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POLICY BRIEF WITH RECOMMENDATIONS ON ENVIRONMENTAL IMPACT FOR POLICY MAKERS

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Based on the underlying understanding of cultural heritage as a potential contributor and resource for sustainable development and considering the lack of shared standards for the holistic impact assessment, the Horizon 2020 project 'SoPHIA – Social Platform for Holistic Heritage Impact Assessment' has sought to open the debate on the holistic assessment of cultural heritage interventions, to build consensus on it, to support the European Commission in the definition of guidelines for the next generations of funds for cultural heritage and to support stakeholders in cultural heritage in assessing the impact of their interventions, in view of the sustainability and resilience of cultural heritage.

The SoPHIA policy briefs represent research work focused on specific policies and problems policymakers and implementers face within this framework. Their purpose is to convince policymakers to change the direction of a particular policy by changing their perception. For this to happen, the policy briefs aim to accurately present the problems that policy is facing as well as to propose a solution to these problems by providing clear recommendations to policymakers.

Introduction

The scope and aim of the Policy brief theme

The SoPHIA model to assess the impact of CH interventions is based on three axes: Domains,¹ People, Time. Sustainability and resilience are both linked to the multifaceted aspects of the concept of impact (domains), to the complex interactions and interdependencies between resources and stakeholders (people) and to the balance between current needs and the legacy towards the next generations (time). The Domain axis, concerning cultural, social, economic, and environmental impacts, refers to 6 themes and 28 sub-themes.

This Policy Brief focuses on environmental impact of CH interventions. On the one hand, the SoPHIA model clearly shows that the approach to CH cannot be detached anymore from issues related to Disaster Risk Management and Protection of CH, to Environment and Climate Change; on the other hand, these three aspects are tackled separately at EU level, making it difficult to connect them in policy terms. This policy brief aims to bring forward important issues and strategies that stem from the intersection of both the cultural heritage and the environmental policy domains. Given that environmental policies encompass both natural and cultural heritage (Nypan, 2007) and that there is increasing recognition of strong interconnections between natural and cultural assets and of the need for their integrated management, especially in the context of Natura 2000,² and considering that CH sites include not only cultural but also natural ecosystems, it becomes clear that the protection of natural and cultural heritage should become an integral part of any active environmental action plan and vice versa. Therefore, among the 6 themes analysed by the SoPHIA model, “Protection” (which includes the sub-themes Safeguarding against environmental risks, Safeguarding against human risks, Green Management & Development, Use of Resources) is the more related to the core of this policy brief.

At the European level, bigger opportunities for interventions could be found by looking at CH through environmental policies. On the one hand, more synergies between the two different policy areas could effectively assist policymakers in providing, sorting out priorities and taking action towards dual emergencies. On the other hand, the EU policy indications on

¹ The four domains for SOPHIA are widely accepted for the four pillars for sustainable development: Cultural, Environmental, Social, Economic.

² It is the largest coordinated network of protected areas in globally, aiming to ensure the long-term survival of Europe's most valuable and threatened species and habitats (https://ec.europa.eu/environment/nature/natura2000/management/links_natural_cultural_heritage_en.htm).

Environment and Climate Change, which refer to two different DGs, could make the approach to CH Protection, which is the focus of SoPHIA, quite difficult or somehow conflicting.

Legislative and Strategic Framework and Related Initiatives

While policy areas regarding CH and the environment³ have mostly developed separately, important interconnections have been drawn during recent legislative and strategic output. The SoPHIA project has identified four broad themes, under which their link can become apparent: safeguarding against environmental risks, safeguarding against human-related risks, green management and development and uses of resources.

Safeguarding CH against environmental risks mainly refers to the relation between CH and the side effects of climate change, such as extreme weather conditions including torrential rains and flooding, erosion, rising sea levels, extreme rise or drop in temperatures, as well as the endangerment of biodiversity. At an international level, it is important to mention one of the first conferences connected to this stream, the United Nations **Conference on Environment and Development** in Rio de Janeiro (1992), which updated the agenda for international environmental action with three major treaties addressing: climate change, biological diversity, and desertification, as well as the Agenda 21, an extended blueprint on sustainable development (Hunter, 2021).

UNESCO has been at the forefront of exploring and managing the impacts of climate change on cultural heritage, in particular on World Heritage Sites⁴, producing several reports, policy documents and practical guides, and building the capacity of site managers so as to be better qualified and able to deal with climate change-related aspects.

ICOMOS also plays an important role in the integration of these different topics: on the one hand, through its Heritage@Risk Reports, it issues annual invitations to ICOMOS committees to identify threatened heritage sites; on the other one, it builds bridges between heritage, environment and climate policies with documents such as **The Future of Our Past** in 2019,⁵ which highlights a number of ways in which the core considerations of cultural heritage intersect with the objectives of the Paris Agreement, or the **European Quality Principles for EU-funded Interventions with potential impact upon CH** in 2021⁶ which stresses that key quality principles in heritage conservation, such as the principles of prevention and precaution, and “the polluter pays” principle, are shared with the environment sector. The G20 Culture Ministers at their first meeting in Rome recognised the need to enshrine climate action more firmly within cultural policies and ensure a more robust anchoring of culture

³ It is important to refer to the International Environmental Law (IEL), the 1972 UN International Conference on Human Environment in Stockholm for the environmental policy area. For the CH policy area, it is important to refer to the UNESCO’s Convention Concerning the Protection of the World Cultural and Natural Heritage and the Recommendation concerning the Protection, at the National Level, of Cultural and Natural Heritage.

⁴ <https://whc.unesco.org/en/climatechange/>

⁵ <https://openarchive.icomos.org/id/eprint/2459/>

⁶ <http://openarchive.icomos.org/id/eprint/2436/>

within the UNFCCC and other global endeavours on climate action in national policies and plans.⁷

Key interconnections between climate change and CH were showcased in a dozen of events at COP26 in Glasgow by the **Climate Heritage Network (CHN)**,⁸ which is a global network of arts, culture, and heritage organisations active in mobilising the sector and helping communities tackle climate change. The CHN launched the **Manifesto Culture at COP - Accelerating Climate Action through the Power of Arts, Culture and Heritage** to promote cross information and broadly connect the perspectives of culture actors to the political and policy agendas at the COP⁹.

Finally, UNESCO, ICOMOS and IPCC joined forces under the **Co-Sponsored Meeting on Culture, Heritage and Climate Change**, held in December 2021¹⁰, bringing together scientists and experts to explore linkages between culture and heritage, climate science and climate action; a true milestone in connecting heritage and climate policymaking.

In terms of international networks, it is worth mentioning the **World Organisation of United Cities and Local Governments**,¹¹ a global network that focuses on enhancing all local and regional governments inclusively towards achieving SDGs,

At the European level, the Council of Europe (CoE) positions CH within its scope for democratic governance, helping European states develop institutional and administrative frameworks for sustaining updated heritage policies (Guštin & Nypan, 2010). The **European Landscape Convention** (Council of Europe, 2001) considers Landscape a key element of individual and social well-being and highlights that its protection, management and planning entail rights and responsibilities for everyone. Another important document was the Council of Europe **Framework Convention on the Value of Cultural Heritage for Society** (Council of Europe, 2005), which links cultural heritage with society and the communities that produce, preserve, and manage it, emphasising the value of cultural heritage as a factor in sustainable development. On the same stream, the 2008 CoE's report on the **Vulnerability of cultural heritage to climate change** (Council of Europe, 2008) referred to a wide spectrum of climate change-related phenomena that impact heritage and the nature of future research work on climate change and CH.

As far as the European Commission is concerned, its first **Sustainable Development Strategy** (SDS) dates back to 2001.¹² The SDS initially promoted job openings with an environmental

⁷ <http://www.g20.utoronto.ca/2021/210730-culture.html>

⁸ <https://cop26communique.org/climate-heritage-network/>

⁹ <https://www.heritageresearch-hub.eu/sign-the-culture-at-cop-manifesto/#:~:text=That%20is%20the%20goal%20behind%20%E2%80%98%20Accelerating%20Climate,of%201.5%C2%B0%20Alive%20and%20pursuing%20a%20resilient%20world.>

¹⁰ <https://www.ipcc.ch/event/ipcc-icomos-unesco-co-sponsored-meeting-on-culture-heritage-and-climate-science/>

¹¹ <https://www.uclg.org/>

¹² <https://ec.europa.eu/environment/archives/eussd/index.htm>

dimension, while its later revision connected sustainable development with quality of life, prosperity, social cohesion, and environmental protection. Based on these earlier efforts, the EU recognised the need to ‘rethink policies for clean energy supply across the economy, industry, production and consumption, large-scale infrastructure, transport, food and agriculture, construction, taxation and social benefits’ (Kurrer, 2021).

In recent years, and responding to the 2030 Agenda for Sustainable Development adopted at the United Nations General Assembly in September 2015, the Commission published a communication entitled **Next steps for a sustainable European future – European action for sustainability** (European Commission, 2016), outlining how to integrate the Sustainable Development Goals (SDGs) into EU policy priorities. Additionally, the Commission presented a reflection paper on sustainable development goals in 2019 entitled **Towards a Sustainable Europe by 2030** (European Commission, 2019), which puts forward three scenarios for the future. The European Parliament has expressed its support for the scenario that goes the furthest, which proposes guiding all EU and Member State actions by defining specific SDGs implementation targets, proposing concrete deliverables for 2030, and establishing a mechanism of reporting and monitoring of SDGs progress.

Within the framework of **Work Plan for Culture 2015-2018**, the Commission requested a comparative analysis of risk management in the EU, published under the title **Safeguarding Cultural Heritage from Natural and Man-Made Disasters** (European Commission, 2018). This document refers to both natural hazards and anthropogenic effects that currently or potentially threaten heritage of great value. Moreover, in the framework of the **Work Plan for Culture 2019-2022**, following the OMC-Open Method of Coordination approach, experts are currently working on the topic of adaptation to climate change, identifying and exchanging good practices and innovative measures for the historic environment, as well as the potential of adaptation within the scope of the Paris Agreement (2015) and UN Sustainable Development Goal 13 on climate action (OMC, 2021).

The European Year of Cultural Heritage (2018) aimed to enhance access to culture and public involvement. It kick-started ten long term European initiatives to foster an integrated approach on matters of education, heritage at risk, adaptive reuse, and illicit trafficking. It also fostered reflections that have converged in the creation of Europe’s cultural and natural heritage in the Natura 2000 network, whose aim is to halt and reverse the loss of biodiversity in Europe, offering opportunities for tourism, recreation, as well as spiritual reflection in a healthy environment, incorporating related cultures and lifestyles¹³.

The most important feature of EU policies concerning Environment and Climate Change is the **European Green Deal**,¹⁴ an ambitious package of measures ranging from ambitiously cutting greenhouse gas emissions, to investing in cutting-edge research and innovation, to preserving

¹³ See footnote 1.

¹⁴ https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

Europe's natural environment.¹⁵ At an international level, the EU continues to lead international negotiations to increase the ambition of major emitters.

Several European projects also touch upon the urgency of Climate Change. A milestone in European CH research was marked with **Noah's Ark** (2003-2007)¹⁶, a project that focused on the global climate change impact on built heritage and cultural landscapes. The output of the project was, amongst others, the creation of a *vulnerability Atlas*¹⁷ for Europe that included climate maps, heritage maps, damage maps, risk maps and thematic maps, as well as management guidelines towards policymakers and heritage managers. Similarly, the project **Climate for Culture** (2009-2014)¹⁸ aims in identifying and estimating current and potential damages in cultural heritage to encourage strategies for mitigation or reversion of impact.

An additional important practice in sustainable management of CH refers to the manner in which its resources are sourced, utilised, and then discarded or updated. For example, sustainable reconstruction of CH resources such as buildings and historic areas is funded under the **Hyperion project**¹⁹, which offers a faster, adapted, more efficient and sustainable reconstruction of the historic built environment. In a similar mindset, the EU Horizon 2020 funded project, **Buildings as Material Banks**²⁰, is strategising on how to design dynamic and flexible buildings that can be incorporated into a circular economy while the CLIC project applies the circular economy principles to CH adaptive reuse towards an environmentally, socially, culturally, and economically sustainable urban/territorial development.

The EU also supports networks and civil society organisations related to cultural heritage, such as Europa Nostra, which includes environmental considerations in awarding the **European Heritage Awards/Europa Nostra Awards**.

ICOMOS and Europa Nostra, with the 2021 **European Cultural Heritage Green Paper**²¹, have argued for a strong interrelation between cultural heritage and the environment, in line with the objectives of the 'Green Deal'. The document correlates CH aspects to various key areas of the 'Green Deal' and provides a set of concrete recommendations on how Europe's rich and diverse CH can assist with climate change mitigation and adaptation.

¹⁵ https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

¹⁶ <https://www.ucl.ac.uk/bartlett/heritage/research/projects/project-archive/noahs-ark-project>

¹⁷ The Atlas, which underpins current EU policy on sustainable development, climate change and cultural heritage, is titled 'The Atlas of Climate Change Impact on European Cultural Heritage Scientific Analysis and Management Strategies', edited by C. Sabbioni, P. Brimblecombe and M. Cassar

¹⁸ <https://www.climateforculture.eu/>

¹⁹ <https://www.hyperion-project.eu/>

²⁰ <https://www.bamb2020.eu/>

²¹ https://issuu.com/europanostra/docs/20210322-european_cultural_heritage_green_paper_fu

Evidence and analysis

As the planet is entering the era of the Anthropocene, the impact of human activity is evident on multiple environmental levels.²² From climate change to problems in natural resources and the extinction of wildlife, human presence is causing a variety of new conditions in the biosphere. The latest **Intergovernmental Panel on Climate Change** report (2021) regarding the catastrophic effects of climate change on the planet is alarming. 2021 has been a year with record high temperatures, resulting in wildfires that destroyed vast forest land in Southern Europe and extreme floods in Central Europe. Clear evidence exists that cultural heritage sites have been threatened by wildfires and floods due to climate change, and by armed conflicts around the world. In the summer of 2021 alone, while the ancient site of Olympia in Greece was threatened by fires, in central Europe, museums, archives, galleries, churches, and other institutions were threatened by floods (Aktuell & Aktuell, 2021; Mills, 2021; Deutsche Welle, 2021). It becomes imperative to focus on strategies that incorporate sustainability, resilience and green management as overarching principles that should guide interventions in cultural heritage, fostering transformational strategies and new approaches in the CH sector.

²² The term “Anthropocene” has been proposed to name the current geological era in planetary history, where the impact of human activity is so intense and pervasive that it could ultimately render the planet inhospitable to humans (Biermann et al., 2010).

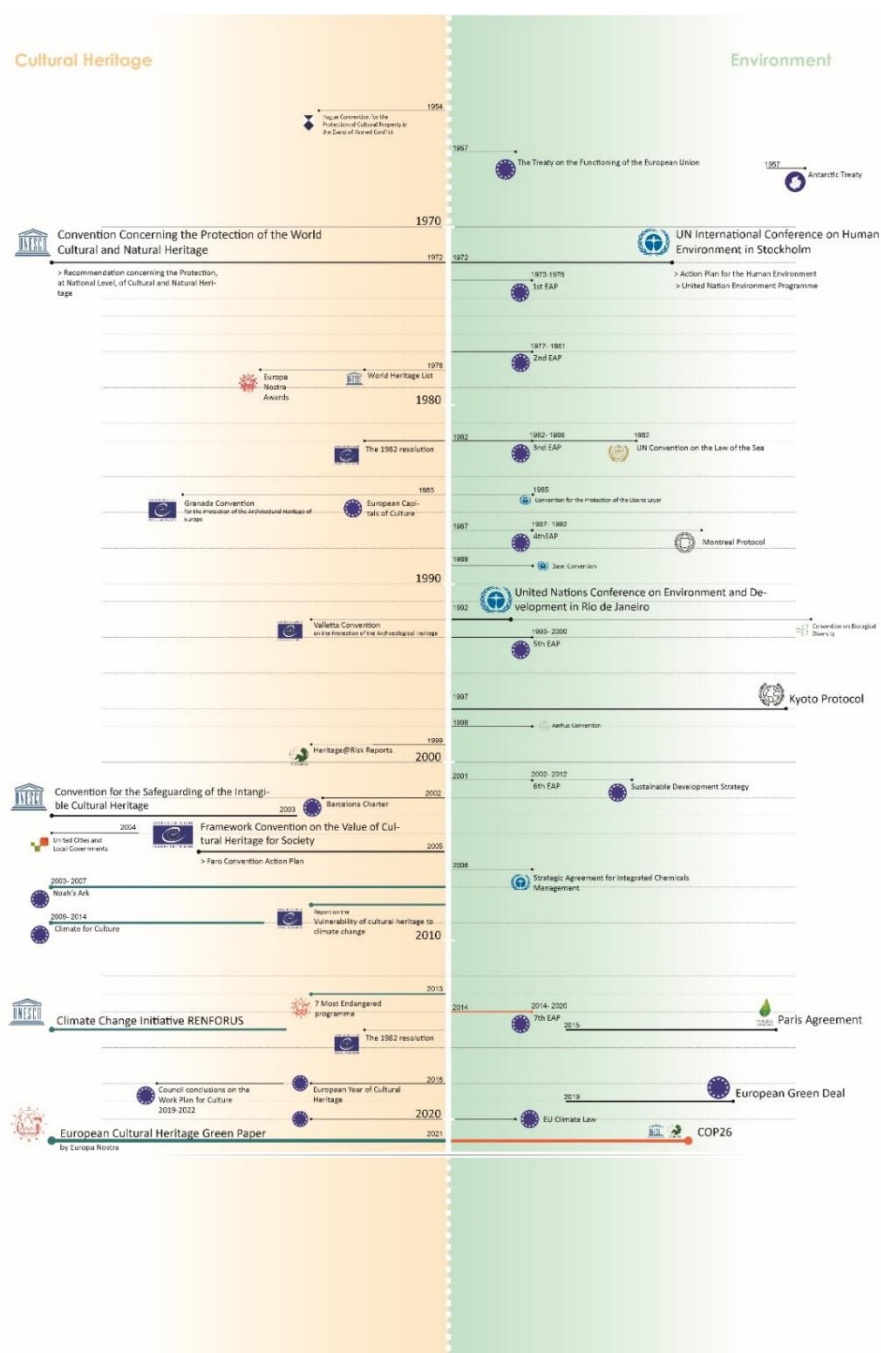


Figure 1. Timeline of the major milestones in CH, and Environment and Climate change policies and legislation

Overview of policy implementation in the EU

Since 1973, the Commission has issued multiannual Environment Action Programmes (EAPs),²³ setting out forthcoming legislative proposals and goals for EU environment policy. In late 2020, the Commission tabled its proposal for the 8th EAP, which should run from 2021 to 2030. It reiterates the EU's commitment to the 7th EAP's vision for 2050: ensuring well-being for all while staying within planetary boundaries. The new programme endorses and builds on the environmental and climate objectives of the above-mentioned European Green Deal.

The implementation of the EU environmental legislation is being closely monitored by the Commission, which operates through the DG for Environment and the DG for Climate Action²⁴. The Member States are responsible for reporting on the enforcement action at a national level, while the Commission acts in the capacity of the "Guardian of the Treaty," monitoring over 200 legal acts. Tackling issues on implementation, cooperation between the EU organs and the national, regional, and local administrations is fostered by the **Technical Platform for Cooperation on the Environment**²⁵. The forum is set up to initiate a constructive dialogue that assists with implementation issues, resolves disputes, and further develops existing practices.²⁶

Complementing the above, the **Institute of European Environmental Policy** (IEEP), consisting of EU policy experts, academics, and scientists, through its research, provides policy insights, recommendations, and general feedback to the EU organs, highlighting gaps and proposing solutions towards "advancing impact driven sustainability policy across the EU and the world"²⁷. Given the difficulty to monitor such a complex and wide area of policies, in cases where a state member is not adequately implementing EU environmental obligations, citizens have the right to gather information and file a complaint to the European Commission, kick-starting an investigation on the matter.²⁸ While an EU-issued legal framework regarding environmental protection, circular economy and green management is legally binding and clearly defined by the organs of the EU²⁹, a binding legislative framework addressing cultural

²³ <https://ec.europa.eu/environment/action-programme/#:~:text=The%207th%20Environment%20Action%20Programme%20%28EAP%29%20will%20be,w e%20live%20well%2C%20within%20the%20planet%E2%80%99s%20ecological%20limits.>

²⁴ Implementation of Community environmental legislation. (https://ec.europa.eu/environment/legal/implementation_en.htm)

²⁵ Technical Platform for Cooperation on the Environment, DG Environment and the European Committee of the Regions.

²⁶ Complementary to that, the Environmental Implementation Review (EIR) also aims towards improving the implementation of the EU environmental law, defining and addressing gaps in the process.

²⁷ The Institute for European Environmental Policy is a sustainability think tank. (<https://ieep.eu/about-us>)

²⁸ How EU environment law works, Commission site (https://ec.europa.eu/environment/basics/benefits-law/eu-environment-law/index_en.htm) One example of this process being carried out to the point of conviction is the case against the Hellenic Republic for not establishing appropriate conservation objectives within the prescribed periods in relation to the 239 Sites of Community Importance which are on Greek territory.

²⁹ As far as EU environmental laws and their implementation on a national level are concerned, the current legal system fosters two types of legislation. On the one hand, some laws and regulations apply universally to EU

heritage cannot be issued. That means that while the EU is issuing cultural heritage related legislation in the form of directives, it is up to the judgement of each member state on how to integrate them in their national plan. Finally, it has to be noted that it is precisely at the intersection of the CH and the environmental legislative sectors where there is a chance to get implementation feedback concerning CH. When a CH related issue is topped by environmental factors, addressing the subsequent risks becomes ever more urgent³⁰.

Main problems

- **Problems in policy/legislation implementation**

Several gaps in both environmental and cultural heritage legislation implementation may be identified. One of the most detrimental issues is **the inadequacy of the attempts to merge policies addressing CH and the Environment and Climate Change**. Fragmentation and narrowness of technical solutions tailored for a particular problem undermine the process towards achieving sustainability and resilience in both sectors' output. Procedural, brief, not inclusive or participative Environmental Impact Assessment processes (EIA) and Heritage Impact Assessment (HIA) processes ignore critical non-quantitative issues, such as the sense of belonging, aesthetics, and collective memory.

Several other procedural and coherence-related issues additionally burden the performance of policy production and implementation. Firstly, **unclear and fragmented responsibilities** result in agreements limited by the consensus that has to be established among the main actors. Secondly, **a lack of clear and concrete quantitative and qualitative targets** may compromise the policy effectiveness. In environmental legislation, gaps and shortcomings are not always easy to identify and resolve as the environmental policy areas "differ with respect to the concreteness of the environmental targets they aim to achieve" (Cowi & Eunomia Research & Consulting, 2019). Finally, **lengthy processes can render policies obsolete**. In most policies and strategies connected to environmental issues, the targets are to be met over a period often amounting to decades, rendering the policy obsolete by then. Moreover, the different pace in how environmental and cultural heritage issues are dealt with causes asynchronous development and widens the gap between the two. Additionally, **CH issues are often being overshadowed by pressing environmental (or other local) issues, with the**

territory, and on the other hand, some directives have to be converted into national laws. In cases where a member state does not implement the law, legal action presents the last resort and follows a protocol of actions before ending up being resolved in the EU Court of Justice in Luxembourg.

³⁰ In the case of the "Sea Diamond" shipwreck in the Santorinian caldera, a variety of heavy metals will either be released in seawater or precipitate in the form of salts resulting in contamination of the sea sediments (Dimitrakakis et al., 2014). While the caldera around the wreck is a cultural landscape, the hoisting of the wreck falls under the environmentally-based arguments on toxicity and pollution.

Additionally, In the case of Sanctuary of the Egyptian Gods, Nea Makri (Brexiza), the archaeological site coexists with a biotope that has suffered from poor waste management that has altered the natural landscape.

urgency generated by climate change distracting our attention from policy implementation regarding CH in the regional or local context. This also connects with the fact that the potential that CH has in addressing pressing environmental issues is undervalued. It is often to oversee how CH can work as an indicator for measuring the impact of climate change, thus enhancing the effort against environmental dangers; how CH is inseparable from indigenous local knowledge and practices of communities to connect with their environment; as well as how CH itself can be part of the environmental damage through over-tourism and non-sustainable travelling. Parallel to that, **CH policies at the EU level are not always firm in their implementation** and are usually limited to encouraging initiatives that mostly connect to funding. When implementation does take place, there is a lack of monitoring mechanisms that would assess the outcomes over time and a lack of common preservation standards from a technical and scientific climate-related point of view. The perception of damages and threats and solutions is still very locally oriented: there is a lack of a wider strategy that can assess the overall equilibrium. Another important aspect is the approach to the adverse effects of climate change on tangible and intangible cultural heritage. While there are several tools to regulate the effects on physical CH, **the effects of climate change on less tangible cultural heritage**, such as the loss of oral tradition and languages and the endangerment of cultural practices of vulnerable communities, have been receiving less attention (Kim, 2011). Finally, it is important to underline that **human rights are usually seen as a discourse related only to the social domain, often ignoring connection to CH and the environmental sector**. Nevertheless, the human rights approach to climate change mitigation, in the scope of cultural heritage, is very important on the level of access to cultural heritage since it pertains to the local knowledge that has been recognised as one of the vital components in combating climate change.

- **Policy related issues for society at large**

The general public also reflects the broken link between the CH and the environment. Citizens and society are often presented with a **false dilemma between cultural heritage conservation and the imperatives stemming from the need for green management** regarding climate change and resilience. This is also amplified by the **lack of socially grounded and culturally driven evaluation of the environmentally responsible action in cultural heritage** or the measured effects (tangible and intangible) of the environmental action on cultural heritage that are based on the principles of holism and followed with long-term perspectives. Additionally, **lack of transparency, lack of proper consultation of society** and all stakeholders involved, and **lack of proper communication of the procedures** around the issued policies lead to a generally disengaged public that is unable to react to any of the policy-related processes.

However, paradoxically enough, **in cases of neglect, when poor implementation or a violation of EU Environmental Directives results in fines for the country**, the cost ends up

being absorbed by the people and the public budget at the expense of the citizens.³¹ The “polluter pays” principle³² is linked with the *Environmental Liability Directive*, which aims to prevent the loss and protect species, habitats and resources.³³ Finally, an issue that requires a wider outlook is the **inequality in the position and operation of polluting and hazardous industries**. The process of relocation of polluting and hazardous industries has been in favour of the so-called developed parts of the world. Less developed countries have been undertaking the bigger part of polluting industries’ operations: issues of cultural equality and national cultural and creative industry protection arise.

Good practices

Among the EU Member States, Germany has been taking important steps towards establishing better interconnections between CH and the environment. Being an industrial country with a high population density, extended agricultural activity and significant reliance on fossil fuels, multiple challenges related to sustainability need to be addressed. Since 1994, Germany has put environmental protection in its core Constitution, as well as the regional constitutions of its 16 states. The country’s environmental law is influenced by the EU environmental strategies and assessment tools. Considering all the environmental pressures, Germany has been meeting many of its national goals and international commitments³⁴. Although Germany is a driving force in international climate policy, there are increasing worries that the country may not be able to deliver its emission-reduction targets, thus weakening its credibility in climate negotiations; furthermore, recent legislative issues might have an impact on the country’s climate policy.³⁵ However, the 2019 climate policy, a quite ambitious plan on emission reduction goals, sets a new pace for environmental action, re-establishing Germany as a countable negotiation partner.³⁶

A case where environment and cultural heritage came together in Germany under the same context was the international expert workshop organised in 2017 in cooperation with IUCN, ICOMOS, ICCROM and the UNESCO World Heritage Centre. The meeting brought together

³¹ The “polluter pays” principle is a European environmental policy to be invoked where it is determined, after scientific examination, that practice has harmful effects on human health or the environment.

³² In environmental law, the polluter pays principle is enacted to make the party responsible for producing pollution responsible for paying for the damage done to the natural environment. It is regarded as a regional custom because of the strong support it has received in most Organisation for Economic Co-operation and Development (OECD) and European Union countries. It is a fundamental principle in US environmental law.

³³ Environment policy: general principles and basic framework (<https://www.europarl.europa.eu/factsheets/en/sheet/71/environment-policy-general-principles-and-basic-framework>)

³⁴ More specifically, within the EU, Germany is the country with the most emission-reducing technologies in use that connect with industry, waste management, usage of heating fuel or low pollution cars (Weidner, 1995)

³⁵ <https://www.martenscentre.eu/wp-content/uploads/2021/11/Martens-Centre-Policy-Brief.pdf#:~:text=On%2024%20March%202021%20the%20German%20Federal%20Constitutional,German%20Climate%20Act%20ran%20contrary%20to%20the%20Constitution.>

³⁶ Sustainable Governance Indicators, Environmental Policies (https://www.sgi-network.org/2017/Germany/Environmental_Policies)

international experts on heritage and climate change to discuss the revision of the 2007 Policy Document and make recommendations to guide the updating process.³⁷

A specifically interesting case in German territory is that of Ruhrgebiet, the area around the Ruhr and Rhine rivers, synonymous with heavy industrialisation of concentrated mining, steel industries and a high population density since the end of the 19th century and throughout the 20th century. When industries started to close, the vast area of the Ruhrgebiet valley became bare brownfields. In the late '80s, it was common understanding that the area had to change completely. The revival, sanitation, and reuse of the natural environment and the industrial infrastructures presented Germany with a considerable challenge. For years, local authorities networked with private and public companies to create consensus and put large-scale projects in place, such as the Phoenix and Zollverein industrial complex projects. From "rust belt" towards green, the local government decided to carry out the IBA Emscher Park, a program for structural changes that lasted from 1989 to 1999 aiming to demonstrate new concepts in terms of social, cultural, and ecological ideas covering seven principles:

- Reconstruction of landscape – the Emscher Landscape Park
- Ecological restoration of the river Emscher system
- Rhein-Herne Canal – an adventure space
- Industrial cultural heritage as national treasure
- Working in the park
- New forms of houses and housing
- New options for social, cultural and sports activities

The IBA concept did not go unnoticed, as UNESCO passed a resolution that placed the **Zollverein Coal Mine Industrial Complex in Essen** - a mining facility that was about to be demolished- on the World Heritage List as a site-symbol of the industrial age.

In addition, the region now is focusing on renewable energy production and bottom-up energy production, with energy renovations in existing buildings being carried out faster than in any other German city.³⁸

It is important to note that *resilience* was the key driver behind the regeneration of the Ruhrgebiet. In 2010, Essen represented the cities of the Ruhrgebiet as European Cultural Capital, with over 200 museums and numerous cultural festivals, such as the *Ruhrtriennale*, the *Ruhr Piano Festival* and the *Ruhr Theatre Festival* opening the stage. The regeneration of the Ruhrgebiet was subject to extended consultations between the acting agencies and the citizens, not only to establish a broad consensus but also to build a shared vision for the future of the most polluted area of Germany. The strategies that took place in the Ruhr valley were

³⁷ UNESCO, Heritage experts meet to examine update of World Heritage policy on climate change (<https://whc.unesco.org/en/news/1736/>)

³⁸ Small Atlas Metropole Ruhr: The Ruhr Region in Transformation https://www.researchgate.net/publication/327097890_Small_Atlas_Metropole_Ruhr_The_Ruhr_Region_in_Transformation

extended and aimed to tie together the concepts of cultural heritage and sustainable development through large scale interventions.

Additional smaller-scale examples that combine natural and cultural values have been bolstered by the European Year of Cultural heritage within the framework of the Natura 2000 network (European Commission 2019 b). Among the many interesting cases, a couple of them can be representative:

- Meteora in Greece, a region of almost inaccessible sandstone peaks where monks decided to settle and build 24 monasteries on top of these ‘columns of the sky’ during the 11th century. The monasteries’ 16th-century frescoes mark a key stage in the development of post-Byzantine painting. The site is also important for a range of threatened habitat types (such as constantly flowing Mediterranean rivers, pseudo-steppe with grasses, and turkey oak-sessile forests). It is also home to rare bats and plant species and many birds of prey.
- The city of Matera in Italy is famous for its *Sassi* (literally “stones”), a peculiar system of dwellings and churches carved into the rock, inhabited since the Palaeolithic age. The city is a World Heritage Site and part of the Natura 2000 network. Thanks to integrated management planning, new standards have also been set in the construction regulations to ensure the use of raptor-friendly roof tiles and cavities in buildings,.

Policy implications and recommendations

An interconnection between the environmental and climate change front and CH could truly yield opportunities for a more effective, holistic management of contemporary topics, as strongly suggested by the SoPHIA model. Several legal and strategic instruments have been drafted addressing how CH and environmental policies can enhance one another. The EU has adopted promising strategies in both domains, having ratified all major international events while also leading strong programs of its own. However, it is equally important to foster the successful implementation of the above, ensuring that goals are met, transparency is kept, and public participation is encouraged. The identified issues, both in relation to the specific policy areas procedures, as well as to the broader societal context they affect, were used as a basis for the drafting of the following recommendations:

- **CH and the environment should be treated as inextricably linked**

ICOMOS (ICOMOS 2020) has clearly stated a link between CH and Environment; the SoPHIA model, in line with that document, included Environment as a subtheme of the “Quality of Life” theme. CH and the environment need to be treated as elements of a single ecosystem, leading to more efficient, cost-saving and long-lasting policies meaningful in both sectors. The inherent cultural values of landscapes must be considered as cultural heritage.

- **Recursive adjustment**

Mechanisms must be developed to include continuous maintenance, adjustable to the specific environmental situations in every intervention in CH. These mechanisms should be assessed and evaluated consistently through time, in a holistic way, taking into account the three axes proposed by the SoPHIA model (domains, people, time). Moreover, authorities should design preventive planning of various possible disasters (natural or man-made) and develop risk reduction and recovery mechanisms.

- **Act locally: CH and environmental policies to hit home**

CH management should be addressing strategies horizontally, equally including considerations for both tangible and intangible factors, as well as leaving room for adaptation to the specific needs of each state/region. Co-creation of strategies with various stakeholders from different sectors should be encouraged, as envisaged by the SoPHIA model when it refers to the fact that cultural interventions’ quality is also related to the engagement of different stakeholders.

- **Educate so as to safeguard**

Policies must contribute to the formal and non-formal education, awareness-raising, and capacity-building of the wider public and the CH specialists, that promotes the protection of the environment, as well as the tangible and intangible heritage, to improve human lives with a perspective that safeguards the well-being of the entire planet. Also, in this case, this is strictly connected with the role that Education has in the SoPHIA model.

- **Track, monitor, evaluate and share**

As suggested by SoPHIA, monitoring must be based on standardised and verifiable data, which is the product of thorough research that uses qualitative, quantitative, and mixed methodologies. Practical indices must be designed to track progress and develop monitoring mechanisms to evaluate progress and give feedback for recursive adjustments. The outcomes should be shared openly to promote social engagement and accountability and allow other specialists to start from the endpoint of the previous projects. Current policies must also be regularly re-assessed.

- **Allocate Funding**

Allocate dedicated funding for ongoing environmental and CH research, policymaking and implementation. Complimentarily, alternative incentives and motives for funding related targets should be developed beyond institutional or state sources.

- **Empower and safeguard human rights in relation to CH and the environment**

The human right of access to cultural heritage and preservation of local knowledge should be treated as vital in combating climate change. Resilience, sustainability and transformation of communities and the environment should remain at the heart of every intervention regarding climate change and cultural heritage.

Glossary of key terms

Sustainability originally refers generally to the capacity for Earth's biosphere and human civilisation to co-exist. It is defined through the interconnected environmental, economic, cultural, and social domains or pillars. Many proponents have argued that the idea of sustainability as balance and efficiency is not enough and that a whole-systems change is needed at all levels of society (Renger et al., 2015; 'Sustainability', 2021). The definition of sustainable development implicitly includes cultural heritage with environmental concerns as striving towards "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (UN Brundtland Commission, 1987), reminding us that cultural heritage is our inheritance from previous generations and our legacy for those to come.

Resilience is the capacity of an (eco)system to recover from perturbations. Climate resilience, in particular, is the adaptive capacity for a socio-ecological system to: (1) absorb stresses and maintain its functionality in the face of external stresses caused by climate change and (2) adapt, reorganise, and evolve into configurations that improve the sustainability of the system, leaving it better prepared for future climate change impacts (Folke, 2006; Nelson et al., 2007). Cultural resilience is defined as the capability of a cultural system to absorb adversity, deal with change, and continue to develop.

Resilience and sustainability, as two cross-domain principles, are also very relevant for the cultural context, as CH and the environment are, more often than not, intricately interwoven. This interconnectivity builds towards forming a holistic approach that more accurately encompasses the environmental, societal, and economic threats shaped around climate change for the environment, societies, and the economy (Cabuzel, 2020).

Green management is defined as practices that produce environmentally friendly products and minimise their impact on the environment through green production, green research and development and green marketing (Peng & Lin, 2008).

Circular economy focuses on the efficient transformation of materials through constant reuse and recycling in the production process, as opposed to a linear economy that leads to the exhaustion of natural resources. In the SoPHIA project, efforts were made to assess circular economy elements in CH interventions.

Reference list and further reading

Adger, W., Barnett, J., Brown, K., Marshall, N., & O'Brien, K. (2013). Cultural Dimensions of Climate Change Impacts and Adaptation. *Nature Climate Change*, 3, 112–117. <https://doi.org/10.1038/nclimate1666>

Aktuell, S. W. R. (2021, August 20). *Aufräumarbeiten an Friedhöfen im Kreis Ahrweiler*. <https://www.swr.de/swraktuell/rheinland-pfalz/koblenz/friedhof-bad-neuenahr-ahrweiler-flutkatastrophe-aufraeumarbeiten-100.html>

Biermann, F., Betsill, M. M., Vieira, S. C., Gupta, J., Kanie, N., Lebel, L., Liverman, D., Schroeder, H., Siebenhüner, B., Yanda, P. Z., & Zondervan, R. (2010). "Navigating the Anthropocene: The Earth System Governance Project Strategy Paper". *Current Opinion in Environmental Sustainability*, 2(3), 202–208. <https://doi.org/10.1016/j.cosust.2010.04.005>

Cabuzel, T. (2020, March 4). *European Climate Law. Climate Action - European Commission*. https://ec.europa.eu/clima/policies/eu-climate-action/law_en

Climate Heritage Network (2021), *Accelerating Climate Action through the Power of Arts, Culture and Heritage*, <https://climateheritage.org/manifesto-culture-at-cop/>

Council of Europe. (1985). *Convention for the Protection of the Architectural Heritage of Europe (Granada, 1985)*. Retrieved October 23 2021, from <https://www.coe.int/en/web/culture-and-heritage/granada-convention>

Council of Europe. (2001). *European Landscape Convention*, <https://rm.coe.int/CoERMPublicCommonSearchServices/DisplayDCTMContent?documentId=0900016806b06f8>

Council of Europe. (2005). *Council of Europe Framework Convention on the Value of Cultural Heritage for Society*, <https://rm.coe.int/1680083746>

Council of Europe. (2008). *Vulnerability of cultural heritage to climate change*, https://www.researchgate.net/publication/288707846_Vulnerability_of_cultural_heritage_to_climate_change

Council of the European Union. (2018). *Council conclusions on the Work Plan for Culture 2019-2022*. <https://data.consilium.europa.eu/doc/document/ST-14984-2018-INIT/en/pdf>

Cowi A/S, Eunomia Research & Consulting Ltd. (2019). *The costs of not implementing EU environmental law study: Final report*. Publications Office of the European Union. <https://data.europa.eu/doi/10.2779/192777>

Deutsche Welle, (2021, February 8). *Hochwasserschäden: Land unter in der Kultur*. <https://www.dw.com/de/hochwasser-sch%C3%A4den-kultur-kultureinrichtungen/a-58703589>

Dimitrakakis, E., Hahladakis, J., & Gidaracos, E. (2014). "The 'Sea Diamond' Shipwreck: Environmental Impact Assessment in the Water Column and Sediments of the Wreck Area."

International Journal of Science and Technology. 11: 1421-1432. <https://doi.org/10.1007/s13762-013-0331-z>

European Commission (2016), *Next steps for a sustainable European future – European action for sustainability*, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016DC0739&from=EN>

European Commission (2018), *Safeguarding Cultural Heritage from Natural and Man-Made Disasters. A comparative analysis of risk management in the EU*, <https://op.europa.eu/en/publication-detail/-/publication/8fe9ea60-4cea-11e8-be1d-01aa75ed71a1>

European Commission (2019 a), *Towards a Sustainable Europe by 2030*, <https://sustainabilityknowledgegroup.com/sustainable-europe-towards-a-sustainable-europe-by-2030/#:~:text=European%20Commission%20published%20the%20Reflection%20paper%20Towards%20a,out%20the%20priorities%20for%20the%20Strategic%20Agenda%202019-2024.>

European Commission (2019 b), *Europe's Cultural and Natural Heritage in Natura 2000*, file:///C:/Users/PC-1/Downloads/KH0418385ENN.en.pdf

Guštin, M., & Nypan, T. (Eds.). (2010). *Cultural Heritage and Legal Aspects In Europe*. <https://ehhf.eu/wp-content/uploads/2020/11/Cultural-heritage-and-legal-aspects-in-Europe-BOOK.pdf>

Handl, G. (2012). *Declaration of The United Nations Conference on the Human Environment (Stockholm Declaration), 1972 and the Rio Declaration on Environment and Development, 1992*. <https://legal.un.org/avl/ha/dunche/dunche.html>

Hey, C. (2007). *EU Environmental Policies: A Short History of the Policy strategies*. *EU Environmental Policy Handbook* [EU Commission - Working Document]. <http://aei.pitt.edu/98675/>

Hovi, J., Sprinz, D. F., & Underdal, A. (2009). "Implementing Long-Term Climate Policy: Time Inconsistency, Domestic Politics, International Anarchy." *Global Environmental Politics*, 9(3), 20–39. <https://doi.org/10.1162/glep.2009.9.3.20>

Hunter, D. (2021). *International Environmental Law*. https://www.americanbar.org/groups/public_education/publications/insights-on-law-and-society/volume-19/insights-vol--19---issue-1/international-environmental-law/

ICOMOS (2019), *The Future of Our Past: Engaging cultural heritage in climate action Outline of Climate Change and Cultural Heritage*, <https://openarchive.icomos.org/id/eprint/2459/>

ICOMOS (2021), *European Quality Principles for EU-funded Interventions with potential impact upon CH* - Revised edition November 2020 <http://openarchive.icomos.org/id/eprint/2436/>

ICOMOS, Europa Nostra (2021), *European Cultural Heritage Green Paper*, https://issuu.com/europanostra/docs/20210322-european_cultural_heritage_green_paper_fu

Kelemen, R. D., & Knievel, T. (2015). "The United States, the European Union, and International Environmental Law: The Domestic Dimensions of Green Diplomacy." *International Journal of Constitutional Law*, 13(4), 945–965. <https://doi.org/10.1093/icon/mov057>

Kim, H.-E. (2011). "Changing Climate, Changing Culture: Adding the Climate Change Dimension to the Protection of Intangible Cultural Heritage." *International Journal of Cultural Property*. <https://doi.org/10.1017/S094073911100021X>

Kurrer, C. (2021). *Environment Policy: General Principles and Basic Framework | Fact Sheets on the European Union / European Parliament*. <https://www.europarl.europa.eu/factsheets/en/sheet/71/environment-policy-general-principles-and-basic-framework>

Mills, E. (2021, October 8). "Greek Wildfires Threaten Unesco World Heritage Site of Olympia." *Museums Association*. <https://www.museumsassociation.org/museums-journal/news/2021/08/greek-wildfires-threaten-unesco-world-heritage-site-of-olympia/>

Nypan, T. (2007). "The Growing Influence Of The European Union Legislation And The Challenge For Cultural Heritage Management." *Denkmalpflege*, 65, 119–129.

OMC-Open Method of Coordination group of Member States' experts. (2021). *Strengthening Cultural Heritage Resilience for Climate Change*. https://down2earth.esa.int/wp-content/uploads/2021/03/Strengthening-cultural-heritage-resilience-for-climate-change_Grady.pdf

Pasikowska-Schnass, M. (2018). *Cultural heritage in EU policies*. *European Parliamentary Research Service*. [https://www.europarl.europa.eu/RegData/etudes/BRIE/2018/621876/EPRS_BRI\(2018\)621876_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2018/621876/EPRS_BRI(2018)621876_EN.pdf)

Perry, J., & Falzon, C. (2014). "Climate Change Adaptation for Natural World Heritage Sites: A Practical Guide." *World Heritage Papers*. 37. UNESCO. <https://whc.unesco.org/en/series/37/>

Persson, J., Sahlin, N.-E., & Wallin, A. (2015). "Climate Change, Values, And The Cultural Cognition Thesis." *Environmental Science & Policy*, 52, 1–5. <https://doi.org/10.1016/j.envsci.2015.05.001>

Weidner, H. (1995). "25 Years Of Modern Environmental Policy In Germany: Treading A Well-Worn Path To The Top Of The International Field" *Discussion Papers, Research Unit: Standard-Setting and Environment FS II* 95-301. WZB Berlin Social Science Center. <https://econpapers.repec.org/paper/zbwwzbsse/fsii95301.htm>

Project identity

Project title: 'SoPHIA – Social Platform for Holistic Heritage Impact Assessment'

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Consortium members: Interarts Foundation for International Cultural Cooperation (INTERARTS), Spain; Stichting European Museum Academy (EMA), the Netherlands; Institute of Cultural Policy and Cultural Management (EDUCULT), Austria; National Technical University of Athens (NTUA), Greece; Dun Laoghaire Institute of Art, Design & Technology (IADT), Ireland; and the Institute for Development and International Relations (IRMO), Croatia.

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The Horizon 2020 project 'SoPHIA – Social Platform for Holistic Heritage Impact Assessment' (2020-2021) is a research and innovation project that sought to open the debate on the holistic assessment of cultural heritage interventions, to build consensus on it, to support the European Commission in the definition of guidelines for the next generations of funds for cultural heritage and to support stakeholders in cultural heritage in assessing the impact of their interventions, in view of the sustainability and resilience of cultural heritage. During the two years of its activities, the consortium partners, together with a diverse community of stakeholders interested in interventions in cultural heritage sites in Europe, have worked together towards the definition of an effective holistic impact assessment model for cultural heritage interventions, quality standards and guidelines for future policies and programmes. The SoPHIA deliverables corresponding to these tasks are available at the project website, as well as on the H2020 portal.

