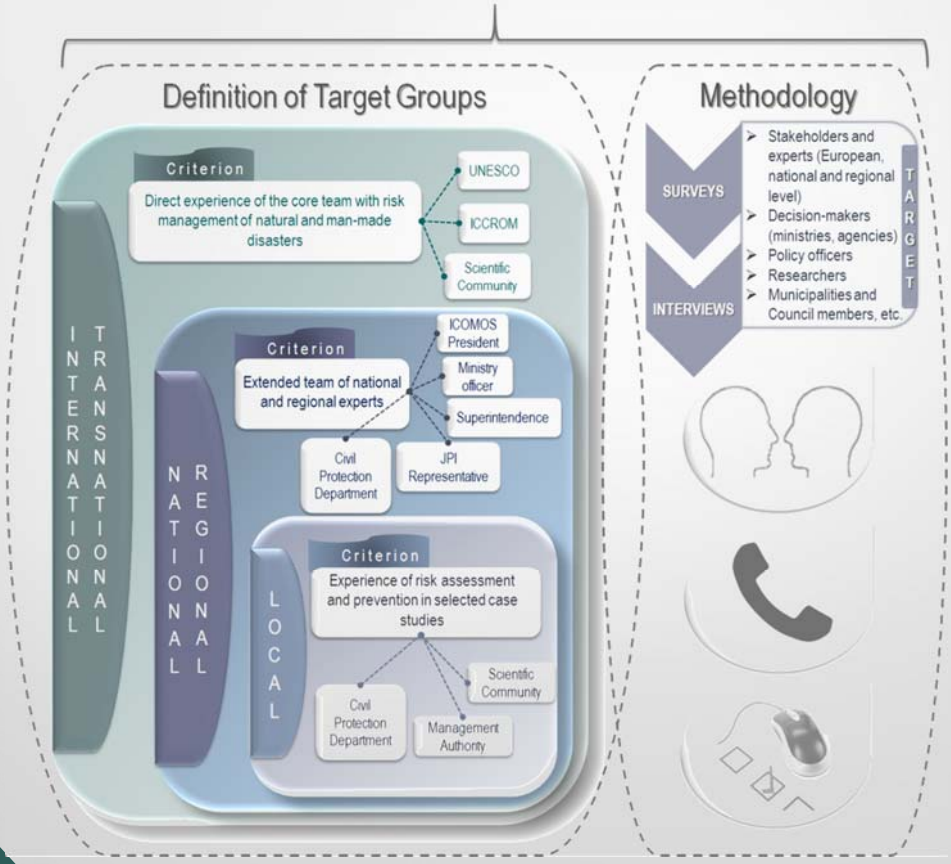
1) Assessment of the impact of natural and man-made disasters on cultural heritage;

2) Monitoring and early warning system of natural and man-made disasters;

3) Resilience strengthening and risk management;

4) Training and dissemination actions.

# Task 2 – Mapping (surveys and interviews)




# Task 2 – Mapping (surveys and interviews) – Local level

L'Aquila, 2009

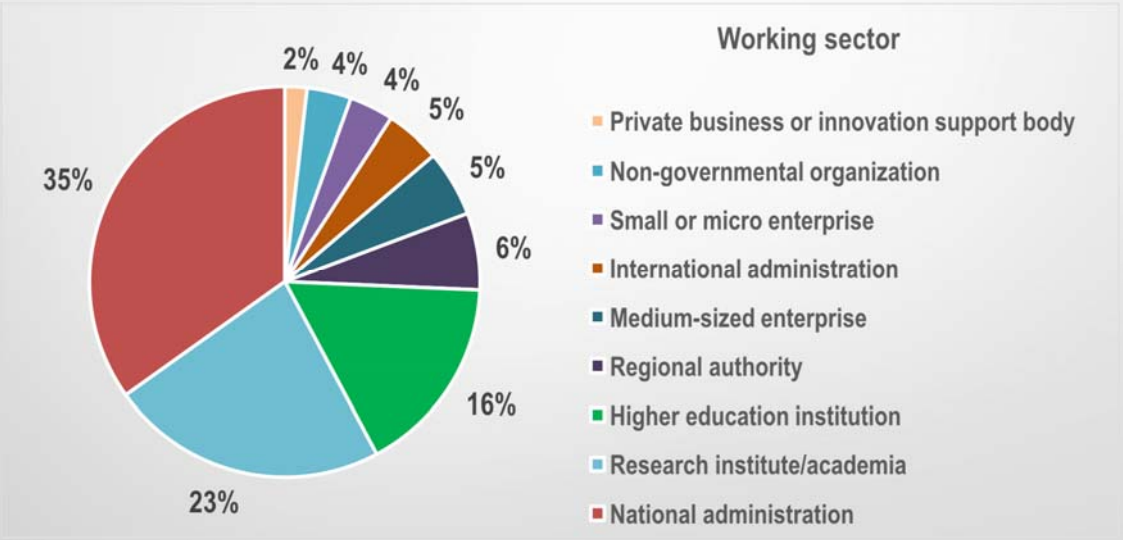
Municipal District Praha –Troja, 2002

Piazza dei Miracoli, Pisa

Mnajdra Temple, Malta

## Task 2 – Mapping (surveys and interviews)

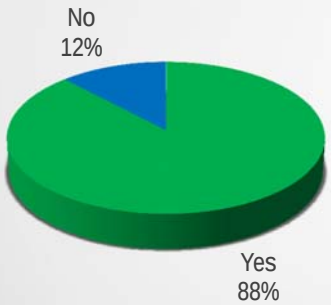
Experts Interviewed (302 contacted/109 responses)




## SURVEY – National strategies and risks addressed for safeguarding cultural heritage

Preparedness measures

91/109; 83%



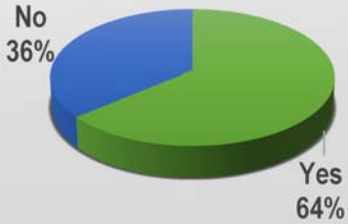

***Flood***
***Fire***
***Earthquake***

Emergency plans

87/109, 80%

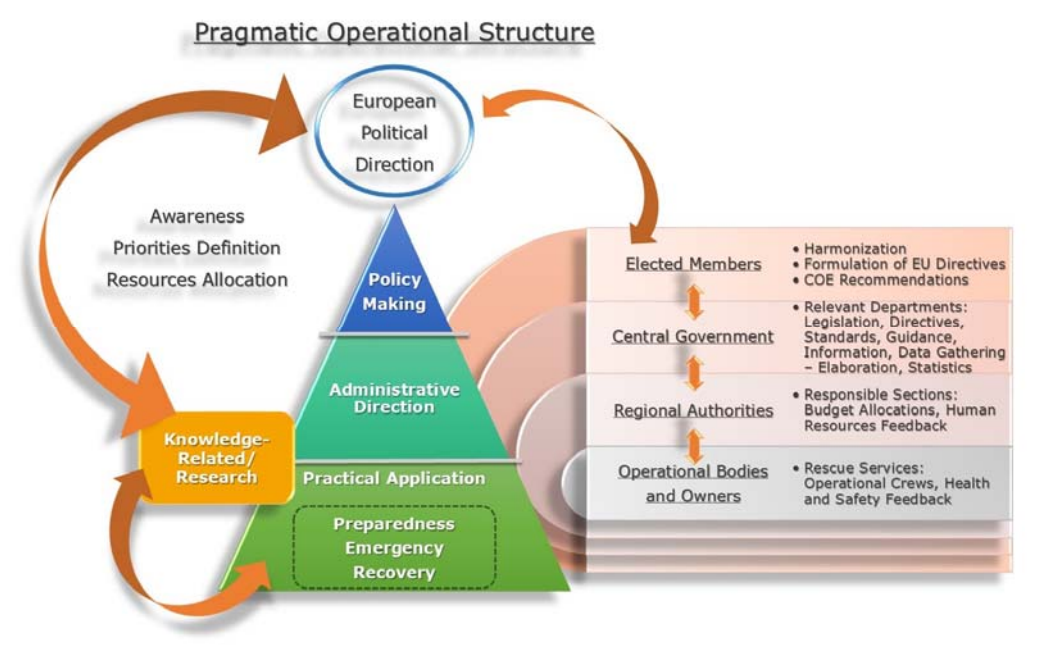

Recovery measures

83/109; 76%




***No specific examples were indicated***

# Task 3 – Lessons Learnt and Recommendations




The lack of alignment in the process from the policy making to practical application

# Climate Change / Air Pollution

- **Implementation of monitoring** approach for correlating damage with climate/pollution and their changes
- Improvement of **damage functions** for producing future scenarios (quantitative evaluation, indicators etc.)
- Development **multi-risk scenarios for complex systems**, i.e. urban centres, archaeological sites. Existing **model downscaling** in space and time scenarios mostly referred to materials.
- Increase/Implementation of **early warning specifically addresses to CH safeguard** (encouragement of citizens involvement)
- Definition of **long-term view measures and strategies**
- Enhancing **preparedness.** Measures are mainly based on response to emergency situations