POLICY REVIEW

EUROPEAN CULTURAL HERITAGE AND MUSEUM POLICY RELATING TO CLIMATE CHANGE AND GREEN ENERGY TRANSITIONS



PITCH

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TABLE OF CONTENTS

SUMMARY 3

REVIEW CONTEXT 4

EUROPEAN GREEN DEAL 5

What is the European Green Deal (EGD)? 5

International Frameworks for Climate Mitigation and Adaptation – the UNFCCC and the Paris Agreement 7

United Nations Framework Convention on Climate Change (UNFCCC) and the Rio Earth Summit (1992) 7

The Paris Agreement (2015) 8

The UNFCCC, Paris Agreement and Action for Climate Empowerment (ACE) 8

The EGD and museums and heritage sites 9

INTERNATIONAL POLICIES ON CULTURAL HERITAGE AND CLIMATE ADAPTATION 10

UN initiatives on the role of cultural heritage in climate adaptation 10

UNESCO and Climate Change 13

ICOMOS and Climate Change 26

ICCROM and Climate Change 30

ICOM and Climate Change 34

International policy conclusion 36

EUROPEAN POLICIES ON CLIMATE CHANGE AND HERITAGE 38

The Council of Europe 38

The European Cultural Heritage Green Paper 40

The Europa Nostra Brussels Manifesto 42

The Network of European Museum Organisations (NEMO) 43

The NEMO European Museums Survey 2022 44

European Union (EU) Policy for Cultural Heritage 45

The European Heritage Hub monitor 46

European heritage and climate change policy conclusions 47

NATIONAL EUROPEAN POLICIES ON HERITAGE AND CLIMATE CHANGE 49

Netherlands 49

Germany 54

Finland 57

UK heritage and climate policy ____ **61**
RECOMMENDATIONS ____ ***68***
REFERENCES AND ADDITIONAL READING ____ ***70***

SUMMARY

This policy review was prepared to highlight the most significant policies and actors which have shaped the current policy landscape in Europe relating to the intersection of cultural heritage (including museums), climate change and green energy transitions, and to explore potential gaps in policy and its implementation.

The overall conclusion of this policy review is that there is significant policy support at the international, European and national level for the integration of cultural heritage and museums with climate adaptation and mitigation, with the important educational potential of these institutions highlighted. However, the ways in which these international, European and national level policies relate to regional and local priorities and individual organisations is less consistent and, as such, the onus appears to be on individual organisations to take their own initiative in driving forward relevant projects and programmes. Rather than a lack of policy support, there appears to be a significant lack of case examples on which to draw for museums and cultural heritage organisations to develop the forms of carbon literacies which would allow them to do this consistently and across the whole of the sector. As such, PITCH, and in particular its Carbon Matters toolkit, has a key role to play in promoting and promulgating such carbon literacies for the sector.

REVIEW CONTEXT

This non-systematic (narrative) policy review is conducted within the PITCH project.

PITCH is a Horizon Europe and UKRI-funded research project, funded under the call HORIZON-CL2-2023-HERITAGE-01-04 - Cultural heritage in transformation – facing change with confidence. Its acronym stands for “Petroculture’s Intersections with The Cultural Heritage sector in the context of green transitions”. The project began with the aim of bringing into conversation the productive literatures which have recently emerged in the energy humanities relating to the concept of ‘petroculture’. However, the project’s European focus – on contexts where coal remained a significant part of the energy imaginaries much longer than in North American contexts where this concept was developed – has led us to employ the broader term ‘carbon cultures’ to describe the ways in which fossil fuels are embedded in European heritage practices and imaginaries (see Harrison, Plets and Sterling 2027).

PITCH brings together academic and cultural sector organisation partners in six countries to advance the processes by which humanities and arts scholarship and public interventions can strengthen citizen engagement with the constantly changing nature of cultural heritage and its relationship to past and present carbon cultures to lay the groundwork for rapid, society-wide European green transitions away from a reliance on fossil fuels. PITCH’s overarching aim is to enable citizens to confidently engage with the constantly changing nature of cultural heritage and its relationship to modern carbon cultures. It does this by providing heritage practitioners and policymakers with the tools to repurpose existing and future forms of heritage to facilitate just green transitions.

This non-systematic (narrative) policy review draws on the methods of the Eklipse Horizon 2020 funded initiative, which was explicitly developed to help governments, institutions, businesses, and NGOs make better-informed decisions when it comes to biodiversity and ecosystem services in Europe by synthesizing the best available knowledge from both scientists and other knowledge holders. A non-systematic (or narrative) policy review involves synthesizing existing policies, guidelines, and literature to understand a specific issue, rather than relying on strict, quantitative inclusion/exclusion rules. The aim of such a review is to support exploratory research, identifying practical gaps, and developing strategic approaches to the issues in question. This approach is consistent with the aims of the policy review, aiming to highlight the most significant policies and actors which have shaped the current policy landscape in Europe relating to the intersection of cultural heritage (including museums), climate change and green energy transitions and to explore potential gaps in policy and its implementation.

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EUROPEAN GREEN DEAL

PITCH was developed explicitly to address the role of heritage and museums in supporting the objectives of the European Green Deal (EGD). As such, this policy review begins by setting out some of the key aspects of the EGD and then drawing them into dialogue with broader climate change and heritage-related initiatives.

Education, public awareness and participation have been central components of international climate policy since the emergence of the UN environmental framework in the 1970s, and are now consolidated through the UNFCCC, the Paris Agreement and Action for Climate Empowerment. The policy landscape reviewed here suggests that museums and heritage organisations have significant potential to contribute to these objectives, particularly through their roles as sites of public engagement, learning and dialogue. At the same time, their own relationships with fossil-fuel-dependent economies and carbon cultures create important challenges that need to be addressed. The European Green Deal's emphasis on a just transition provides a potentially productive framework for connecting these questions with wider debates within heritage about participation, equity and the social construction of heritage.

What is the European Green Deal (EGD)?

The EGD was launched in 2019 and seeks to connect policies responding to the climate crisis with economic growth (Fetting 2020, 4). The EGD emerged from the discussions around reducing emissions made at the Paris Agreement at COP 21 in 2015. As well as a top-down EU policy, the EGD can also be seen as a response to grassroots movements around the climate crisis such as Fridays for Future and seeks to engage European citizens with climate policy in an equitable manner (Buzogány & Scherhaufer 2022).

In terms of long-term goals, the EGD seeks to achieve climate neutrality and sustainability by 2050. By 2030 the European Union also seeks to reduce emissions by 55% through a wide range of measures, including shifting to wind and solar energy. The overall aim the European Union is seeking to achieve through the EGD is a clean economy, but also that wellbeing is placed at the centre of economic policy (Fetting 2020, 4). The EGD consists of 8 key areas:

1) Increasing the EU's climate ambition for 2030 and 2050
2) Supplying clean, affordable, secure energy
3) Mobilising industry for a clean and circular economy
4) Building and renovating in an energy and resource efficient way
5) A zero pollution ambition for a toxic-free environment
6) Preserving and restoring ecosystems and biodiversity

7) Farm to Fork: a fair, healthy and environmentally friendly food system
8) Accelerating the shift to sustainable and smart mobility

The interrelations between the eight key areas are illustrated in the following diagram (fig. 1)

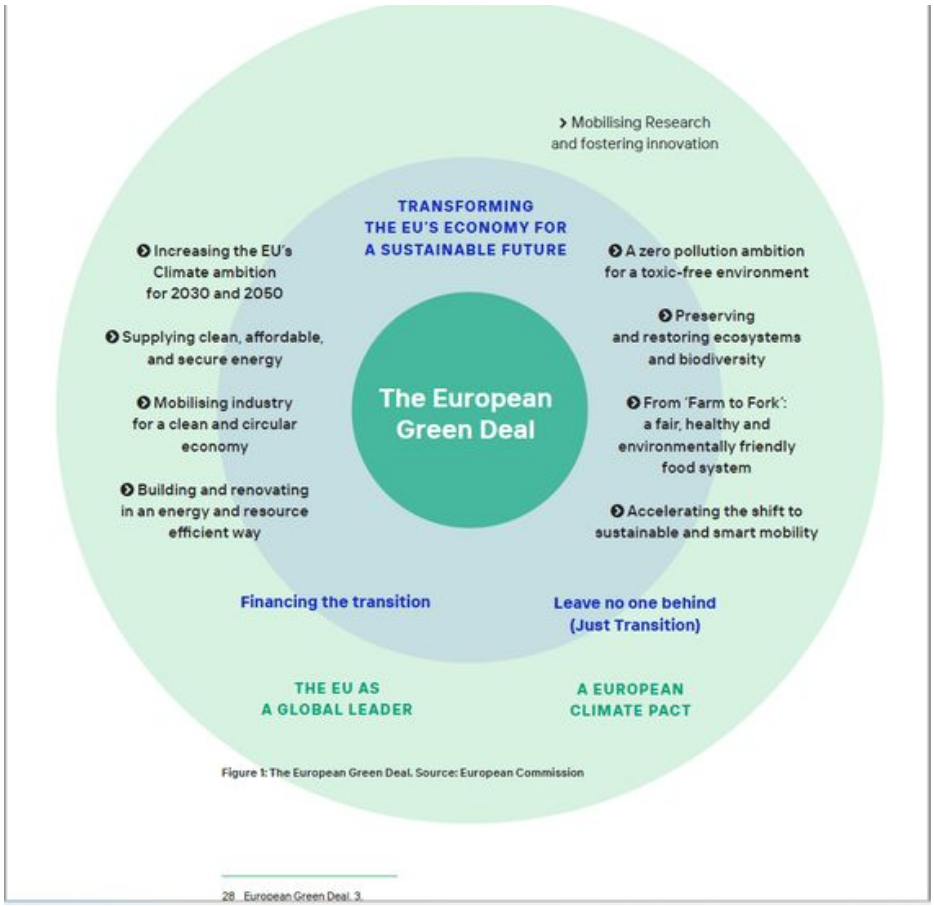


Figure 1. The European Green Deal. Source: European Commission

A central component of the European Green Deal illustrated in fig. 1 is the Just Transition Mechanism to protect and support regions that will face the greatest challenges in the transition away from a fossil fuel-based economy. This is particularly important in areas in which a large number of jobs rely on fossil-fuel-heavy industries. The Just Transition Mechanism seeks to help EU citizens by supporting the transition to low-carbon activities, the reskilling of workers and providing easy access to loans and financial support for these activities with the ambition to 'leave no one behind.'

This is important from a social cohesion perspective, as Grabbe & Lehne (2019) argue that EGD could lead to further division in society and the rise of populism if the transition does not focus on social protection for

the most vulnerable (Fetting 2020, 9). An example of this would be how the increase in the carbon tax in France without compensation for low-income citizens led to the *Mouvement des gilets jaunes* (Yellow Vest Movement) and protests around the cost of fuel (Bendali et al. 2019). Fetting (2019, 9) argues that the EU has in the past elaborated solutions in a technocratic way, and that 'creating democratic support and reassuring citizens that their needs are being taken into account' is crucial to building broad public support. This is consistent with the aims of the parts of the Paris Agreement (2015) and the United Nations Framework Convention on Climate Change (UNFCCC), which are known collectively as Action for Climate Empowerment (ACE), as we will go on to discuss later in this review.

Despite the many cultural dimensions of climate action, the words 'art,' 'culture,' 'heritage,' and 'landscape' do not appear in the EGD. There are signs that this omission is being addressed, and it must be addressed even further if the EGD is to be successful (The European Cultural Heritage Green Paper 2021, 5).

International Frameworks for Climate Mitigation and Adaptation – the UNFCCC and the Paris Agreement

Climate change is one of a series of widely recognised megacrises facing the world today. These megacrises, defined as "a set of interacting crises that are severe in impact, complex in nature, and global in fallout, with no seeming end in sight" (Yen and Salmon 2017, 1) affect all life on the planet, but in different ways. For many years, there has been a recognition that human demands on the natural environment have become excessive, with overexploitation being targeted on Global South countries, often in former or current colonies. The 1972 United Nations Stockholm Conference on the Human Environment recognised that people and the rest of nature are interdependent, and that the use of nature at present levels was not sustainable.

United Nations Framework Convention on Climate Change (UNFCCC) and the Rio Earth Summit (1992)

Twenty years later, the United Nations Conference on Environment and Development (UNCED), also known as the 1992 Rio Earth Summit, developed an internationally agreed set of principles, called the Rio Declaration on Environment and Development. The Summit also produced three legally binding conventions on biodiversity, desertification and climate change. These agreements are respectively referred to as the Convention on Biological Diversity (CBD), the United Nations Convention to Combat Desertification (UNCCD) and the United Nations Framework Convention on Climate Change (UNFCCC). The UNFCCC aimed to stabilise greenhouse gas levels. Among its commitments were that Parties will promote and facilitate:

> (i) the development and implementation of educational and public awareness programmes on climate change and its effects; (ii) public access to information on climate change and its effects;

(iii) public participation in addressing climate change and its effects and developing adequate responses; and (iv) training of scientific, technical and managerial personnel…

Article 6 also notes that signatories will cooperate at an international level on 'the development and exchange of educational and public awareness material on climate change and its effects; and the development and implementation of education and training programmes …' (United Nations 1992, Article 6).

The Paris Agreement (2015)

In 2015, the Paris Agreement was adopted by 196 Parties to the UNFCCC at COP21. The Paris Agreement is a legally-binding international treaty with the overarching goal of holding the increase in global average temperatures below 2ºC above preindustrial levels, and to pursue efforts to limit the temperature increase to 1.5ºC above preindustrial levels. The Paris Agreement works on a five-year cycle of increasingly ambitious climate action in order to achieve these goals. Since 2020 countries have submitted updated national climate action plans (or nationally determined contributions (NDCs)), which are intended to present evidence of increasingly scaled-up efforts to reduce greenhouse gas (GHG) emissions, build resilience and adapt to the impacts of climate change.

The UNFCCC, Paris Agreement and Action for Climate Empowerment (ACE)

Article 12 of the Paris Agreement reiterated the content of Article 6 of the UNFCCC. Activity by countries and other stakeholders that supports this aspect of the UNFCCC and Paris Agreement is called Action for Climate Empowerment (ACE). Typically, ACE is considered as consisting of six elements: education, training, public awareness, public participation, public access to information, and international co-operation.

The key role of museums and cultural heritage in ACE was explicitly recognised in 2018 at COP24, when they were included in the operational plan for the Paris Agreement, called the Katowice Climate Package. Their key role was reiterated in the explicit inclusion of museums and cultural organisations in the UNFCCC's 10-year Glasgow Work Programme on Action for Climate Empowerment, which was agreed in 2021 at COP26. All countries report on their progress in activity for ACE as part of their official reporting for the UNFCCC and Paris Agreement. ACE is a cross-cutting activity, which means it is necessary for achieving all parts of the UNFCCC and Paris Agreement. It is the all-of-society, public facing aspect of climate action. To achieve progress in the six elements of ACE, the Glasgow Work Programme on Action for Climate Empowerment emphasises four priority areas:

- Policy Coherence
- Coordinated Action
- Tools and Support

- Monitoring, Evaluation, and Reporting.

This policy review can be seen as responding directly to each of these priority areas.

The EGD and museums and heritage sites

Museums and heritage sites have been framed as important 'third places' in which citizens can come together to discuss critical social issues (Schorch 2013; Tate 2016; Harrison and Sterling 2021, Wollentz et al. 2022). As such, museums and heritage sites have the potential to act as spaces for EU citizens to engage in dialogue and debate about the EGD. At the same time, any strategy for involving museums in the EGD needs to take into account that museums and heritage sites can often possess complicated histories that are entangled with carbon cultures. This includes heritage sites delivering narratives of progress around society's relationship to carbon cultures. For example, heritage sites dedicated to the British coal industry (Harrison 2026), or museums' reliance on funding by companies that extract and export fossil fuels (Anguix-Vilches 2024).

This has in turn led to museums and heritage sites becoming locations of protest against carbon cultures by activist groups such as BP or not BP. These activist groups typically demonstrate against institutions like the British Museum who received large amounts of funding from fossil fuel companies (Serafini & Garrard 2019; Garrard 2021). This can be seen as part of a longer continuation of museums acting as civic spaces, akin to the public square, in which protests can take place. For example, the Suffragettes targeted the British Museum and Kew Gardens to raise awareness of their campaign for women's suffrage (Gauld 2019). Former sites associated with carbon cultures can also be converted into museums, such as Tate Modern – once a coal-fired power station on the banks of the Thames – while their fossil fuel heritage remains largely absent from their interpretation. The European Green Deal can also be seen as providing a framework through which museums and heritage sites seeking to achieve Net Zero within their own institutions can also address issues around achieving this through a just transition (Vourdoubas 2019). This extends to the colonial legacies that lie behind the forming of these institutions and how their collections were obtained. The relationship between the creation of disciplines and the extraction of resources as part of the European colonial project and the relationship between decolonisation and decarbonisation need to be further explored and made visible (Harvey 2023).

Major governing bodies such as ICOM, UNESCO, ICOMOS and the Network for European Museum Organisations (NEMO) have issued ethical guidelines around how museums should act and behave in the world. Increasingly, there is a focus on the relationship between museums and heritage sites and sustainability, which is connected to the EGD. The next section of the report explores the connections and synergies between the policies and guidelines of international heritage organisation towards addressing the impact of climate change and the EGD.

INTERNATIONAL POLICIES ON CULTURAL HERITAGE AND CLIMATE ADAPTATION

This section of the report outlines the initiatives put forward by key international policy bodies such as the UN around climate adaptation and its implications in a heritage context.

While much of the focus of the PITCH project is on green transitions – a form of climate mitigation – it is also important to consider the role of cultural heritage in climate adaptation. Compared with climate mitigation, climate adaptation – adjustments in ecological, social or economic systems in response to climate change – has historically received less policy attention and finance. The 2015 Paris Agreement, COP 26 in Glasgow and the UAE framework for Global Climate Resilience have established adaptation as a key approach to building resilience in relation to climate change. Cultural heritage has been identified in the UAE framework, as one of the key sectors to promote increased climate resilience.

UN initiatives on the role of cultural heritage in climate adaptation

The 2015 Paris Agreement, Article 7 established the global goal on the adaptation of enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change, with a view to contributing to sustainable development and ensuring an adequate adaptation response in the context of the temperature goal referred to in Article 2.

To better understand, conceptualise and ultimately achieve this goal, the countries that were signatories to the Paris Agreement (collectively, the Conference of the Parties serving as the Meeting of the Parties to the Paris Agreement, or the CMA) launched the Glasgow-Sharm el-Sheikh work programme on the global goal on adaptation at COP 26 in Glasgow in 2021, to be carried out by the Subsidiary Body for Scientific and Technological Advice (SBSTA) and Subsidiary Body for Implementation (SBI).

At CMA 4, Parties initiated the development of a framework for the global goal on adaptation, to guide the achievement of the global goal on adaptation and the review of overall progress in achieving it with a view to reducing the increasing adverse impacts, risks and vulnerabilities associated with climate change, as well as enhance adaptation action and support. The development of the framework, and in particular the discussion on targets for the global goal was a major focus area of the work programme throughout 2023.

What is adaptation?

The United Nations Framework Convention on Climate Change (UNFCCC) notes that adaptation refers to adjustments in ecological, social or economic systems in response to actual or expected climatic stimuli and their effects. It refers to changes in processes, practices and structures to moderate potential damages

or to benefit from opportunities associated with climate change. In simple terms, countries and communities need to develop adaptation solutions and implement actions to respond to current and future climate change impacts.

Adaptation actions can take on many forms, depending on the unique context of a community, business, organisation, country or region. There is no 'one-size-fits-all-solution' – adaptation can range from building flood defences, setting up early warning systems for cyclones, switching to drought-resistant crops, to redesigning communication systems, business operations and government policies.

Successful adaptation not only depends on governments but also on the active and sustained engagement of stakeholders, including local communities, national, regional, multilateral and international organisations, public and private sectors, civil society and other relevant actors, as well as an effective management of knowledge. Parties to the UNFCCC and the Paris Agreement recognise that adaptation is a global challenge faced by all with local, subnational, national, regional and international dimensions.

Adaptation is a critical component of the long-term global response to climate change to protect people, livelihoods and ecosystems. Parties acknowledge that adaptation action should follow a country-driven, gender-responsive, participatory and fully transparent approach, considering vulnerable groups, communities and ecosystems. Adaptation should be based on and guided by the best available science and, as appropriate, traditional knowledge, knowledge of indigenous peoples and local knowledge systems, with a view to integrating adaptation into socioeconomic and environmental policies and actions (see fig. 2).

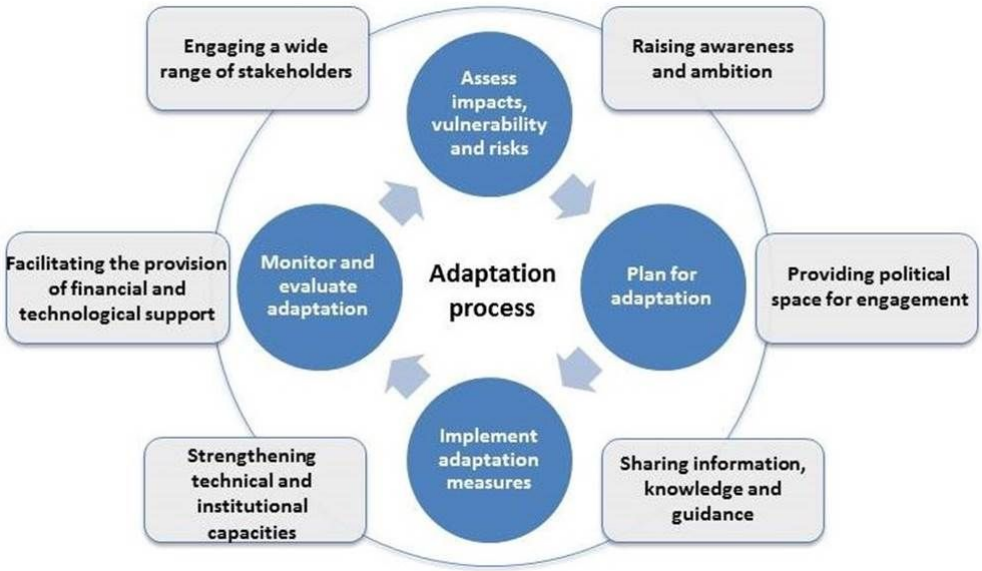


Figure 2. The UNFCCC Adaptation Cycle

At CMA 5 (part of COP28, held in Dubai in 2023), Parties adopted the UAE Framework for Global Climate Resilience, marking a major milestone for adaptation under the Paris Agreement. The purpose of the

framework is to guide the achievement of the global goal on adaptation and the review of overall progress in achieving it with a view to reducing the increasing adverse impacts, risks and vulnerabilities associated with climate change, as well as to enhance adaptation action and support.

UAE Framework for Global Climate Resilience

The UAE Framework for Global Climate Resilience positions climate adaptation – the process of building resilience to global warming's current and future impacts – as a top priority for all nations. It is one of the first international declaration of its kind with climate adaptation as the primary focus. The UAE Framework aims to improve our ability to measure progress on the Global Goal on Adaptation (GGA) and maintain accountability for it. The framework's adoption signals the need for accelerating global action on, and support for, adaptation – which historically has not received the same level of attention as other aspects of the Paris Agreement.

The framework prioritises key sectors for increased climate resilience, including food and agriculture, water, cities and infrastructure, ecosystems and nature, health, livelihoods, and, importantly for this policy review, *cultural heritage*. In addition, the framework details a series of targets linked to different stages of the policy cycle required to achieve these adaptation goals. These include (1) Impact, Vulnerability and Risk Assessment; (2) Planning; (3) Implementation; and (4) Monitoring, Evaluation and Learning (see fig. 3).

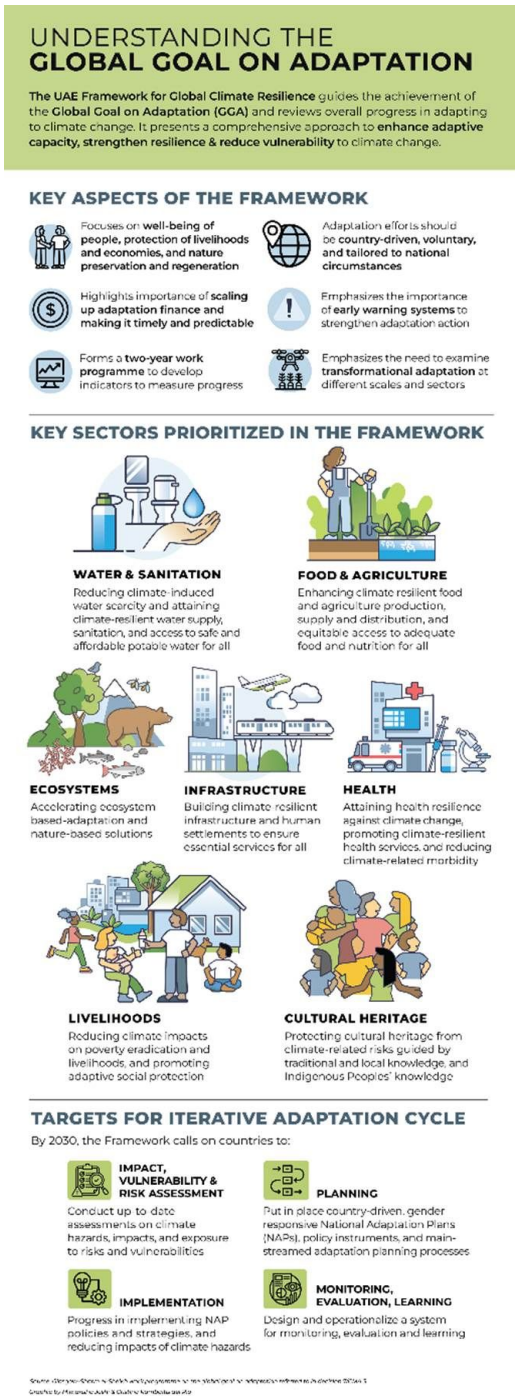


Figure 3. Visual summary of the UAE Framework for Global Climate Resilience

UNESCO and Climate Change

UNESCO's approach to climate change can be seen as seeking to build a bridge between culture and science. It places an ethical approach as a key to addressing climate change and has clear conceptual connections with the EU's focus on a just transition. UNESCO has produced multiple reports in relation to Indigenous Peoples and climate change and they advocate incorporating Indigenous Knowledge at the heart of its policy towards climate change. UNESCO addresses specific topics about climate change and heritage at risk as mitigation and adaptation. It also prioritises education as a key means of adapting towards the climate crisis connecting to the concept of adaptation outlined in UAE framework. UNESCO climate policy increasingly recognises culture, participation, Indigenous knowledge and heritage as resources for adaptation and climate action, but this recognition is uneven and does not necessarily translate into specific mechanisms for museums and heritage organisations.

UNESCO first began incorporating a systematised approach to the effects of climate change on cultural heritage in 2006. Initially UNESCO adopted a risk-based management approach. Since the mid-2010s there has been a shift as climate change has become a core consideration of World Heritage management rather than a separate issue. The publication of thematic case studies has assessed how the impact of climate change on heritage differs in specific environments and requires localised solutions. Frameworks such as the Practical Guide on Climate Change adaptation for Natural World Heritage sites and the updated policy on Climate for World Heritage provide specific frameworks at both the state and the site levels for the management of heritage sites in relation to climate change.

The following section of the review explores UNESCO's policies in regard to Climate Change in relation to key themes:

1) Climate change as a challenge across culture and science
2) Ethical approaches to climate change
3) Indigenous knowledge and climate
4) Heritage management and at-risk heritage
5) Heritage management and the climate change in specific environments
6) Small island developing states
7) Climate change and education
8) World heritage and listing
9) World heritage climate impact case studies
10) UNESCO frameworks

1. *Climate Change as a challenge across culture and science*

The UNESCO Strategy for Action on Climate Change (2018–2021) makes the case for approaching climate change as a challenge that requires a cross-cutting approach, which bridges across the domains of education, science, culture, communication and human well-being. The UNESCO Reflection Group on Culture and Climate Change launched in 2020 similarly make the case that climate change is not an environmental issue and that culture is often overlooked in climate policy.

This emphasis on the role of culture in combatting climate change is also present in the MONDIACULT 2022 – World Conference on Cultural Policies and Sustainable Development and its Declaration. The Declaration repositions culture from being a sector that supports development to being a global public good and a standalone objective of sustainable development. In terms of relevance to climate and heritage policy, MONDIACULT 2022 addresses the issues of culture and climate adaptation, heritage and disaster-risk reduction, cultural rights and climate justice. This includes reiterating the call for the protection of cultural heritage against extreme climate events and the importance of integrating cultural heritage and creativity into international discussions on climate change.

2. *Ethical approaches to climate change*

One of the key approaches that links UNESCO's approach to heritage and climate change with the European Green New Deal is a focus on the ethics and morality of a 'just transition'. UNESCO's 2017 Declaration on Ethical Principles in Relation to Climate Change seeks to establish a set of ethical principles to guide governments, organisations, scientists, and citizens in responding to climate change.

The Declaration argues that climate change is fundamentally an issue of ethics and human responsibility, not merely one of environmental management. Effective climate action should therefore be guided by principles of justice, solidarity, human dignity, scientific integrity, and responsibility to both present and future generations.

The Declaration focusses on the ethical side of climate change not just the technical or scientific measures alone. It makes the case that climate change affects all countries but does not affect all people equally. This includes recognising the different needs and access to resources of men and women, as well as the needs of the most vulnerable that include but are not limited to displaced persons and migrants, indigenous peoples, local communities, persons with disabilities, the elderly, youth, and children, as well as gender equality and empowerment of women. This means that an ethical framework is essential to guide decision making in relation to heritage and climate change, including through scientific research. Central to this is the concept of solidarity and the Declaration argues that there is a moral obligation to promote awareness of climate change and involve citizens in decision making that can impact them.

3. *Indigenous knowledge and climate change*

UNESCO has produced multiple reports around the cultural heritage of Indigenous People, which acknowledges that they are often at the forefront of the effect of Climate Change but also possess knowledge, which can provide resilience in the fact of it. The report Indigenous Knowledge for Climate Change Assessment and Adaptation (2018) argues that Indigenous knowledge is not merely cultural heritage – it is a practical and evidence-based resource for addressing climate change. The volume uses a selection of case studies that illustrate how knowledge and practice rooted in indigenous communities may inform our understandings of climate change processes, and how indigenous coping strategies provide a crucial foundation for community- based adaptation (Nakashima et al. 2018, 1). It is based around the idea Indigenous Peoples homelands are being transformed irreversibly by climate change; and second, that they have valuable contributions to make towards climate decision-making due to their extensive experiential knowledge (Nakashima et al. 2018, 10). Indigenous knowledge is useful in that it contributes to climate monitoring and supports climate adaptation. Finally, it makes the point that knowledge co-production is more effective than knowledge extraction for example from moving between the local level experienced by individual communities to the global level of policy makers (Nakashima et al. 2018, 281).

Since 2002 through its Local and Indigenous Knowledge Systems (LINKS) programme, UNESCO has emphasised the importance of indigenous knowledge as a means of addressing climate change. This occurs in both incorporating Indigenous knowledge into broader UNESCO policy level but also the creation of specific policies on how to work with Indigenous knowledge and climate change.

One of the UNESCO LINKS programmes major focuses is on climate change with a view to Indigenous groups living in vulnerable regions. The programme argues that Indigenous and local knowledge systems are essential for addressing global challenges such as climate change and also emphasises cooperation between scientific and Indigenous ways of knowing. This is specifically addressed in the UNESCO LINKS Climate Change Programme, which argues that Indigenous Peoples possess valuable knowledge that can improve climate adaptation.

A comparable programme is the UNESCO Climate Change in Africa Initiative, which emphasises the connection between Indigenous knowledge and science in an African context. This programme presents Indigenous knowledge as climate resource drawing on traditional systems such as predicting weather and seasonal changes, selecting drought-resistant crops, managing grazing lands, conserving water resources and maintaining biodiversity. One of the main aims of the programme is to build partnerships between Scientists and Local Communities with a particular focus on pastoralists, small-scale farmers and Indigenous groups living in environmentally vulnerable regions.

Similarly, UNESCO's Climate Frontlines argues that we should move beyond Indigenous People merely being consulted but instead involve them in meaningful participation in climate policymaking. Principles

central to this report are Respect for Indigenous rights, recognition of traditional knowledge systems, protection of cultural heritage and community control over knowledge sharing.

Resilience in a Time of Uncertainty: Indigenous Peoples and Climate Change is a UNESCO publication that brings together the key findings from an international conference held in 2015 ahead of the UN Climate Change Conference (COP21). The report highlights a paradox that Indigenous Peoples are among those least responsible for greenhouse gas emissions, yet they are among the most affected by climate change. The report argues that Indigenous communities are not portrayed as passive victims but instead emphasise the resilience and long-standing ability to adapt to environmental change. Indigenous knowledge is described as a sophisticated, place-based system of knowledge developed through centuries of interaction with local environments. Examples of Indigenous adaptation to climate change include conserving diverse crop varieties to improve food security. The report concludes that while Indigenous knowledge cannot solve climate change on its own, integrating it with scientific research and ensuring Indigenous rights are upheld can strengthen adaptation, biodiversity conservation and sustainable development.

The publication "Indigenous Knowledge for Climate Change Assessment and Adaptation" (2018) similarly argues that Indigenous Knowledge offers a valuable complement to scientific climate research. Indigenous Knowledge provides a long-term interaction with local ecosystems including improving understanding of the changes in rainfall patterns, altered growing seasons, shifts in species distribution, melting ice and snow, rising temperatures, increased climate variability and more frequent extreme weather events. It also highlights how Indigenous communities have historically adapted to environmental variability

Knowing Our Lands and Resources: Indigenous and Local Knowledge of Biodiversity and Ecosystem Services in Europe and Central Asia" published in 2017 provides another geographical focus. It argues that indigenous and local knowledge in Europe and Central Asia helps communities understand, maintain, and manage these services in sustainable ways. *Knowing Our Lands and Resources* also explores how environmental knowledge is often embedded within languages, oral traditions, rituals, community institutions, cultural practices and traditional livelihoods. This report argues that Indigenous and local knowledge are an important source of environmental assessment and that biodiversity conservation and cultural preservation are closely linked.

The report Indigenous knowledge and implications for the sustainable development agenda (Magni 2017) argues that Indigenous knowledge should be viewed as a living and evolving system rather than as historical or traditional information from the past. The document links Indigenous knowledge to several SDGS including Zero Hunger, Good Health and Well-being, Quality Education, Clean Water and Sanitation and Climate Action, and Life on Land.

The UNESCO report Local Knowledge, Global Goals (UNESCO, 2017) also argues the United Nations Sustainable Development Goals requires greater recognition of local and Indigenous knowledge.

Indigenous knowledge has important implications both in terms of the level of climate adaptation and environmental monitoring. This includes sustainable agriculture and food systems, biodiversity conservation, water resource management, disaster preparedness and resilience and cultural continuity and education.

The Report of the UNESCO Expert Meeting on Indigenous Knowledge and Climate Change in Africa (2017) brings together findings from research with pastoralist communities across Burkina Faso, Chad, Ethiopia, Kenya, Tanzania, and Uganda. The report argues that these initiatives need to account for gendered knowledge systems and ensure women's participation.

The UNESCO Policy on Engaging with Indigenous Peoples (2018) represents the organisation's first comprehensive, institution-wide framework for ensuring that all UNESCO programmes and policies address the aspirations of Indigenous Peoples. It adopts a human rights-based approach, involves participation and consultation, respect for cultural diversity, gender equality and inclusion. This includes policies recognising Indigenous knowledge as a valuable source of understanding about climate change.

Taken together, these UNESCO initiatives demonstrate a consistent movement away from treating Indigenous knowledge as a supplementary source of information towards recognising Indigenous Peoples as active participants in knowledge production and climate governance. This is particularly relevant to heritage policy because it challenges approaches that treat Indigenous knowledge as static cultural heritage, instead positioning it as a living and adaptive knowledge system.

4. Heritage management and at-risk heritage

Another central tenant of UNESCO's relationship with heritage and climate change is the relationship between loss, risk and conflict. UNESCO Heritage Emergency Fund's central message is that culture and heritage are not secondary concerns during emergencies and that the goal is to prevent further deterioration and loss. The Fund recognises climate change as an increasingly important threat to cultural heritage. The Fund argues that cultural heritage is not merely something to save after a crisis, but rather it is a resource that helps communities withstand, respond to, and recover from crises.

The UNESCO Heritage Emergency Fund (HEF) was created in 2015 to protect culture and heritage threatened by wars, natural disasters, climate-related events, and other emergencies. The HEF is designed to provide rapid, flexible emergency funding so UNESCO can help countries prevent damage to cultural heritage before disasters occur. The HEF argues that protecting culture is not a luxury that can wait until after a crisis. Cultural heritage, identity, and creative expression are essential parts of community recovery, resilience, and long-term sustainable development. The Heritage Emergency Fund exists to ensure that culture is protected alongside people, infrastructure, and livelihoods when emergencies occur.

The Addendum to the Strategy for the Reinforcement of UNESCO's Action for the Protection of Culture and the Promotion of Cultural Pluralism in the Event of Armed Conflict (2017) was created to protect culture

during armed conflict to include emergencies caused by natural and human-induced hazards, such as earthquakes, floods, hurricanes, tsunamis, wildfires, industrial accidents, and climate-related disasters. The Addendum argues that culture is not simply a victim of disasters, it is also a resource for resilience, recovery and sustainable development. This approach consists of four key elements: preparedness and risk reduction, emergency response, recovery and reconstruction, knowledge sharing and capacity building

The Addendum provides access to UNESCO's Heritage Emergency Fund but it also moves from 'protecting culture during armed conflict' and 'protecting culture in all major emergencies, including disasters and climate-related crises'. The Addendum represents a shift from a conflict-focussed approach to a broader resilience and disaster-risk-management framework.

UNESCO have developed specific policies and programmes to deal with the concept of endangerment in the field of heritage management in relation to climate change. The Flexible Mechanism for Climate Change Impacts on Cultural and Natural Heritage (2020) was developed in recognition of the fact that climate change is increasingly affecting World Heritage sites. The mechanism supports implementation of the Paris Agreement, 2030 Agenda for Sustainable Development, UNESCO's climate change strategies and UNESCO's heritage protection programmes

The key policy shift presented by the mechanism is to move from protecting heritage from climate change to managing heritage adaptively in a changing climate while using heritage itself as a resource for resilience and adaptation. The mechanism therefore seeks to strengthen the resilience of cultural and natural heritage to climate change through adaptive management approaches. The mechanism addresses climate threats to both cultural and natural heritage. Its key principles include flexibility, risk-based management, integration across sectors and the inclusion of local perspectives and indigenous communities.

5. Heritage management and the climate change in specific environments

One of the key aspects of heritage policy from UNESCO is how to deal with the effect of climate change on heritage in a specific environment of which the urban environment is one of the key focusses. The UNESCO Recommendation on the Historic Urban Landscape (HUL) (2011) was a landmark UNESCO policy framework that redefined how cities should manage and protect heritage in the context of rapid urbanisation, economic development, social transformation and also in context of climate change.

The central approach of this policy was that urban heritage should not be treated as isolated buildings to be preserved separately from development. Instead, heritage should be integrated into urban planning, environmental management, economic development, and community life. The policy includes the recommendation that heritage considerations should be incorporated into including heritage urban planning including climate adaptation strategies. Key recommendations related to climate change are:

- Protect heritage from environmental risks.

- Integrate heritage into climate adaptation planning.
- Manage urban growth sustainably.
- Preserve cultural landscapes and ecosystems.

The HUL approach is now widely used to support climate-resilient heritage management because it links cultural and environmental considerations. The HUL framework also has a strong focus on the concept of resilience in relation to climate change as it encourages the use of traditional and local knowledge and strengthening community resilience through heritage conservation. This has made the Recommendation influential in connecting together cultural heritage, disaster risk reduction, climate adaptation, and sustainable urban development.

6. Small Island Developing States

Another heritage policy that addresses heritage and climate change in relation to a particular environment addresses small island communities, which are often on the frontline of climate change. The Small Island Developing States (SIDS) Intersectoral Platform (2016) action plan is aimed at Small Islands Developing States facing particular unique challenges. In particular, it seeks to build resilience around heritage on small islands due to climate change and the rise in sea-levels. The SIDS action plan can be seen as related to The Barbados Programme of Action, The Mauritius Strategy and The SAMOA Pathway.

7. Climate change and education

One of the central areas that UNESCO identifies to address climate change is through education. The publication "Reimagining our futures together: a new social contract for education" (2021) makes the case that education should build more just, sustainable, peaceful and cooperative societies. Curricula should therefore focus on planetary and social responsibility and teachers should be empowered to address this. The publication returns to the concept that not all people are affected equally by climate change and argues that there should be a focus on equity and inclusion and who is marginalised. The report makes that case that this global crisis cannot be solved through economic growth or technology alone but through a reimagining and that this reimaging of our future requires a new social contract for education.

The programme Education for Sustainable Development (ESD): Learning to Act for People and Planet uses education as a key tool to achieve sustainable development and address global challenges such as climate change, biodiversity loss, inequality, and resource depletion. It seeks to embed sustainability across education systems rather than treating it as a standalone subject. Education is therefore viewed as a key enabler of both climate mitigation and adaptation. UNESCO advocates embedding it across curricula, policies, teacher training, and school operations. Education remains a crucial approach because climate change cannot be addressed through technology and policy alone.

8. *World Heritage and listing*

One of UNESCO's central strategies for dealing with threats to heritage is through the process of listing. The List of World Heritage in Danger provides a mechanism under the UNESCO World Heritage Convention to identify and support World Heritage sites that are facing serious threats to the values for which they were originally inscribed. This Danger list coordinates international efforts to protect cultural heritage at risk. One of the potential dangers identified by the list is climate-related or geological hazards including flooding, erosion, sea-level rise. The list also provides case studies of heritage sites that are at risk because of climate change. For example, the Belize Barrier Reef System (Belize), which was listed on the LWHD in 2009 due to threats such as overfishing, coastal development, and climate change impacts.

The origins of UNESCO's focus on the relationship between World Heritage and the impact on climate change has its origins in the *Report on predicting and managing the impacts of climate change on World Heritage* (UNESCO, 2006). This foundational document established how the UNESCO World Heritage system should understand and respond to climate change impacts. It was produced following a 2006 expert meeting and developed jointly by UNESCO, the Advisory Bodies (ICOMOS, IUCN, ICCROM), and international specialists. It later fed into the first climate policy framework for World Heritage adopted in 2007.

The 2006 UNESCO report established that climate change is a systemic and growing threat to World Heritage and introduced a risk-based framework for predicting impacts and managing heritage through adaptation, monitoring, and international cooperation. The report identified climate change as a major threat to outstanding universal value. It marked the first systematic attempt to link climate science with heritage conservation policy at a global level.

Key impacts that were identified by the report include rising temperatures, sea-level rises, increased frequency and intensity of extreme weather, glacier retreat, ocean warming and acidification, irreversible ecosystem transformation. The report also established a risk-based management approach including predicting impacts, monitoring, early warning, managing and adapting. The report links together natural and cultural heritage in relation to climate-related threats. The report notes that many cultural sites were designed for historical climate conditions and may become increasingly difficult to conserve under changing environmental conditions.

The 2006 report became the foundation for subsequent UNESCO climate-heritage policy and the next stage of this policy review traces how it develops. UNESCO's later climate change policies progress by arguing that successful heritage conservation must anticipate environmental change rather than simply respond to damage after it occurs.

A Compendium – the Strategy to Assist States Parties to Implement Appropriate Management Responses – was added in 2006. This Compendium established a three-part approach – prevention, corrective, and

knowledge-sharing – to help States Parties integrate climate change into World Heritage management and treat conservation as an ongoing process of managing change across global, national, and site levels.

Central to this is the bringing together of natural and cultural heritage. It provides an opportunity to develop strategies to implement relevant actions in respect of cultural and natural heritage properties threatened by Climate Change. The Compendium argues that, conservation is the management of change, and Climate Change is one of the most significant global challenges facing society and the environment today." The actions that need to be taken to safeguard heritage are threefold:

> Preventive actions: monitoring, reporting and mitigation of Climate Change effects through environmentally sound choices and decisions at a range of levels: individual, community, institutional and corporate.
>
> Corrective actions: adaptation to the reality of Climate Change through global and regional strategies and local management plans.
>
> Sharing knowledge: including best practices, research, communication, public and political support, education and training, capacity building and networking.

The Compendium makes the case that there are strong links between natural and cultural heritage and that Climate Change could be used as an opportunity for the two parts of the *Convention* to be brought closer together.

Accompanying the 2006 report, the Special Issue of World Heritage No. 42 (2006) is a thematic magazine edition published by UNESCO that focuses on climate change as an emerging and urgent threat to World Heritage sites. It provides specific case studies in relation to heritage and climate policy and makes the connection with biodiversity conservation.

Case studies such as Timbuktu (Mali) focus on the historic structures affected by desertification and environmental stress, marine and coral reef sites which are threatened by warming oceans and bleaching and coastal and island heritage sites which are exposed to sea-level rise and extreme weather.

The Special Issue explores a wide range of observed and expected climate change impacts on heritage, including sea-level rise threatening coastal cities and archaeological sites; coral bleaching and marine ecosystem degradation; glacier retreat and loss of ice-dependent landscapes; increased storms, floods, droughts, and desertification; erosion of monuments and historic sites; and risks to biodiversity in protected natural sites.

The issue suggests the following responses to climate change – the need for coordinated international action, the links between biodiversity conservation and climate policy and the importance of integrating heritage into global environmental governance. These contributions reinforce the idea that heritage protection must be integrated into broader climate strategies.

9. *World heritage climate impact case studies*

In 2007 further case studies were added in the form of the UNESCO publication Case Studies on Climate Change and World Heritage. This is a landmark report that brings together 26 detailed examples of World Heritage sites affected by climate change. The case studies are grouped into thematic categories, such as glaciers and ice landscapes; marine and coastal ecosystems; terrestrial biodiversity sites; archaeological sites and historic cities and settlements.

Some of the case studies include initial attempts to respond to climate impacts such as improved monitoring and site management systems; coastal protection measures; ecosystem restoration and conservation strategies; relocation or reinforcement of vulnerable assets and community-based adaptation approaches.

The major conclusion and ways forward suggested by the report is that heritage protection systems must integrate climate science into conservation planning, improve long-term monitoring and risk assessment, develop predictive tools for future impacts and strengthen international cooperation and knowledge exchange.

The UNESCO World Heritage Reports No. 22: Climate Change and World Heritage, published in 2007 argues that climate change should become a core consideration in World Heritage management rather than a separate issue. The report recognises that some climate impacts cannot be completely prevented and argues that protecting heritage will increasingly require balancing preservation with adaptation.

The report promotes integrating climate considerations into everyday heritage management while strengthening international collaboration, research and capacity building to safeguard sites for future generations. Again, the report makes the case that climate change affects both natural and cultural heritage. Many of these heritage-threats are already occurring for example rising temperatures, sea-level rise, altered precipitation patterns and more frequent extreme weather events.

The report provides recommendations for UNESCO and States Parties. These include:

- Assess climate risks for every World Heritage property.
- Integrate climate adaptation into conservation and management plans.
- Improve monitoring to detect changes early.
- Invest in research to better understand climate impacts.
- Build capacity by training heritage managers and sharing knowledge internationally.
- Reduce greenhouse gas emissions where possible while ensuring adaptation measures do not compromise the heritage values being protected.

The central message of *World Heritage Reports No. 22* is for a shift from reactive conservation to proactive climate risk assessment, monitoring and adaptive management, supported by research, capacity building and international cooperation.

The Policy Document on the Impacts of Climate Change on World Heritage Properties (2008) argues for a greater emphasis on implementation, collaboration, Indigenous and local knowledge and alignment with international climate agreements. The policy concludes that climate change is one of the greatest long-term threats to World Heritage, but also that World Heritage properties can contribute to global climate solutions. It advocates an integrated approach in which conservation, climate mitigation, adaptation, disaster risk reduction and sustainable development are pursued together. It calls for proactive management based on climate risk assessment, adaptation, mitigation, resilience and continuous monitoring while protecting the Outstanding Universal Value of heritage sites.

The policy has four overarching objectives:

- Protect World Heritage from climate change by reducing vulnerability and improving resilience.
- Support climate mitigation, recognising that many World Heritage sites – including forests, wetlands and marine ecosystems – help store carbon and regulate climate.
- Strengthen climate adaptation by incorporating climate risk into conservation planning and management.
- Use World Heritage as a platform for education, research and international cooperation to promote wider climate action.

The Managing Disaster Risks for World Heritage manual (2010) concludes that effective disaster management for World Heritage is based on anticipation rather than reaction. It provides both a framework for heritage site managers and a cycle that they can implement. The manual argues that by identifying hazards, reducing vulnerabilities, preparing for emergencies and planning recovery in advance, site managers can better protect the Outstanding Universal Value of cultural and natural heritage.

The manual emphasises that reducing vulnerability before disasters occur is more effective than relying on post-disaster recovery, and that collaboration with governments, emergency services and local communities is essential for building long-term resilience.

The manual aims to help site managers:

- understand disaster risks affecting World Heritage properties;
- develop and implement Disaster Risk Management (DRM) plans;
- reduce the vulnerability of heritage sites before disasters occur;
- improve preparedness, emergency response and recovery; and
- integrate heritage protection into national and regional disaster management systems.



Figure 4. Disaster Risk Management cycle. In "Managing Disaster Risks for World Heritage", World Heritage Resources Manual, UNESCO, Paris, May 2010, p. 13

The manual presents DRM as a continuous cycle consisting of four interconnected stages (fig. 4).

The process is iterative, requiring regular review and updating as conditions and risks change. It consists of risk assessment, risk reduction strategies, emergency preparedness, recovery and rehabilitation

10. UNESCO frameworks

A further advance in frameworks is provided by the Practical Guide on Climate Change Adaptation for Natural World Heritage Sites (2014). The guide shifts UNESCO's focus from recognising climate impacts to implementing practical, site-specific adaptation measures that safeguard the Outstanding Universal Value of natural World Heritage sites.

The guide argues that climate change has become a routine management challenge for natural World Heritage sites. Successful conservation will depend on integrating climate adaptation into everyday management through risk assessment, vulnerability analysis, monitoring and adaptive decision-making. While uncertainty remains, proactive planning and resilient ecosystems can significantly improve the ability of World Heritage properties to withstand future climate change.

Unlike earlier UNESCO reports, which focused on identifying climate change impacts, this guide is practical and management-oriented, providing a step-by-step approach to adaptation planning around the following framework for climate adaptation:

1. Understand climate risks
2. Assess vulnerability
3. Identify adaptation options
4. Integrate adaptation into management

The Updated Policy on Climate Action for World Heritage (2023) provides a further update linking together natural heritage and cultural heritage in relation to climate-related threats. It was adopted by the 24th General Assembly of States Parties in November 2023, replacing and expanding the 2008 climate policy. The report notes that many cultural sites were designed for historical climate conditions and may become increasingly difficult to conserve under changing environmental conditions.

The policy aims to ensure that all World Heritage properties are managed in ways that both respond to climate change and contribute to global climate solutions.

The five World Heritage Climate Action Goals are:

1. Assess climate change risks
2. Strengthen climate adaptation
3. Support climate mitigation
4. Improve knowledge sharing, capacity building and awareness
5. Promote transformative change

Unlike earlier UNESCO policies, the 2023 document places significant emphasis on mitigation. It recognises that many World Heritage properties contribute to reducing greenhouse gas emissions by:

- conserving forests, wetlands and marine ecosystems that store carbon
- promoting sustainable land management
- encouraging low-carbon tourism where appropriate
- reducing emissions associated with site management

The policy concludes that protecting World Heritage in a changing climate requires a shift from reactive conservation to integrated climate action. It encourages all States Parties to embed climate risk assessment, adaptation, mitigation, knowledge sharing and long-term resilience into the management of

World Heritage properties. The General Assembly also called for practical implementation guidance, revisions to the Operational Guidelines, and regular reporting on progress.

ICOMOS and Climate Change

Alongside UNESCO, the International Council on Monuments and Sites (ICOMOS) is another major heritage NGO influencing policy relating to cultural heritage and climate change. ICOMOS's work on climate change focuses on both protecting heritage from climate impacts and demonstrating how heritage can contribute to climate action and sustainable development. The idea that climate change is not only a threat to heritage but also that cultural heritage is an important part of the solution is a throughline that runs throughout all of ICOMOS's policies, working groups and toolkits. In 2020, ICOMOS formally declared a Climate and Ecological Emergency suggesting the seriousness with which they are taking climate change.

ICOMOS has established a number of key initiatives and reports relating to climate change originating with the manual *Risk Preparedness: a management manual for world cultural heritage* (1998). The report *The future of pasts* (2019) provides a basis for future toolkits including Climate Change Adaptation Guide aimed at heritage professionals and the Heritage Climate Justice and Equity toolkit (2022). A shift can be seen in ICOMOS's approach from providing technical guidance to advocating for adaptation in relation to climate change and heritage.

Key aspects of ICOMOS' approach are:

- Protecting heritage from climate impacts
- Assessing risks to cultural and natural heritage from sea-level rise, extreme weather, wildfires, drought and other climate hazards.
- Developing methods for climate adaptation, disaster risk reduction and resilience planning for heritage sites.

ICOMOS seeks to approach climate change by:

- Influencing international policy
- Working with organisations such as UNESCO and the IPCC to ensure culture and heritage are recognised within global climate policy.
- Advocating for climate action that is equitable, inclusive and respects cultural values.

ICOMOS working groups

ICOMOS established its Climate Action Working Group (formerly the Climate Change and Heritage Working Group or CCHWG) in 2016 to coordinate much of this work. The Climate Action Working Group supports the ICOMOS community in responding to climate change. It promotes a dual approach:

- protecting cultural heritage from climate impacts
- recognising heritage as a resource for climate adaptation, mitigation and resilience.

The group has more than 100 climate focal points across ICOMOS's global network and develops guidance, training and practical resources to integrate climate action into heritage conservation.

The International Scientific Committee on Risk Preparedness (ICOMOS-ICORP) is a group of experts dedicated to improving the protection of cultural heritage from disasters and emergencies. Its mission is to help heritage professionals and communities prepare for, respond to, and recover from natural hazards, climate-related events, armed conflict, and other human-induced disasters. Climate-related hazards are identified as one of these key threats.

ICOMOS key reports

Rather than focusing solely on emergency response, ICORP promotes a proactive, integrated approach that combines preparedness, resilience, collaboration and recovery. The origins of this proactive approach can be found in the Risk Preparedness: a Management Manual for World Cultural Heritage (1998) by Herb Stovel (ICCROM, ICOMOS and UNESCO). First published in 1998, this foundational guide for managing risk to cultural heritage sites remains influential in heritage disaster risk management and underpins many later ICCROM and ICOMOS approaches.

Although written before climate change became central to heritage policy, many of its recommendations remain highly relevant. In particular, it emphasises that protecting heritage requires proactive planning rather than reacting after damage has occurred. The manual's principles of risk assessment, prevention, preparedness, response and recovery have been expanded in later frameworks such as UNESCO's Managing Disaster Risks for World Heritage, ICCROM's First Aid to Cultural Heritage in Times of Crisis, and the Sendai Framework for Disaster Risk Reduction.

The Heritage and Resilience: Issues and Opportunities for Reducing Disaster Risks (2013) was prepared by ICOMOS-ICORP in collaboration with UNESCO, ICCROM and UNISDR (now UNDRR). It introduces various approaches to protect heritage from irreplaceable loss and considers ways to draw upon heritage as an asset in building the resilience of communities and nations to disasters.

In relation to climate change, the report argues that many traditional settlements and historic landscapes embody sustainable environmental knowledge. This includes flood management systems, water harvesting, climate-responsive architecture and locally adapted construction techniques. The report argues that these practices can inform modern adaptation strategies, particularly in the context of climate change and environmental resilience.

The report also highlights many examples where traditional knowledge has reduced disaster impacts. This includes earthquake-resistant vernacular buildings, traditional flood-adapted settlements, indigenous land management and locally developed construction methods.

The next major ICOMOS report is the Future of Our Pasts: Engaging Cultural Heritage in Climate Action (2019). This report argues that climate change multiplies not only threats but also the urgency of enhancing good conservation practice. *Future of our Pasts* advocates for new working methods that bring together nature and culture to achieve conservation outcomes on a landscape scale, while promoting the leadership, participation, resilience and well-being of associated communities. Other innovations, including Historic Urban Landscape and rights-based approaches, also seek to make heritage practice more holistic, interdisciplinary and grounded in a concern for resilience and sustainability (Future of our Pasts 2019, 3).

It makes the case that climate change is already damaging heritage worldwide, arguing that rising sea levels, flooding, storms, wildfires, droughts, and changing temperatures are accelerating the deterioration of historic places and cultural landscapes. Climate change has also led to communities losing traditions, languages, and ways of life linked to these places.

It again argues that heritage is part of the climate solution. The report highlights that heritage can:

- Support climate adaptation through traditional knowledge and land management.
- Reduce carbon emissions by conserving and reusing existing buildings rather than replacing them.
- Strengthen community resilience and identity after climate-related disasters.
- Encourage sustainable lifestyles rooted in local culture and long-term stewardship.

The report argues that current heritage practice needs to evolve beyond traditional conservation approaches, which often focus on preserving the physical fabric of buildings. The report recommends a broader approach that through combining traditional knowledge, conservation expertise, and community engagement, cultural heritage can help societies transition toward more resilient, equitable, and low-carbon futures.

ICOMOS Toolkits and adaptation guides

Heritage, Climate Justice and Equity (2022) is a toolkit produced by the ICOMOS Climate Action Working Group to help heritage professionals integrate the principles of climate justice and equity into climate action. The toolkit is intended primarily for ICOMOS National and Scientific Committees but provides guidance applicable across the wider heritage sector.

It complements *The Future of Our Pasts* (2019) report by shifting the focus from why heritage matters for climate action to how climate action in the heritage sector can be fair, inclusive and socially just. It therefore

connects to the idea of a *just transition* as articulated in the EGD. The toolkit argues that climate action cannot be effective unless it also addresses justice and equity.

Climate change affects communities unevenly, with those who have contributed least to greenhouse gas emissions—such as Indigenous Peoples, low-income communities and many countries in the Global South—often facing the greatest impacts. Heritage practice therefore has a responsibility to ensure that climate responses do not reinforce existing inequalities but instead support inclusive and equitable outcomes. The toolkit is built around four interconnected principles: Climate justice, Equity, Inclusion and Sustainability.

A key message of the toolkit is that cultural heritage is not only threatened by climate change but can also help deliver just transitions to more sustainable societies. This toolkit expands the principles established in *The Future of Our Pasts* by providing practical guidance for applying justice, equity and inclusion in climate-related heritage work. It also aligns with the priorities of ICOMOS' Climate Action Working Group and reflects broader international discussions on just transitions, rights-based conservation, and the role of culture in achieving equitable climate resilience.

The Climate Change Adaptation Guide: What is the problem? (2022) is a practical toolkit produced by the ICOMOS Climate Action Working Group (CAWG). This toolkit builds directly on the strategic ideas expressed in *The Future of Our Pasts* (2019). Together with the *Heritage, Climate Justice and Equity Toolkit* (2022), it forms part of the ICOMOS Climate Action Working Group's suite of resources for embedding climate resilience, sustainability and inclusive practice within the heritage sector.

If the *Heritage, Climate Justice and Equity Toolkit* (2022) is aimed at Scientific Committees then the Climate Change Adaptation Guide is designed to help heritage professionals understand climate change adaptation and integrate it into the management and conservation of cultural heritage. Rather than providing detailed technical guidance, it introduces the key concept of adaptation, explains why adaptation is necessary, and outlines actions that heritage organisations and practitioners can take. This connects to the focus on adaptation as advocated by the *UAE Framework for Global Climate Resilience* (2023).

The toolkit defines adaptation as actions that minimise the harmful effects of climate change while taking advantage of any opportunities that arise. Adaptation may involve behavioural changes, institutional and governance changes, technological solutions and revised conservation and management practices.

Alongside adaptation are the key concepts of mitigation and resilience. One of the toolkit's central messages is that these concepts are complementary. Adaptation focuses on adjusting to current and future climate impacts. Mitigation focuses on reducing greenhouse gas emissions. Resilience is the capacity of people, places and systems to withstand, recover from and adapt to climate-related disturbances.

ICCROM and Climate Change

The International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM) has produced a number of initiatives and programmes to deal with the effects of climate change on cultural heritage. Climate change is incorporated as part of the First Aid and Resilience for Cultural Heritage in Times of Crisis (FAR) programme, which is a flagship initiative of ICCROM that helps protect cultural heritage before, during and after disasters and conflicts. Since launching in 2020, the programme has worked with 122 countries.

ICCROM's climate change policy is closely linked to sustainable development and the SDG Goals. Developing out of the more generalised handbook, *the First Aid to Cultural Heritage in Times of Crisis report* (2018), ICCROM adopts specific case studies that integrate the effects of climate change with other risks. These include the *Story of Change 3* and *Net Zero: Heritage for Climate Action*, which adopt a narrative based approach to explore strategies for communities and heritage professionals to adapt to climate change in specific cultural and environmental contexts.

The Heritage-Based Climate Action Conference Report came out of a conference organised through ICCROM's *First Aid and Resilience for Cultural Heritage in Times of Crisis (FAR*) programme. The conference explored how cultural heritage can contribute to climate adaptation, disaster risk reduction, resilience-building and peacebuilding. The conference argues for a fundamental change in how climate action is understood. It explored the topic across three broad themes: 1) tracking loss and damage 2) Indigenous Knowledge, Traditional Practices, and World Views and 3) An Integrated Approach Towards Disaster Risk Reduction, Peacebuilding, and Climate Action.

The *Heritage-Based Climate Action Conference Report* defines climate change as a heritage issue and stresses that these impacts affect not only physical heritage but also the cultural practices and knowledge systems that communities rely on. Its central message is that effective climate action must be people-centred, culturally informed and locally grounded. By combining heritage conservation, Indigenous knowledge, disaster risk reduction and climate science, communities can develop solutions that protect both cultural identity and the environment while supporting more resilient and peaceful futures.

A major theme of the *Heritage-Based Climate Action Conference* is the value of Indigenous and local knowledge systems as sources of climate solutions. It emphasises these must be through meaningful partnerships rather than extraction. Communities should lead climate action and promotes community-led approaches, ICCROM advocates that it is the people living with climate risks who have the strongest understanding of local conditions

The Sustainability and Built Heritage programme aims to place the conservation of buildings, historic sites and cultural landscapes at the centre of sustainable development. As part of this programme, it addresses climate change and environmental resilience – reducing risks to historic places from changing

environmental conditions. A key aim of the programme is dealing with capacity building in relation to climate adaptation and resilience planning.

The World Heritage Leadership (WHL) programme is a global capacity-building initiative that aims to strengthen the conservation and management of World Heritage by bringing together cultural and natural heritage perspectives. The World Heritage Leadership programme aims to transform the way World Heritage is managed by developing leaders who can respond to complex global challenges. By integrating culture and nature, strengthening professional skills and promoting collaborative management, the programme seeks to ensure that World Heritage sites remain resilient, well-managed and beneficial to both present and future generations.

First Aid to Cultural Heritage in Times of Crisis (2018) is a practical handbook developed by ICCROM and the Prince Claus Fund to help professionals, communities and emergency responders protect cultural heritage during disasters and conflicts. The toolkit does not explicitly address the climate change, however, it provides a means by which some of the effects of the climate change can be mitigated. This includes both fire and earthquakes.

inSIGHT: A Participatory Game for Enhancing Disaster Risk Governance (2020) has a focus on sustainable development and draws on SDG Goal 13: *Take urgent action to combat climate change and its impacts*. InSIGHT seeks to recognise the traditional knowledge and the practices of a community, which could contribute to the sustainable management of natural resources in a given context. Such practices and knowledge could help mitigate and adapt to the risks induced by global climate change. Additionally, this game promotes a better understanding of the disaster risk, which in turn helps to implement the *Sendai Framework for Disaster Risk Reduction.*

The goal puts forward the targets of the Paris Agreement, which aim to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above preindustrial levels. The agreement also aims to strengthen the ability of countries to deal with the impacts of climate change, through appropriate financial flows, a new technology framework and an enhanced capacity building framework.

The Story of Change 3: Success Stories from the Alliance for Cultural First Aid, Peace and Resilience Project (2022) outlines key heritage case studies regarding climate change. These case studies are in Egypt, Jordan, Libya, Iraq, Pakistan, Yemen and Afghanistan. *The Alliance for Cultural First Aid, Peace and Resilience* is a story of change, which amidst the COVID-19 pandemic, trained a deployable team of 20 cultural first aiders (including 4 mentors) in eight countries in the MENAP (Middle East and North Africa, Afghanistan, and Pakistan) region. Using a story of change model the report demonstrates across 16 fieldsites that linking cultural heritage with disaster risk management and humanitarian assistance can

ensure that the affected communities participate in their cultural recovery, which in turn can become a driver for peace and holistic development.

Examples of stories of change include a field site in Jordan, which is affected by extended periods of droughts and minimum rainfall alternating with flash floods, causing socio-economic instability (Story of Change 3 2022, 30). In Um er-Rasas (Kastrom Mefa'a) solar panels will be installed at the World Heritage Site to mitigate climate change impacts and contribute to sustainable development approaches,

In Pakistan the archaeological ruins at Moenjodaro were threatened by 2022 floods (Story of Change 3 2022, 79). Climate change impacts such as variations in temperature, humidity, rainwater, salinity and windborne salts, as well as a lack of access and attention during periods of national instability, have partially or completely damaged the heritage in Makli (Story of Change 3 2022, 58). The project organised a workshop to carry out a comprehensive disaster risk assessment and discuss the impact of climate change on Moenjodaro and its surrounding communities (Story of Change 3 2022,80).

The Climate.Culture.Peace Conference Report (2022) documents the outcomes of ICCROM's international *Climate.Culture.Peace conference*. It was organised through ICCROM's *First Aid and Resilience for Cultural Heritage in Times of Crisis (FAR)* programme. The conference brought together practitioners, researchers, Indigenous leaders, policymakers, youth representatives and community organisations to examine the connections between culture, climate change, peacebuilding and disaster resilience.

The report makes the case that culture and heritage should be recognised as essential components of climate action, rather than peripheral concerns. It advocates for integrated, people-centred approaches that combine cultural heritage, environmental stewardship and disaster risk reduction to address the climate crisis. By bringing together diverse knowledge systems and sectors, the report presents heritage as a practical resource for adaptation, resilience, peacebuilding and sustainable development in an increasingly climate-affected world. The report is structured around the interconnections between four areas: Climate change, Culture and heritage, Peace and social cohesion and Disaster risk reduction and resilience.

Net Zero: Heritage for Climate Action is a global capacity-building initiative developed by ICCROM under its *First Aid and Resilience for Cultural Heritage in Times of Crisis (FAR)* programme. Net Zero extends the ideas introduced during *ICCROM's Climate.Culture.Peace initiative* by moving from discussion to implementation. The project connects back to ICCROM's broader concept of viewing heritage not only as something threatened by climate change but as a source of innovative solutions to contemporary environmental challenges.

The project is built around the idea that every place has a "climate story" embedded in the cultural heritage itself, which contains local knowledge preserved by generations. By recovering and applying this knowledge, communities can develop locally appropriate responses to contemporary climate challenges.

Net Zero: Heritage for Climate Action followed a four-phase capacity development model:

1. Situation analysis and data gathering – identifying climate risks, heritage assets and community knowledge.
2. International training workshop – bringing together interdisciplinary teams to develop shared methods and climate action plans.
3. Implementation at innovation sites – testing heritage-based climate adaptation projects in local communities.
4. Knowledge sharing – disseminating lessons through publications, conferences and international networks to influence policy and practice.

The project supported locally led initiatives in five climate-vulnerable locations: Jodhpur, India; Kasese, Uganda; Rashid, Egypt; Tuti Island, Sudan and Ubatuba; Brazil. This is explored in the accompanying publication to the project: *ICCROM's Net Zero: Heritage for Climate Action project*.

The Climate-Culture Story is a special issue of the Journal of Cultural Heritage Management and Sustainable Development (2024) produced through *ICCROM's First Aid and Resilience for Cultural Heritage in Times of Crisis (FAR)* programme. It presents research and case studies from *the Net Zero: Heritage for Climate Action* initiative, demonstrating how community-led heritage practices can support climate adaptation, disaster risk reduction (DRR), cultural safeguarding and peacebuilding.

Embracing a people-centred approach that emphasises the interconnectedness of climate and culture, the Net Zero Project teams actively engaged Indigenous and local communities – the old city dwellers and keepers of water bodies in Jodhpur, India; the Bakonzo in Kasese, Uganda; the Quilombolas in Ubatuba, Brazil; the fishermen and farmers of Rashid, Egypt; the Taya practitioners of Tuti Island, Sudan – to enhance their disaster resilience and coping capacities, while addressing the cross-cutting issues of heritage protection, decarbonisation, upholding cultural rights and promoting sustainable development of vulnerable population group (Poelina 2024, 766).

Our Collections Matter (OCM) is an ICCROM knowledge platform designed to help cultural heritage organisations understand how collections care and conservation can contribute to sustainable development. OCM is an online resource hub that brings together practical materials, case studies, research and tools to help museums, archives, libraries and other collections-based organisations improve their sustainability practices. It is structured around the "5Ps" framework developed from the UN's 2030 Sustainable Development Agenda: people, planet, prosperity, peace and partnership. The central theme relevant for PITCH is that of Planet, which addresses the environmental impacts of collecting, conserving and operating cultural institutions.

Topics include reducing energy consumption and greenhouse gas emissions, sustainable conservation practices, waste reduction and climate adaptation. The emphasis of the OCM is on balancing preservation needs with environmental responsibility.

Our Collections Matter provides a framework for rethinking collections management in the context of sustainable development. Its central message is that caring for collections is not only about preserving objects, it is also about supporting people, protecting the planet, encouraging knowledge exchange and strengthening communities.

Finally, the Rio de Janeiro Declaration on Fire Risk Reduction in Cultural Heritage is a set of recommendations developed to address the growing threat of fire to museums, historic buildings, collections and other cultural heritage assets. It was produced following the international seminar "Heritage on Fire: Who's Next? Fire Risk Management for Cultural Heritage", held in Rio de Janeiro, Brazil, in June 2019. This seminar brought together more than 30 specialists from eight countries, including heritage managers, conservators, firefighters, fire engineers, researchers, risk assessors and insurance experts. The declaration aims to encourage a shift from reactive emergency response to proactive fire risk reduction. It emphasises that emergency preparedness is important, but it cannot replace prevention. Although focused specifically on fire, the declaration aligns fire risk reduction with broader disaster risk management. It recognises that changing environmental conditions, increasing urban pressures and new hazards may influence risks to cultural heritage.

ICOM and Climate Change

The International Council of Museum's (ICOM) approach to climate change can be seen as an extension of principle 1 of the ICOM code of ethics: 'Museums preserve, interpret and promote the natural and cultural inheritance of humanity' (ICOM 2006, 5). The first institutional step for ICOM in addressing the climate crisis was the establishment of a Working Group on Sustainability in 2018 (Legget, J., & Labrador 2023, 2; Merriman 2024, 7). This emphasis on 'sustainability' can be seen in its inclusion in the new ICOM definition of what a museum is: 'Open to the public, accessible and inclusive, museums foster diversity and sustainability', which was ratified by members in 2022 (Folga-Januszewska, 2020). Merriman (2024, 123) argues that the new definition does not go far enough and that environmental responsibility as a foundational element of a museum's purpose is still largely missing. In *Reimaging museums for climate action,* Harrison & Sterling (2021, 71) describe how National Future Museums rewrites the ICOM's proposed new museum definition, drawing parallels between the role that museums and Indigenous Peoples might play in confronting the inevitable environmental transformations climate change will bring.

In his history of the concept of the ecomuseum, Garlandini (2022, 22) addresses museum's capacity as an important international actor and highlighted the role of museums in heritage protection, sustainable development and education. Garlandini (2022, 22) argues that 'actively fighting climate change and the

loss of biodiversity is one of the ethical imperatives of our time. The focus on climate change and sustainable development is part of ICOM's commitment to the protection of Cultural Heritage, Education and Capacity Building.' In his capacity as president of ICOM Garlandini argues ICOM should have three responses to the climate crisis:

> 1. to consider museums as relevant institutions in charge of promoting communities' knowledge about the climate crisis and sustainable behaviour.
>
> 2. to foster the educational commitment of museums on sustainability, climatic justice and intercultural pedagogy; to integrate museums' activities with the G20 strategies so as to promote responsibility and civic participation from school children to senior citizens.
>
> 3. to rely on ICOM as an international partner in the fight against the climate crisis and in the protection and promotion of cultural and natural heritage. *(*From Alberto Garlandini's speech on "Addressing the climate crisis through culture' quoted in Borelli 2022, 22)

As part of ICOM Experts' Work on Culture and Climate Change, Crampette (2025) emphasises the objectives of the *Action for Climate Empowerment* (ACE) outlined by the Paris Agreement and the role museums can play in implementing these principles. Crampette (2025) argues that as a human crisis, the climate crisis requires an awakening 'of imagination, of memory, of listening – and of care' and museums can play an important role in this form of civic engagement. This can take the form of dialogue, capacity-building and participatory pathways, museums must empower civil society (Crampette 2025). In their presentation to the G20 Culture Working Group, ICOM outlines three key points on how museums might empower communities to face the climate crisis through (1) storytelling and listening, (2) deploying Indigenous approaches and (3) providing refuge (Crampette 2025).

Museums promote action through storytelling. This concept of storytelling includes how museums can help to regenerate local communities by becoming spaces of exchange that bring people together to make visible the impact of burning fossil fuels and the negative influence of the fossil fuel industry. Museums also seek to find answers to climate change's perennial question: what can I do? They also provide a means of building confidence in participants towards achieving these goals (Crampette 2025). ICOM's initiative of museums promoting action through storytelling connects to what Dias et al. (2026, 52) have described as narratives that connect carbon cultures to progress and the modernity. Khater (2026, 2) contrasts Gulf states where museums and sustainability are presented as beacons of modernity and global standing, with European museums who situate their efforts within longer traditions of ecological awareness around embedding carbon reduction into established policy frameworks such as the EGD.

One of the strategies advocated by ICOM is deploying Indigenous approaches within the museum space to facilitate traditional knowledge around plants and affirm Indigenous knowledge and oral heritage as vital

tools for climate adaptation. These initiatives provide the opportunity for resilience, resistance and Indigenous protagonism through amplifying authentic Indigenous voices (Crampette 2025).

Finally, alongside keeping collections safe, museums can also provide physical support for local communities when struggling with heatwaves, floods and fires. For example, after Hurricane Gilbert, the National Gallery of Jamaica provided shelter for many who had lost homes, as it was one of the few intact buildings with backup power generation (Crampette 2025).

2019 ICOM Resolution on Sustainability and Agenda 2030

A key moment in the development of ICOM's response to the climate crisis was the ICOM Kyoto conference of 2019 in which the *ICOM Resolution on Sustainability and Agenda 2030* was passed. Resolution No. 1 was organised around three concepts: considering, recognising and understanding. Considering focusses on humanity's unsustainable demands on the planet and that the impact of wars, poverty, climate change amplify these crises. Recognising focusses on implementing Agenda 2030 to address crises and initiate the pathways to a sustainable future. Understanding focusses on museums as sources of knowledge for engaging communities and designing a sustainable future for all (ICOM 2019).

The 34th General Assembly of ICOM also specifically address the targets of the UN SDGs and the *2030 Transforming our World Agenda* as the guiding framework to incorporate sustainability into museum practices and education programming (ICOM 2019).

Borrelli et al. (2022, 21) describe how with this resolution, ICOM demonstrates its commitment to base the superstructure of museum work over the next decade around the 2030 Agenda. Alongside the ICOM Resolution on Sustainability and Agenda 2030, ICOM's joint publication with the Organisation for Economic Co-operation and Development (OECD) *Culture and Local Development: Maximising the Impact – Guide for Local Governments, Communities and Museums*, published in 2018, highlights sustainability beyond climate action to consider the economic and social aspect of sustainability (Legget & Labrador 2023, 2).

Despite all of the emphasis on sustainability within ICOM, tensions emerge around the topic of climate activism in the museum with ICOM Germany in 2022 describing protests by the like of Just Stop Oil as 'art vandalism' and detracting from the 'core tasks of the museum as an institution – collecting, researching, sharing and preserving' (Merriman 2024, 126).

International policy conclusion

UNESCO, ICOMOS, ICCROM, and ICOM all work to protect cultural heritage, and all now recognise climate change as a major threat. However, they have different mandates, audiences, and approaches. The main distinction is that UNESCO sets international policy frameworks, ICOMOS provides expert advice and standards, ICCROM focuses on capacity building and practical implementation, and ICOM focuses on climate changes impact on museums and collections.

All four organisations, recognise climate change as one of the greatest risks to cultural heritage and seek to promote disaster risk reduction and resilience. They also aim to encourage interdisciplinary collaboration between heritage professionals, scientists, governments, and local communities. One of their methods for this is supporting the integration of traditional and indigenous knowledge with scientific approaches.

Together, these organisations form complementary parts of the international cultural heritage system. UNESCO provides the global policy framework and convenes governments. ICOMOS supplies the scientific and conservation expertise that informs standards and World Heritage advice. ICCROM translates policy into training, methods, and on-the-ground practice. ICOM mobilises museums and collections to reduce environmental impacts and engage the public on climate change. Rather than duplicating one another, their roles can be largely complementary: UNESCO leads at the intergovernmental level, ICOMOS develops technical guidance, ICCROM builds implementation capacity, and ICOM brings climate action into museum practice and public engagement.

All four organisations increasingly suggest that cultural heritage should contribute to climate adaptation, mitigation, and sustainable development rather than simply be protected from climate impacts, but with slightly different focuses. UNESCO has increasingly framed culture as an essential component of climate action and sustainable development, rather than treating heritage solely as something at risk. ICOMOS has expanded from documenting climate impacts to promoting heritage as a source of adaptation knowledge and low-carbon solutions, such as the reuse of historic buildings. ICCROM has shifted from emergency response toward strengthening long-term resilience through people-centred conservation and capacity building. While ICOM has broadened its focus from environmentally responsible museum operations to positioning museums as civic institutions that support climate literacy, public dialogue, and community engagement.

EUROPEAN POLICIES ON CLIMATE CHANGE AND HERITAGE

This section of the report brings together organisations with a specific European focus to explore their policies towards the climate crisis and heritage. These organisations include the CoE (the Council of Europe), NEMO (Network of European Museum Organisations), Europa Nostra and the European Commission.

The Council of Europe

The Council of Europe has programmes concerned with protecting cultural heritage, which can include heritage that is threatened by environmental risks. In 2008 the Council of Europe commissioned a report on the *Vulnerability of Cultural Heritage to Climate Change.* In 2009 in Ravello, the CoE organised the first International Workshop on "*Climate Change and Cultural Heritage".* This resulted in a *Recommendation of the Committee of Permanent Correspondents of the EUR-OPA Major Hazards Agreement* in which states were asked to identify those cultural assets at higher risk from climate change, promote emergency planning for most vulnerable sites, promote training among heritage professionals and integrate cultural heritage into climate change adaptation policies (Lefèvre and Sabbioni 2018, 7). The Council of Europe also funded from 2009 to 2015 a series of doctoral courses and training on the topic carried out in cooperation with the University Paris-Est Créteil at the European University Centre for Cultural Heritage in Ravello.

The Council of Europe's position is that climate change poses a serious and growing threat to Europe's cultural heritage and that governments should integrate heritage protection into climate adaptation and disaster resilience policies. The Council of Europe states that climate change is increasing the frequency and intensity of hazards such as floods, heatwaves, wildfires and landslides, which threaten monuments, archaeological sites, cultural landscapes and historic buildings. It also notes that damage to heritage can lead to economic losses and the loss of cultural identity and diversity.

The Council of Europe has been addressing this issue for many years. In 2009 it organised a workshop on *Climate Change and Cultural Heritage*, which recognised climate change as a significant threat to heritage and led to recommendations for integrating climate considerations into heritage protection and maintenance. More recently, it adopted the Recommendation CM/Rec (2018) 3 on increasing the resilience of cultural heritage and promoting adaptation to climate change.

The 2024 Resolution: Cultural Heritage and Climate Change states that both tangible and intangible heritage are at risk. The CoE emphasises that climate change threatens historic buildings and monuments,

archaeological sites, Cultural landscapes and traditional knowledge, crafts and cultural practices (intangible heritage). It argues that climate impacts affect not only physical places but also the traditions and communities connected to them.

In its 2024 Resolution on *Cultural Heritage and Climate Change*, the Parliamentary Assembly calls on member States to include heritage preservation in climate change strategies to assess climate risks to heritage. This includes improving coordination between culture, environment and planning authorities, strengthening cooperation with UNESCO and the European Union; and supporting local and regional authorities in protecting heritage from climate impacts.

In L.I.N.K.E.D. - Guiding principles for an integrated approach to culture, nature and landscape management the Council of Europe argues that global challenges like climate change require new sustainable solutions for a just transition and a change of mindset and action, where the interlinkages and interdependencies between people, culture and nature are brought into the spotlight. Heritage has the transformative power to incite reflective change in all domains. For example, traditional building techniques, local knowledge and long-established land management practices can help communities adapt to climate change and build resilience.

The Council of Europe publication *Cultural Heritage and Climate Change: Experiences and Ideas for Resilience and Adaptation* examines how climate change is affecting Europe's cultural heritage and provides recommendations for governments, heritage professionals and cultural organisations on improving resilience. It argues that protecting heritage should be an integral part of climate adaptation and disaster risk reduction, rather than a separate conservation issue.

The report highlights that climate change is increasing both the frequency and severity of hazards affecting cultural heritage. These include flooding, heatwaves, wildfires, storms, coastal erosion, landslides, drought and rising sea levels. These hazards threaten historic buildings, archaeological sites, museums, archives, cultural landscapes and intangible heritage, while also affecting local communities that depend on heritage for their identity and economy.

One of the report's central themes is that traditional building techniques and local knowledge can contribute to climate resilience. Historic construction methods often evolved in response to local environmental conditions and may offer valuable lessons for sustainable adaptation today.

The report concludes that climate change is now one of the greatest long-term threats to Europe's cultural heritage, but heritage should not be viewed solely as something to protect. It argues that cultural heritage can also contribute to climate resilience by providing traditional knowledge, supporting sustainable development, strengthening community identity and informing more resilient approaches to managing landscapes, the built environment and as a resource for sustainable development and quality of life of

European societies. Protecting heritage is therefore presented as an important part of broader climate adaptation and disaster risk reduction strategies.

Summary

The Council of Europe frames climate change through the lens of Human rights, democratic participation, cultural rights and landscape governance. Its conventions, such as the Faro Convention and the European Landscape Convention, stress that people and communities should play a central role in managing heritage under climate pressures. The Council of Europe argues that climate adaptation should strengthen democratic participation and social cohesion. It encourages governments to integrate heritage into climate adaptation and disaster risk reduction, while recognising that cultural heritage – including traditional knowledge and historic practices – can itself support climate resilience and sustainable development.

The European Cultural Heritage Green Paper

The European Cultural Heritage Green Paper was published by Europa Nostra and ICOMOS in 2021. It identifies several tensions related to heritage, which include the energy infrastructure in cultural landscapes and the insertion of density into historic districts. This includes the placement of solar panels on historic buildings and the loss of the multi-generational livelihoods tied to the carbon economy.

Many of Europe's historical cities are directly threatened by the effects of climate change. Likewise, a large part of Europe's 'green' heritage, including elements of its intangible heritage such as its food traditions, is severely impacted by the potential effects of environmental disasters (The European Cultural Heritage Green Paper 2021, 1). One case study the Green Paper uses to illustrate this is the fire on the 15 April 2019 at Notre Dame Cathedral in Paris produced a rallying response for people around the world to show how they value cultural heritage. It calls for a similar response to the rise in global temperatures as a result of climate change (The European Cultural Heritage Green Paper 2021, 4).

The European Cultural Heritage Green Paper (2021) argues that cultural heritage should be placed at the heart of Europe's response to climate change and the European Green Deal (EGD), rather than being treated as a separate policy area. The report's central thread is that Europe cannot achieve a sustainable, climate-neutral future without its cultural heritage. It seeks to provide a means of cultural heritage operators to both use cultural heritage to advocate with citizens for the EGD and implement climate neutral strategies for the management of cultural heritage sites.

The Green Paper seeks to increasing the EU's climate ambition for 2030 and 2050. For cultural heritage operators this involves fully engage citizens in the decarbonisation challenge as convinced actors in this transition (*European Cultural Heritage Green Paper* 2021, 13). As part of mobilising industry for a clean and circular economy, heritage operators are encourage to promote an ethic of stewardship and reuse as an element of green transition and emphasise (*European Cultural Heritage Green Paper* 2021, 20). The

heritage sector is to be enlisted in the Renovation Wave by mobilising craftspeople, artisans, conservators/restorers, architects, engineers, managers, owners, heritage scholars, and researchers (*European Cultural Heritage Green Paper* 2021, 30). Cultural heritage destinations can also be utilised to showcase mitigation strategies, educate visitors about climate change, and support behavioural changes towards greener practices (*European Cultural Heritage Green Paper* 2021, 37). To enable food security, cultural heritage practitioners can prioritise the identification, documentation, and preservation of learning from traditional agricultural technologies and techniques that support sustainability in contemporary food systems. Similarly, strategies for preserving and regenerating rural territories can be enabled by marrying circular economy models with heritage conservation and the sustainable use of traditional land, water, agricultural, and forest management systems (*European Cultural Heritage Green Paper* 2021, 45).

Rather than seeing heritage only as vulnerable, the authors argue that it can contribute to climate action by encouraging the reuse and repair of existing buildings instead of demolition. This includes supporting a circular economy through conservation and preserving traditional construction techniques that often use low-carbon, local materials.

A major argument put forward by *the European Cultural Heritage Green Paper* (2021) is that the greenest building is often the one that already exists. Demolishing historic buildings and replacing them with new construction creates significant embodied carbon emissions, whereas adapting and retrofitting existing buildings can reduce environmental impacts while preserving cultural value.

The report recommends integrating cultural heritage into broader climate adaptation strategies and energy efficiency programmes. It argues that climate and heritage policies should reinforce one another rather than operate separately. The Green Paper stresses that heritage is about people as well as places. Local communities, traditional knowledge and cultural practices are seen as essential for developing effective and socially accepted climate solutions. Heritage can also help build public support for climate action by connecting environmental goals with local identity and history.

The report calls on European institutions, national governments and local authorities to recognise cultural heritage as a strategic asset in the EGD and strengthen education and public awareness about the links between heritage, sustainability and climate action.

Summary

The Green Paper is arguably the most comprehensive European heritage document devoted specifically to climate change. It emphasises adaptive reuse instead of demolition, carbon reduction through conservation and green financing. The paper concludes that cultural heritage is both at risk from climate change and an important part of the response to it. It argues that protecting and reusing heritage can reduce carbon emissions, support biodiversity, strengthen communities and contribute to a more sustainable and climate-

resilient Europe. Rather than treating heritage as a barrier to environmental progress, the report presents it as a key resource for achieving Europe's climate and sustainability goals.

The Europa Nostra Brussels Manifesto

The Europa Nostra Brussels Manifesto connects heritage to two global milestones – Mondiacult 2025 in Barcelona and COP30 in Belem, Brazil and seeks to set 'new directions for culture and heritage in the context of sustainable development and climate action.' The core strategic mandate of MONDIACULT 2025 was building unified momentum to establish culture as a ‘stand-alone’ Sustainable Development Goal (SDG) in the upcoming United Nations post-2030 development strategy. Alongside this it bound cultural policy to climate resilience, pushing countries to safeguard threatened heritage from climate risks and use indigenous knowledge for green transitions.

The key outcome of the COP30 conference was the Mutirão Decision text, which set out actions on maintaining plans to combat climate change in line with the 2015 Paris Agreement climate finance and a reference to aligning global trade with climate objectives. Additionally, agreements were reached on indicators to measure progress towards adaptation and to develop a just transition mechanism to financially support countries transitioning to low carbon economies.

The Europa Nostra Brussels Manifesto advocates for the use of sustainable energy-efficient renovation and adaptive reuse of historic buildings in order to safeguard tangible heritage. The manifesto also suggests heritage sites can be viewed as ‘models for the green transition' and 'the Integration of heritage into local and regional planning, including adaptation and climate-resilient planning, ensuring development respects cultural significance and social value' (Europa Nostra 2025, 5).

The manifesto presents cultural and natural heritage as an essential part of Europe's response to climate change, rather than treating climate action and heritage as separate issues. Climate resilience is woven throughout the manifesto's recommendations. This includes ‘sustainable energy-efficient renovation and the adaptive reuse of historic buildings and sites as models for the green transition’ (Europa Nostra 2025, 5).

The manifesto argues that heritage should be recognised as contributing to climate solutions. Historic buildings, cultural landscapes and traditional knowledge are viewed as resources that can support Europe's transition to a more sustainable and climate-resilient future, rather than obstacles to decarbonisation.

The document calls for the protection of historic sites, monuments and landscapes through conservation approaches that also improve resilience to climate risks such as flooding, extreme weather and rising temperatures. Sustainable renovation and adaptive reuse of existing buildings are prioritised over demolition and replacement.

The manifesto emphasises investment in traditional craftsmanship alongside digital innovation and climate-related skills. It suggests that maintaining and developing these skills will support sustainable construction, repair and restoration while reducing environmental impacts.

Rather than seeing environmental protection and cultural heritage as competing priorities, the manifesto argues they should reinforce one another. Heritage is presented as supporting bridge building, enlargement of the EU and cooperation (Europa Nostra 2025, 6).

The manifesto calls for stronger EU funding so that heritage organisations, local authorities and communities can implement climate-resilient conservation projects and contribute to wider environmental objectives. The document advocates making culture and heritage a stronger element of international climate and sustainability agendas, including support for a dedicated UN Sustainable Development Goal on Culture.

Europa Nostra supports climate action but stresses that interventions must respect the cultural significance and authenticity of heritage places. It promotes approaches such as adaptive reuse rather than demolition, sensitive energy improvements, conservation-led renovation, sustainable management of cultural landscapes and continued use of traditional craftsmanship. The organisation cautions that poorly designed climate measures could unintentionally damage heritage assets.

Summary

The Europa Nostra Manifesto is primarily an advocacy document. Compared with the Green Paper, it is less technical and more political. It calls for greater investment in climate action and the integration of heritage into all climate policies. Its emphasis is that Europe should recognise heritage as a strategic resource for achieving climate neutrality. By conserving and adapting existing heritage assets, investing in traditional knowledge and skills, and embedding heritage into climate policy, the manifesto argues that Europe can strengthen both environmental sustainability and community resilience.

The Network of European Museum Organisations (NEMO)

The Network of European Museum Organisations (NEMO) sees climate change as both an operational challenge for museums and a societal issue where museums have an important leadership role. Rather than publishing a single climate policy, NEMO's position is expressed through its Sustainability Policy, practical guidance, advocacy reports and working group activities. NEMO argues that museums are essential contributors to Europe's sustainable future. Through their collections, research, education and community engagement, museums can help achieve the EGD and the UN Sustainable Development Goals (SDGs), while encouraging public understanding of climate change.

NEMO's Sustainability Policy commits the organisation to reducing its ecological footprint and encourages museums to do the same. Key priorities include, reducing greenhouse gas emissions, promoting low-

carbon travel, organising sustainable events, improving resource efficiency and reducing waste, embedding sustainability into governance and operations and reviewing environmental performance regularly. NEMO also participates in the SHIFT eco-certification programme to improve its own environmental performance.

NEMO encourages museums to embed sustainability across every aspect of their work rather than treating it as a standalone project. This includes strategic planning, collections care, exhibitions, procurement, buildings management and staff development. Its *Climate Protection in Museums* guidelines recommend practical actions such as assessing environmental impacts, integrating sustainability into organisational processes, and using museums to educate visitors about climate change.

NEMO argues that museums are trusted public institutions that can help people understand climate change and support behavioural change. Museums are encouraged to use exhibitions and collections to explain climate science and environmental history and strengthen community resilience. Climate action is therefore seen as part of museums' wider public mission.

NEMO's Museums, Climate and Politics report has found that relatively few museums are consulted when governments develop climate policies. It therefore encourages museums to engage more actively with policymakers and has produced reports to help museums understand national climate legislation and advocate for their role in the sustainable transition.

NEMO's Sustainability and Climate Action Working Group supports knowledge sharing and research across the museum sector. NEMO also works with international partners, including the Climate Heritage Network, to strengthen the contribution of museums to climate action.

The NEMO European Museums Survey 2022

In 2022 the NEMO (Network of European Museum Organisations) undertook a European Museum Survey that was responded to by 578 museums from 38 European countries (NEMO 2022, 3). Some of the key findings were:

- Relevance 8 in 10 museums in Europe have acknowledged climate change and sustainability as important strategic topics and nearly 7 in 10 museums offer public actions and programmes around climate change and sustainability.
- Only 1 in 4 museums are being consulted by public authorities when considering sustainable policies and transformations in their communities and only 1 in 10 museums are aware of local/regional or national climate policies that feature or address them.
- A minority of museums have been able to take consequential steps toward fulfilling their potential, as shown by only 4 in 10 museums having methods or criteria to measure and assess their sustainable efforts.

- Only 2 in 10 museums claimed they use a green energy supplier
- Less than 1 in 10 museums have completed an analysis about challenges associated with climate change in their region and only 3 in 10 museums have analysed the climate impacts they are likely to be challenged by.
- Only 1 in 10 museums are part of a cultural network that focuses on climate change, but professionals of those networked museums are more confident in their climate related activities.
- 2 in 3 museums report they do not have sufficient knowledge about the UN Sustainable Development Goals (SDGs) and climate action in their organisation.

Unlike the broader heritage initiatives, NEMO focuses on operational changes within museum practice, such as reducing museum's carbon footprints, while also positioning museums as trusted spaces for climate dialogue. NEMO's overall policy approach is based around four key principles: lead by example; embed sustainability throughout museum management, collections and programmes; educate and engage the public on climate change through trusted cultural institutions; and advocate and collaborate so that museums are recognised as active partners in Europe's climate and sustainability policies.

European Union (EU) Policy for Cultural Heritage

The European Commission document EU Policy for Cultural Heritage sets out how the European Union supports, protects and promotes Europe's shared cultural heritage. It explains that heritage is not only a legacy from the past but also a resource for Europe's social cohesion, economic development, sustainability and response to current challenges, including climate change. The key aspect of the EU's policy is that heritage contributes towards sustainable development and is not something to preserve, but an active resource that can support Europe's future development.

The EU Policy for Cultural Heritage identifies climate change and environmental degradation as significant risks to Europe's heritage both in terms of historical buildings, collections and archives and traditional practices linked to local environments. The EU therefore promotes stronger integration between heritage protection and climate adaptation policies.

The policy document highlights that cultural heritage can contribute to climate action through adaptive reuse of historic buildings, sustainable renovation, traditional construction skills and materials that support low-carbon approach and heritage landscapes that contribute to biodiversity and sustainable land management. A key principle is that conserving existing buildings can reduce resource consumption and preserve the embodied energy already contained within them.

The European Council 2023-26 Work Plan for Culture sets out four concrete actions: the safeguarding of cultural heritage against natural and human-made disasters, the fight against illicit trafficking of cultural goods, the preservation of cultural heritage in Ukraine and climate action through arts and cultural heritage.

The European Framework for Action on Cultural Heritage provides a strategic approach for EU heritage policy. The EU places sustainability at the heart of its framework as one of its five pillars, alongside themes such as inclusion, resilience, innovation and international cooperation.

The EU funds research into ways to protect heritage from climate impacts through programmes such as Horizon 2020 and related initiatives. Relevant research priorities include improving resilience of historic areas, understanding climate risks, developing adaptation methods and supporting sustainable reconstruction after climate-related disasters. The EU also supports expert cooperation between Member States to share good practices on protecting cultural heritage from climate change.

Summary

The European Commission argues that conserving and adapting Europe's heritage can contribute to the EU's climate-neutral ambitions by reducing carbon emissions through the reuse of existing buildings, strengthening community resilience, supporting sustainable tourism and informing environmentally responsible development. Rather than seeing conservation and climate action as competing objectives, the policy presents them as mutually reinforcing elements of Europe's transition to a sustainable future.

The European Heritage Hub monitor

The European Heritage Hub Policy Monitor is a tool for tracking and analysing European cultural and natural heritage policies. In relation to climate change, it provides a framework for understanding how heritage policy is responding to the green transition, climate risks, sustainability goals and the role of heritage in climate solutions.

The Policy Monitor organises heritage policies around five categories linked to the *European Framework for Action on Cultural Heritage and the European Heritage Hub's "Triple Transformation"* approach. One of these categories is the Green Transition, which focuses on how heritage policies contribute to environmental sustainability and climate action.

The Hub's wider climate approach recognises that cultural heritage is vulnerable to climate change, through risks such as extreme weather, environmental degradation and changing conditions. It also argues that it is a resource for climate solutions, through traditional knowledge, sustainable practices and community-based approaches. A key message running throughout the Hub Policy Monitor is that climate change should be incorporated into heritage governance rather than treated as a separate environmental issue.

Relevant policy priorities include assessing climate risks to heritage sites and collections, improving the resilience of historic buildings and landscapes, integrating heritage into climate adaptation strategies; and encouraging cooperation between heritage professionals, policymakers and environmental experts. The European Heritage Hub highlights that stronger links between heritage and climate policy are needed so that cultural heritage is considered in climate planning and decision-making.

Summary

The European Heritage Hub Policy Monitor reflects a growing European policy shift from viewing heritage only as something threatened by climate change towards recognising it as a contributor to sustainability. The European Heritage Hub Policy Monitor presents climate change as a key driver of change in European heritage policy. Its central message is that heritage must be both protected from climate impacts and actively used to support the green transition. By tracking policies across Europe, the Monitor aims to strengthen evidence-based decision-making and encourage more integrated approaches where cultural heritage, sustainability and climate action reinforce one another.

European heritage and climate change policy conclusions

These European organisations and policy initiatives all recognise climate change as a major challenge for cultural heritage, but they differ significantly in their institutional roles, policy priorities, and proposed responses. Broadly, they share the view that cultural heritage is vulnerable to climate change and should contribute to the transition to a sustainable future. However, they emphasise different aspects of governance, conservation, public participation, and the green transition.

All six recognise that climate change threatens heritage in its various forms ranging from historic buildings, museums and collections and ICH. Unlike earlier conservation approaches, they argue that climate change is not solely an environmental problem but also a cultural, social, and economic one.

Taken together, these initiatives represent complementary dimensions of European climate and heritage policy. The Council of Europe frames climate change as a matter of cultural rights, democratic participation, and landscape stewardship. The *European Cultural Heritage Green Paper* provides the most integrated conceptual framework, arguing that heritage is both vulnerable to climate change and a resource for mitigation and adaptation. The *Europa Nostra Brussels Manifesto* translates this vision into political advocacy, calling for stronger investment and policy integration. NEMO focuses on the museum sector, promoting sustainable operations and the role of museums in climate education and public engagement.

European Union cultural heritage policy embeds heritage within broader climate, research, regional development, and Green Deal agendas, emphasising implementation through legislation and funding. The European Heritage Hub Monitor complements these by assessing progress, identifying gaps, and supporting evidence-based coordination across the European heritage sector.

A notable trend across all six is a shift away from treating cultural heritage solely as something to be protected from climate impacts. Instead, these policies and reports increasingly present heritage as an active asset for achieving climate resilience, reducing carbon emissions through adaptive reuse and circular practices, strengthening community resilience, and supporting a just and inclusive green transition.

NATIONAL EUROPEAN POLICIES ON HERITAGE AND CLIMATE CHANGE

This section of the policy review aims to drill down into the national and regional policy contexts of the locations of the PITCH project's various partner organisations and interventions in the Netherlands (EPIQ), Germany (Deutsches Technikmuseum and E-Werke Luckenwalde), Finland (Finnish Foresty Museum) as well as in the UK (where the project is additionally collaborating with Kew) to explore how these policy contexts impact on individual heritage organisations and museums across Europe.

Netherlands

Netherlands national policy

One of the case studies for PITCH is located in the shale gas fields of Groningen in the Netherlands in association with EPIQ, the documentation centre for the history of Groningen's gas extraction earthquakes. The project seeks to anchor the gas quakes in a public space, through a cycling route that allows visitors to move through the land, encountering art and architecture created by contemporary artists. This section of the review contextualises this case study by first looking at climate heritage and the Netherlands at a national level and then focusses specifically on the region of Groningen in the North of the Netherlands.

Recent Dutch policy marks a shift from treating heritage as a peripheral conservation issue to recognising it as part of national climate resilience. The draft NAS 2026 is particularly significant because it explicitly embeds cultural heritage within the country's climate adaptation framework, making heritage a recognised sector alongside water, agriculture, infrastructure and nature. This integrated approach is often cited internationally as an example of how heritage conservation and climate adaptation can be addressed together rather than as competing policy goals.

The Netherland's approach to heritage and climate change can be summarised as being driven by several key policies. Firstly, there is the National Climate Adaptation Strategy (NAS) which outlines the strategy to heritage and climate change and then the National Climate Adaptation Implementation Programme (NUPKA), which translates the NAS into practical actions. Water is central to the Dutch landscape and the National Heritage Agency has established a dedicated Heritage, Water and Climate programme. A key element of this is The Delta Programme for Spatial Adaptation (DPRA), which is intended to reduce waterlogging, drought, heat stress and flood impacts.

In terms of heritage policy – the Netherlands is informed by the Heritage Deal (*Erfgoed Deal*), which is a mechanism that links heritage and climate adaptation. An important tool adopted by this approach is mapping and subsequent integration into spatial planning.

In considering the case study of EPIQ, it is important to note that Groningen has developed a distinctive approach to climate and heritage policy because it faces three interconnected policies related to specific challenges. The provincial climate adaptation strategy of Groningen follows the Delta Programme. Groningen's own approach is informed by the *Erfgoed* programme, which was specifically developed for Groningen in 2017 and extended through to 2028. This is connected to the *Nij Begun* package responding to the parliamentary inquiry into gas extraction.

Alongside protecting historic buildings, the region of Groningen seeks to restore communities affected by gas extraction, maintain the cultural landscape, and ensure that historic buildings remain safe, usable and resilient in the face of both seismic risks and climate change. This integrated approach makes Groningen a notable example of how environmental resilience and heritage conservation can be pursued together.

The National Climate Adaptation Strategy (NAS)

The central Dutch national policy regarding the climate crisis and the Netherlands is the National Climate Adaptation Strategy (NAS**)**, which sets the course for climate-proofing the Netherlands. The first version of the NAS was published in 2016 (NAS'16), and the new Strategy will be published in 2026 (NAS'26). In 2023, the National Adaptation Plan was published, to step up the implementation of the National Climate Adaptative Strategy.

The original strategy, which was drafted in 2016 focused on preparing the Netherlands for climate impacts such as flooding, drought, heat and sea-level rise. The updated NAS 2026 is the first national strategy to explicitly include cultural heritage as a policy sector. It identifies heritage as vulnerable to climate change and introduces adaptation pathways for protecting it over the long term.

The strategy recognises threats including – sea-level rise affecting historic coastal settlements, increased flooding damaging historic towns, drought causing subsidence of peat soils beneath monuments; archaeological remains deteriorating through changing groundwater levels; heat and moisture dama. Finally, given the cultural heritage landscape of the Netherlands, dikes are identified as being particularly important feature of how the Netherland's historically manages and creates a cultural landscape.

An important innovation suggested by NAE 2016 is the use of adaptation pathway maps, which help authorities decide when protection remains feasible and when more difficult choices – such as relocation or selective preservation – may eventually become necessary.

The strategy identifies that measures that are being taken to protect the Netherlands against climate change may affect cultural heritage sites as well. For example, spatial measures such as dike

reinforcements and the creation of water buffers may have negative effects if insufficient thought has been given to the cultural heritage site and the relationship to the historic water and soil system.

A distinctive aspect of Dutch policy is that heritage is viewed not only as something to protect, but also as a resource for climate adaptation. Cultural historical knowledge is identified by the NAS as yielding possible solutions. These include restoring the system of ditches that used to separate lots and redeploying water cellars and watermill systems, research on (regional) climate risks for culture heritage sites. Other approaches include creating awareness, protective and adaptive measures, acceptance of residual risks and cultural-historical knowledge as an opportunity for climate adaptation.

The NAS argues that cultural-historical knowledge about natural systems and how these were used by past generations can provide solutions for climate adaptation. Old water and soil systems can be restored and redeployed to combat the effects of climate change. An example of this is the Baakse Beek project in Gelderland in the Netherlands. This area is very vulnerable to drought and prone to severe peak rainfalls in certain locations. Old water structures in and around several country estates were reconnected to form a resilient water system that can be adapted to changing weather conditions. This replenishes the groundwater supply and it combats drought. The knowledge programme of the Netherlands Environmental Assessment Agency was also established within the framework of the National Climate Adaptation Strategy (NAS), and its research topic is cultural heritage.

The National Climate Adaptation Implementation Programme (NUPKA) translates the national strategy into practical actions. For heritage, it commits to assessing climate risks to cultural heritage, developing operational protection measures, improving cooperation between heritage and climate professionals, raising awareness among municipalities and heritage managers and using heritage knowledge to improve climate adaptation itself.

Heritage, Water and Climate programme

The national heritage agency has established a dedicated Heritage, Water and Climate programme. Its objectives include identifying climate risks to heritage, developing adaptation guidance, supporting research, sharing best practice with local authorities and integrating heritage into spatial planning. This reflects the Netherlands' long history of water management, where many heritage assets – such as dikes, canals, windmills and historic polders – are closely connected to climate adaptation.

The Heritage, Water and Climate programme is used to determine whether a cultural heritage site is located in an area with a higher risk of flooding, drought or subsidence. The programme also shows whether climate-adaptive measures are being taken in that area that could potentially pose a risk (such as dike reinforcements).

The aim of the programme is to increase awareness about the effects of climate change on cultural heritage sites and about measures that need to be taken and the importance of timely involvement on the part of the heritage sector.

The Dutch government has developed national Climate Risk Mapping specifically for cultural heritage. These maps assess risks from flooding, extreme rainfall, drought, heat and soil subsidence. The information is intended to support municipal climate stress tests and prioritise conservation measures.

The Delta Programme for Spatial Adaptation (DPRA) is intended to reduce waterlogging, drought, heat stress, and flood impacts. The ultimate goal is for the Netherlands to be climate proof and water resilient by 2050. Municipalities, district water boards, provinces and the national government are collaborating under this programme on the basis of seven ambitions. In addition, information is provided on the developments within the Delta Programme for Spatial Adaptation and the organisation of the programme. This plan outlines what the authorities in charge of heritage or collections can do to prepare for flooding or waterlogging as a result of extreme rainfall.

National heritage policy under the Cultural Heritage Agency of the Netherlands (Rijksdienst voor het Cultureel Erfgoed, RCE)

Although not exclusively a climate policy, the Heritage Deal (*Erfgoed Deal*) has become an important mechanism linking heritage and climate adaptation. Pilot projects supported through the programme encourage: nature-based solutions, restoration of historic landscapes, traditional water management, biodiversity enhancement and climate-resilient redevelopment of historic areas. Examples of this include the Leiden Heritage Deal, the research explores the climate challenge for the city centre and the repurposing of historic green and blue structures. The aim is to explore how these structures can contribute to the design of a climate-resilient and heritage-inclusive Leiden city centre. The programme demonstrates how conservation can contribute to broader environmental objectives rather than conflict with them.

Integration into Spatial Planning

Dutch policy increasingly promotes integrating heritage into national spatial planning. Climate adaptation measures – such as flood defences, river widening and urban greening – are expected to consider historic urban character, archaeological resources, protected monuments and cultural landscapes. This reflects the principle that climate adaptation should strengthen, rather than unnecessarily diminish, cultural heritage values.

Omgevingswet (Environment and Planning Act)

Introduced on **1 January 2024**, the *Omgevingswet* (Environment and Planning Act) replaced numerous separate laws governing planning, water management, nature conservation and cultural heritage with a single integrated legal framework. From a heritage perspective, the Act strengthens the integration of cultural heritage into spatial planning rather than treating it as a separate conservation issue.

The *Omgevingswet* is particularly significant for climate adaptation because it promotes a comprehensive approach to managing the physical environment. Measures such as flood protection, water storage, urban greening, drought management and renewable energy development are expected to take account of cultural heritage values at an early stage of planning. This supports the wider Dutch policy objective of ensuring that climate adaptation strengthens, rather than unnecessarily diminishes, the historic environment. It also exemplifies the Netherlands' integrated approach to climate resilience, in which heritage is regarded not only as an asset requiring protection but also as a resource that can inform sustainable landscape management and climate adaptation.

Groningen regional heritage policy

Groningen has developed a distinctive approach to climate and heritage policy because it faces three interconnected challenges – climate change, the legacy of gas extraction and induced earthquakes, and the protection of one of the Netherlands' most significant historic landscapes depicted in the Minerva school of Dutch painting. Unlike national Dutch policy, which focuses mainly on climate adaptation, Groningen's policies also address seismic resilience and the preservation of regional identity.

The Province of Groningen follows the National Delta Programme for Spatial Adaptation (DPRA) with the objective of creating a climate-resilient province by 2050. The province works with municipalities, water boards and national government to address flooding and drought and emphasises nature-based solutions such as increasing green infrastructure.

Groningen's most important heritage policy is the Groningen Heritage Programme (*Erfgoedprogramma*), which is a partnership between the Dutch national government, the Province of Groningen, municipalities in the earthquake region and the National Coordinator Groningen (NCG). It was originally launched in 2017 and the programme has been extended through 2028 following the Dutch government's *Nij Begun* package responding to the parliamentary inquiry into gas extraction. It seeks to conserve historic building and landscapes from earthquake damage and to improve the quality of life in affected communities. The role of the National Coordinator Groningen (NCG) is to reinforce homes and other buildings, including those designated with a heritage status.

A defining feature of Groningen's heritage policy is the integration of seismic strengthening with conservation. Historic churches, farmhouses, mills and civic buildings have been damaged by decades of gas extraction. Policy therefore seeks to balance structural safety, restoration of historic fabric, energy efficiency and long-term sustainability. Rather than replacing historic buildings, the programme prioritises repair, careful reinforcement and continued occupation wherever possible.

Compared with other Dutch provinces, Groningen's policies are distinctive because they combine climate adaptation, earthquake recovery and heritage conservation. The region's heritage programme goes beyond protecting historic buildings – it seeks to restore communities affected by gas extraction, maintain the

cultural landscape, and ensure that historic buildings remain safe, usable and resilient in the face of both seismic risks and climate change. This integrated approach makes Groningen a notable example of how environmental resilience and heritage conservation can be pursued together.

Germany

German national heritage policy

Two of the PITCH case studies fall within Germany – the Deutsches Technik Museum in Berlin and E-WERK Luckenwalde in Brandenburg. Despite being relatively near to one another, they provide an interesting contrast in terms of heritage and climate policy with Berlin the Deutsche Technik Museum – a national-level museum falling under the jurisdiction of the city state and capital of Berlin.

E-WERK was built in 1913 as a coal power station supplying energy to the city of Luckenwalde and beyond. After the Berlin Wall fell in 1989, E-WERK ceased production and lay dormant for almost 30 years. In 2019 Performance Electrics transformed E-WERK into a renewable 'Kunststrom' power station and contemporary art centre, encompassing four floors and a vast outdoor space. As part of the project, PITCH has intervened in E-WERK's ongoing transformation and process through creative activities focused on *heritage*, *energy* and *participation*. E-WERK as a case study illustrates how repurposing heritage sites directly associated with carbon cultures can encourage a deeper understanding of energy production and foster confidence in the deep changes necessary to bring about a green transition.

German policies on cultural heritage and climate change

Germany's approach to heritage and climate change is characterised by being less centralised than other European states, as the responsibility for cultural heritage (*Denkmalschutz*) lies with the individual *Länder* (federal states). The federal government has increasingly incorporated cultural heritage into national climate adaptation, building renovation, and sustainability policies. Rather than a single heritage-climate strategy, Germany relies on a combination of climate legislation, adaptation strategies, and heritage conservation frameworks.

German Climate Adaptation strategy (DAS 2024)

The most important national policy in Germany is the 2024 German Climate Adaptation Strategy (Deutsche Anpassungsstrategie – DAS 2024), adopted under the Federal Climate Adaptation Act. One of the key things it provides is measurable national adaptation targets across sectors and requires federal ministries to assess climate risks and implement adaptation measures. Although cultural heritage is not treated as a stand-alone sector, it is incorporated within broader objectives for the built environment, spatial planning and cultural assets. The strategy recognises that climate change – including heatwaves, flooding, drought and extreme weather – poses increasing risks to historic buildings, monuments and cultural infrastructure.

Key priorities include increasing resilience of historic buildings to climate impacts and supporting nature-based adaptation in historic environments.

The Federal Climate Adaptation Act (klimaanpassungesetz)

Germany's Federal Climate Adaptation Act (*Klimaanpassungsgesetz – KAnG*), which entered into force in 2024, provides the legal framework for adaptation. The Act requires the federal government to produce and regularly update a national adaptation strategy and for *Länder* and municipalities to develop adaptation planning. Although the law does not contain heritage-specific provisions, it creates the governance framework through which historic environments are expected to be considered in adaptation planning.

Climate Protection Act (Bundes-Klimaschutzgesetz)

The Climate Protection Act (*Bundes-Klimaschutzgesetz, KSG*) was first adopted in 2019 and subsequently amended to strengthen Germany's climate commitments, provides the country's principal legal framework for reducing greenhouse gas emissions. The Act establishes Germany's target of achieving climate neutrality by 2045 and requires regular monitoring of emissions and the implementation of measures across key sectors, including buildings, transport, industry and energy.

By requiring substantial reductions in emissions from the building sector, it creates a policy context in which the energy performance of historic buildings has become an increasingly important issue. Heritage authorities and conservation professionals are therefore challenged to balance climate mitigation objectives with the protection of historic fabric and architectural significance. The Climate Protection Act therefore complements Germany's broader climate adaptation and heritage policies by providing the legislative driver for decarbonisation. The *Länder* monument protection laws (*Denkmalschutzgesetze*) provides technical guidance on the conservation of historic buildings and the historic environment.

Monument Protection Laws (Denkmalschutzgesetze)

Germany's system of heritage protection is based on the monument protection laws (*Denkmalschutzgesetze*) of the individual Länder rather than a single national heritage act. This means that climate adaptation measures affecting historic buildings are generally managed at state level, but national policy encourages conservation authorities to balance energy efficiency, climate resilience and the preservation of heritage significance. Federal guidance increasingly promotes the principle that climate adaptation should occur without unnecessarily compromising historic fabric. The strategy recognises that reusing existing historic buildings can reduce material consumption and greenhouse gas emissions compared with replacement construction.

Germany's National Sustainable Development Strategy links cultural heritage with sustainable urban development. Within this framework, heritage contributes to sustainable land use, adaptive reuse of historic buildings and conservation of cultural landscapes. One of Germany's major policy challenges is reducing emissions from its historic building stock while maintaining heritage values to achieve climate-neutral

historic buildings. National policy promotes energy-efficient retrofitting compatible with conservation and sustainable repair using traditional materials.

Rather than treating heritage as an obstacle to climate policy, recent guidance increasingly frames the conservation of existing buildings as a contribution to the circular economy by avoiding the carbon costs of demolition and new construction.

Research into climate change and heritage

Finally, the federal government supports research through institutions such as the German Environment Agency (*Umweltbundesamt*) and the Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR). Research priorities include climate impacts on historic materials, moisture and heat damage to monuments, flood resilience of heritage sites and the sustainable refurbishment of listed buildings. These programmes provide evidence to support conservation practice and policy development.

Heritage policy and climate change at a regional level in Brandenburg, Germany

Brandenburg has become one of Germany's leading states in explicitly linking cultural heritage with climate adaptation. While Germany's national heritage policy is relatively decentralised, Brandenburg has developed specific state-level policies that are distinctive by addressing the climate resilience of historic landscapes. This includes its historic gardens and parks including those managed by the Prussian Palaces and Gardens Foundation Berlin-Brandenburg. These policies are implemented alongside the state's broader climate adaptation strategy.

The Brandenburg Climate Adaptation Strategy (*Klimaanpassungsstrategie* Brandenburg) adopted in 2023, provides the overarching framework for adapting to climate impacts such as increasing temperatures, prolonged drought, heavy rainfall, forest fires and water scarcity. The strategy recognises that Brandenburg is one of the German regions most affected by climate change, particularly because of its sandy soils, extensive forests and limited water availability. Although heritage is not treated as a separate sector throughout the strategy, it specifically acknowledges that historic gardens, parks and cultural landscapes require targeted adaptation measures.

Brandenburg has introduced one of Germany's most heritage-specific climate policies through its Climate Adaptation Funding Directive (*Richtlinie Klimaanpassung*). The programme provides financial support for listed historic gardens and parks (*denkmalgeschützte Garten- und Parkanlagen*) to adapt to climate change. It is jointly administered by the Ministry of Science, Research and Culture and the Ministry responsible for the environment and is supported through the European Regional Development Fund (ERDF).

Because water is central to many of Brandenburg's historic parks, adaptation policy places strong emphasis on restoring historic hydrological systems. Brandenburg recognises that some traditional tree

species are increasingly vulnerable to climate stress. The emphasis is on maintaining the historic character of designed landscapes while improving resilience to future climatic conditions.

A notable feature of Brandenburg's approach is the close collaboration between environmental and cultural ministries. Rather than treating heritage solely as a conservation issue, the state integrates it into climate adaptation funding, spatial planning and landscape management. Among Germany's federal states, Brandenburg stands out for its dedicated funding programme for climate adaptation in listed historic gardens and parks. Rather than focusing only on the protection of monuments, its policies recognise that cultural landscapes are living systems requiring ongoing adaptation. By combining heritage conservation with water management, ecological restoration and climate resilience, Brandenburg has developed one of Germany's most comprehensive regional approaches to managing the impacts of climate change on cultural landscapes.

Summary of German policies at a national and regional level

Compared with the Netherlands, Germany's approach to heritage and climate change is more decentralised. The Dutch government has explicitly integrated cultural heritage into its National Climate Adaptation Strategy (NAS) and developed dedicated national programmes such as the Heritage, Water and Climate Programme. Germany, by contrast, embeds heritage within broader adaptation and sustainability policies while leaving much implementation to the Länder.

However, both countries share several overarching objectives such as integrating heritage into climate adaptation planning, improving resilience of historic buildings and landscapes, promoting adaptive reuse as a climate mitigation strategy and recognising cultural heritage as a contributor to sustainable development rather than simply an asset at risk.

Finland

One of the key case studies for PITCH is Lusto – the Finnish Forest Museum. The Forest Museum as a case study specifically draws together the role of cultural and natural heritage and the impact of climate change and the role forests play in adapting to this.

The Climate Act (Ilmastolaki) 2022

Introduced in 2022, the Climate Act (*Ilmastolaki*) provides a binding target of Finland achieving Carbon Neutrality by 2035 with additional emission reduction targets for 2040 and 2050. The Act requires the government to prepare climate policy plans covering mitigation, adaptation and sectoral action. The Climate Act does contain specific provisions for cultural heritage, but rather it provides the framework within which cultural heritage is addressed through Finland's adaptation planning.

The National climate change adaptation Plan 2030

The most significant Finnish policy linking heritage and climate is the National Climate Change Adaptation Plan until 2030 (NAP2030), published in 2024. Unlike many national adaptation strategies, Finland's plan identifies 'Cultural heritage and the cultural environment' as one of its ten national adaptation themes. This means heritage is treated as a distinct policy area alongside infrastructure, biodiversity, health and food security.

The strategy identifies climate risks including increased precipitation damaging historic buildings, changing moisture conditions affecting timber structures and biodiversity changes altering historic cultural landscapes. The plan aims to improve climate risk assessments for heritage assets and encourage cooperation between environmental, cultural and planning authorities.

The National Energy and Climate strategy

Finland's National Climate and Energy Strategy establishes how Finland intends to decarbonise its economy. As with Germany's Climate Protection Act, its implications for cultural heritage are largely indirect, particularly through the decarbonisation of buildings, energy systems and land use.

Finland's National Climate and Energy Strategy sets out how the country will achieve the objectives of the Climate Act, including carbon neutrality by 2035. The Strategy has particular implications for the historic built environment. Measures to improve the energy performance of buildings – including energy renovation, low-carbon heating systems and renewable energy technologies – must be balanced with the conservation of architectural and historical significance. The Strategy also reinforces the importance of conserving existing buildings as part of a circular economy.

Cultural environment strategy

Finland's Cultural Environment Strategy provides a framework for managing built heritage, archaeological sites and cultural landscapes. Its main objectives include safeguarding cultural environments as part of sustainable development and recognising cultural landscapes as part of environmental policy. The strategy increasingly supports climate adaptation by encouraging conservation that also enhances environmental resilience.

Finland – National World Heritage Strategy

Finland's National World Heritage Strategy (2015–2025) adopts an integrated approach to natural and cultural heritage. Its objectives include conserving World Heritage sites sustainably, coordinating natural and cultural heritage management and supporting sustainable tourism compatible with conservation. Although developed before the latest adaptation plan, its emphasis on sustainable management aligns closely with Finland's climate objectives.

The Finnish Heritage Agency

The Finnish Heritage Agency (*Museovirasto)* is responsible for implementing national heritage policy. Its work includes monitoring climate risks to heritage sites and integrating climate resilience into conservation guidance. The agency works closely with the Ministry of Education and Culture and the Ministry of the Environment to ensure heritage is incorporated into broader environmental planning.

The Agency also supports climate adaptation by monitoring the effects of changing environmental conditions on cultural heritage. Particular attention is given to increased precipitation, moisture, freeze-thaw cycles, flooding, coastal erosion and changing groundwater conditions, all of which threaten historic buildings, archaeological sites and cultural landscapes. *Museovirasto* promotes climate risk assessment, documentation and preventive conservation to improve the resilience of heritage assets.

Two distinctive heritage approaches prevalent in Finland are the energy renovation of historic buildings and the relationship between cultural landscape and Indigenous Heritage. A major component of Finnish policy concerns the energy renovation of historic buildings. National guidance encourages improving energy efficiency while respecting heritage values. The underlying principle is that conserving existing buildings preserves embodied carbon and supports circular economy objectives.

Finland also links climate adaptation with cultural landscapes and Indigenous heritage. Policies recognise that climate change affects Sámi cultural landscapes and livelihoods as well as reindeer herding traditions in northern Finland. Adaptation therefore includes protecting both physical heritage and the cultural practices associated with these landscapes.

Forest as cultural landscape in Finland

Finland does not have a single ‘forest heritage’ policy; instead, forest-related heritage is addressed through the National Forest Strategy 2035, the National Climate Change Adaptation Plan 2030 (NAP2030), the Cultural Environment Strategy, and policies protecting Sámi cultural heritage and traditional forest landscapes. These policies increasingly recognise that forests are both natural ecosystems and cultural landscapes whose historical, ecological and cultural values must be managed together.

Metsähallitus (the Finnish Forest Administration) occupies a distinctive position in Finland because it manages around one-third of the country's land area, including national parks, wilderness areas, state forests and many nationally significant cultural landscapes. A distinctive aspect of *Metsähallitus'* approach is that cultural heritage is managed as an integral part of the wider landscape rather than as isolated monuments. Management plans routinely identify and protect archaeological remains, historic forestry sites, traditional agricultural landscapes, wartime heritage and historic routes within forests and protected areas. Climate adaptation measures are designed to minimise impacts on these heritage assets while maintaining the ecological health of the surrounding landscape.

National Forest Strategy 2035

The National Forest Strategy 2035 is Finland's principal forest policy. It seeks to balance the economic use of forests with climate mitigation, biodiversity conservation and cultural values. The strategy explicitly recognises that forests should be managed in ways that strengthen carbon sinks, improve resilience to climate change and safeguard culturally significant forest landscapes. Relevant heritage-related objectives include conserving culturally valuable forest landscapes and integrating cultural heritage into forest planning. The policy also promotes sustainable forestry that preserves both ecological and cultural values.

National Climate Change Adaptation Plan 2030

The National Climate Change Adaptation Plan until 2030 (NAP2030) referred to earlier explicitly includes both natural resources, biodiversity and nature-based solutions and cultural heritage and cultural environment as national adaptation themes. This creates an important link between forests and heritage. The plan identifies climate risks affecting forest heritage, including more frequent forest fires, increased storm damage, insect and fungal outbreaks and drought affecting boreal forests. For cultural heritage, the plan promotes assessing climate risks to cultural landscapes and protecting historic forest environments.

The Finnish Forest Centre presents Climate-resilient forest management as a practical implementation of national policy. Recommended measures include maintaining mixed-species forests rather than monocultures and improving forest health to maintain long-term carbon storage. These practices benefit both biodiversity and historic forest landscapes by maintaining traditional woodland structures and reducing the likelihood of catastrophic disturbance.

Two distinctive policies in relation to the forest in Finland are cultural landscapes rather than purely natural environments and Sámi Indigenous cultural heritage. Examples of forests as cultural landscape include wooded pasture landscapes (*hakamaat*), traditional slash-and-burn (*kaski*) landscapes, historic tar-production forests and forest grazing areas. These landscapes are protected through cultural environment planning, land-use regulation and cooperation between heritage and environmental authorities. Their management often combines biodiversity conservation with the preservation of historical land-use patterns.

In northern Finland, forests are closely connected to Sámi Indigenous cultural heritage. Climate change affects reindeer grazing areas, snow conditions, forest composition traditional ecological knowledge and access to culturally important resources. National adaptation policy therefore supports the inclusion of Indigenous knowledge in climate planning and recognises that protecting forest ecosystems also helps sustain Sámi cultural practices and livelihoods.

Finland increasingly links heritage conservation with climate mitigation by recognising that conserving long-lived forests and traditional landscapes contributes to carbon storage (Lehtonen et al. 2023). However, Finland also faces policy tensions. Debates around declining forest carbon sinks have raised concerns

about balancing timber harvesting with climate objectives, illustrating the challenge of meeting climate targets while supporting the forest economy.

Summary climate change and forest policy in Finland

Finland's approach is distinctive because it treats forests as simultaneously ecological, economic and cultural assets. National policy does not separate forest conservation from heritage conservation; instead, it promotes climate-resilient forest management that also safeguards cultural landscapes, archaeological remains, traditional land-use systems and Sámi cultural heritage. This integrated perspective makes Finland one of the few European countries where forest policy, climate adaptation and cultural heritage policy are explicitly connected within national planning frameworks.

UK heritage and climate policy

National heritage and climate change policy in the UK

Climate Change policy in the UK can be seen as operating on a range of levels. Defra establishes the national adaptation governance and risk framework. The Department for Culture, Media and Sport translates this into cultural-heritage policy and departmental responsibilities. At the level of heritage management and governance it is important to note that different approaches are taken by the different bodies for the different countries (England, Northern Ireland, Scotland and Wales) that make up the UK. For example, Historic England develops the heritage-specific evidence, guidance and approaches to adaptation, with a particular focus on adaptive release. Historic Environment Scotland’s approach is more explicitly framed around climate risk, resilience, adaptation, mitigation and the wider contribution of heritage to the climate transition. Variation can also be seen between heritage and museum sites with the National Trust demonstrating large-scale, place-based implementation across buildings, landscapes and nature. In contrast, the Museums Association’s approach is to addresses the ethical, organisational, civic and climate-justice dimensions of climate action in a specifically museum context.

Key legislation

Across the UK's World Heritage Sites, conservation is guided by both domestic planning policy within broader International Policies such as the UNESCO World Heritage Convention. The individual countries of the UK – England, Northern Ireland, Scotland and Wales each have their own individual policies. This report will focus in particular on regional policies in England as this is where the PITCH case study Kew Gardens is located.

In England, legislation around heritage and climate change is dictated by existing planning and heritage policy, such as the Planning (Listed Buildings and Conservation Areas) Act 1990, alongside planning policy through the National Planning Policy Framework, the National Adaptation Programme. It is then impacted by specific Climate Change legislation such as the Climate Change Act 2008 and Historic England's

Climate Change Strategy, form the core policy framework governing the relationship between heritage and climate change in the UK.

The Planning (Listed Buildings and Conservation Areas) Act 1990 predates modern climate change policy, but it strongly influences how climate action is implemented in the historic built environment. It requires that measures such as energy-efficiency upgrades and renewable energy installations be carefully designed to protect heritage significance, while modern planning policy increasingly supports finding solutions that advance both conservation and climate goals. The act establishes the strategy framework for protecting listed buildings of special architectural or historic interest and conservation areas. The act can be considered as creating a heritage management framework within which climate-related adaptations need to be designed.

The National Planning Policy Framework (NPPF) is the principal planning policy document in England. Unlike the 1990 Act it provides a much more explicit connection between heritage and climate change. The key issue put forward by the NPPF is how planning can achieve climate resilience and decarbonisation without unnecessarily harming the historic environment. Heritage is treated as part of sustainable development with an important planning principle – climate action should not automatically override heritage considerations, and heritage conservation should not automatically present climate action. The 2026 updated NPPF is more explicit about the relationship between climate and heritage policy. Under HE6, energy efficiency and low-carbon heating of heritage buildings are expressly identified as potential public benefits in the heritage balancing exercise. That gives a stronger policy basis for arguing that the sensitive retrofit of a listed or otherwise designated building can produce both heritage and climate benefits. It does not, however, mean that climate benefits automatically outweigh heritage harm – the statutory heritage duties and HE6 balancing exercise still have to be undertaken. Overall, the NPPF seeks to move beyond treating heritage simply as a constraint and recognises the need to manage changes so that heritage places can remain viable and resilient in a changing climate.

The Climate Change Act 2008 seeks to achieve net zero greenhouse gas emissions by 2050. This overarching framework commits the UK to achieving net zero greenhouse gas emissions and requires periodic climate risk assessments and adaptation programmes. Heritage is recognised as one of the sectors vulnerable to climate change. The central purpose of the Climate Change Act 2008 is to establish a framework for reducing greenhouse gas emissions and preparing for the impacts of climate change. This includes establishing a legally binding target for reducing greenhouse gas emissions by 2050. It introduced mechanisms, including carbon budgets, the committee on climate change, government policies and programmes for reducing emissions.

The Environment Act 2021 establishes a statutory framework for improving the natural environment following Brexit. It relates to heritage by encouraging environmental enhancement while requiring that improvements to biodiversity, ecosystems, and climate resilience are delivered in ways that respect the

historic environment. Rather than focusing directly on heritage protection, the Act promotes a more holistic approach in which natural and cultural heritage are considered together in planning, land management, and environmental policy. For heritage professionals, however, the implications become significant where environmental interventions affect historic buildings, archaeological sites, designed landscapes, historic landscapes and their settings.

The Third National Adaptation Programme (NAP3) seeks to establishes a much clearer policy connection between climate adaptation and the historic environment than earlier national adaptation programmes. The NAP3 represents an important development in national climate adaptation policy by formally recognising cultural heritage as a distinct climate risk (H11). It identifies cultural heritage as an area requiring greater resilience to hazards such as flooding, coastal erosion, storms, drought and wildfire. The programme encourages adaptation planning across public bodies responsible for heritage. Importantly, NAP3 also recognises the potential contribution of heritage to climate change adaptation and mitigation, moving beyond a purely protective approach. For local heritage policy, this supports greater integration between heritage conservation, climate adaptation, flood and coastal management, building retrofit and environmental planning. However, the programme also identifies limitations in the evidence base, meaning that further local and national assessment of climate vulnerability remains necessary.

DEFRA

Defra uses the statutory Adaptation Reporting Power under the Climate Change Act 2008 to gather evidence from heritage regulators and operators about current and future climate risks and their adaptation responses.

Defra's approach to heritage and climate change is principally delivered through the Climate Change Act 2008's Adaptation Reporting Power and the wider National Adaptation Programme. The fourth round of adaptation reporting, published for the heritage sector in 2025, is intended to improve understanding of current and future climate risks, integrate climate-risk management into the work of heritage organisations and assess sectoral preparedness. The approach is risk-based and organisation-led. Rather than prescribing a single conservation response, it requires heritage regulators and operators to identify climate vulnerabilities, develop appropriate adaptation measures, monitor progress and integrate climate risk into organisational decision-making. The framework encompasses both tangible and intangible heritage and recognises that climate resilience can deliver wider social, economic and community benefits. Defra's role is primarily one of national coordination, evidence gathering and governance, with specialist bodies such as Historic England responsible for developing heritage-specific knowledge, guidance and adaptation approaches. The framework therefore provides an important enabling structure for heritage adaptation, but it leaves the more difficult questions concerning the management of irreversible change, transformation and heritage loss to sector-specific policy and practice.

DCMS (Department for Culture, Media and Sport)

DCMS's approach to climate change and heritage is principally established through the government's wider climate-adaptation framework, particularly the Third National Adaptation Programme (NAP3, 2023–2028). The key current policy document is NAP3 (2023–2028), where DCMS has a specific responsibility for the cultural heritage risk identified as H11: 'Risks to cultural heritage.'

Cultural heritage is identified as a specific climate risk, encompassing both tangible and intangible heritage, with the policy objective of minimising climate impacts while maximising the contribution that heritage can make to climate mitigation and adaptation. The framework places emphasis on improving the evidence base for climate risks, modelling future impacts, assessing vulnerability, addressing flooding and coastal erosion, providing guidance for adaptation of historic buildings, and developing indicators to monitor progress. Delivery is largely undertaken through DCMS's arm's-length bodies, particularly Historic England. The policy therefore represents a shift from treating climate change solely as a threat to heritage towards recognising heritage as both vulnerable to climate change and a potential resource for resilience. However, while the framework establishes adaptation as a national heritage-policy objective, the more difficult question of how to manage unavoidable transformation or loss is developed more explicitly in Historic England's subsequent work on adaptive release than at DCMS policy level.

Historic England

Historic England is one of the UK's leading organisations linking heritage with climate action. Its current strategy is built around three themes: *mitigation*, which involves reducing carbon emissions from historic buildings and operations; *managing climate risks* – identifying vulnerable sites and monitoring impacts and *adaptation* – helping heritage assets remain viable under future climate conditions.

Historic England's climate-adaptation work is moving from a model centred on protecting heritage from environmental change towards one that manages a spectrum of possible futures. This includes from resilience and adaptation through to managed transformation and loss, while seeking to retain or reinterpret the heritage values that matter. Adaptive release is a particularly important concept for the final part of that spectrum. It provides a framework for making an active, informed decision to accommodate transformation where preventing change is no longer realistic, rather than allowing climate-driven loss to happen by default.

Historic England's adaptation work is essentially about moving from reacting to damage towards anticipating future conditions. This includes research into climate hazards and their geographical distribution; the vulnerability of different heritage types; climate projections and risk assessment; practical adaptation measures;

Historic England also has produced a series of Heritage and Carbon reports, which have become influential in promoting embodied carbon, retrofit and reuse. The 2024 Climate Change Adaptation Report, produced

jointly with the English Heritage Trust, illustrates the breadth of this approach. It considers both risks to the organisations themselves and risks to heritage assets on the National Heritage List and National Heritage Collection. It updates earlier risk assessments and adaptation plans under the Government's Adaptation Reporting Power.

Historic England's research is therefore not simply about physically "climate-proofing" individual buildings. It is increasingly concerned with decision-making under uncertainty, understanding future risks, considering alternative interventions, monitoring their effects and determining when different approaches may become appropriate.

Historic Environment Scotland

Historic Environment Scotland through reports such as the Scotland's World Heritage and Climate Change: Climate Vulnerability Index Overview (2023) sees climate action as a two-way relationship. It seeks to make Scotland's historic environment more resilient to unavoidable climate impacts while simultaneously reducing the environmental impact of caring for it. It also uses the historic environment's buildings, landscapes, knowledge and cultural influence to support Scotland's wider transition to a resilient, low-carbon society.

While Historic England has developed a relatively explicit framework for managing unavoidable heritage transformation through ‘adaptive release’, HES's approach is more explicitly framed around climate risk, resilience, adaptation, mitigation and the wider contribution of heritage to the climate transition.

The National Trust

The National Trust identifies climate change as one of the principal threats to its purpose of protecting places of nature, beauty and history. Its current Climate and Environment Policy commits the organisation both to reducing its own emissions and to embedding climate adaptation into decision-making. The National Trust's approach can be summarised as ‘resilience through managed adaptation’ and it provides guidance for those managing its properties. Its policy is broader than simply protecting historic fabric from climate impacts. It seeks to understand future climate risk, reduce vulnerability, adapt management and infrastructure, work with natural processes, and continually revise decisions as conditions change.

The National Trust provides an interesting contrast with Historic England. Historic England's adaptive-release work is more explicit about the possibility of transformation and loss of heritage assets, particularly where protection is no longer viable. The National Trust's public policy is more focused on resilience and adaptation, although its emphasis on changing management in response to future conditions provides considerable common ground. Historic England provides a more developed conceptual framework for managing unavoidable heritage change, while the National Trust provides a highly operational model for embedding climate risk and adaptation into the management of a large, diverse heritage portfolio.

Museums Association

The Museums Association takes a broad, values-led approach to climate change, positioning museums as both organisations that need to reduce and adapt to their own environmental impacts and as civic institutions capable of contributing to wider climate action. The MA's *Museums for Climate Justice* campaign asks museums to 'raise awareness', 'champion change' and 'be the change'. It does this through combining public engagement and climate education with organisational carbon reduction and partnership working. Climate action is now embedded within the Museums Association's 2025–2030 strategic framework and its revised 2025 Code of Ethics, which places climate impacts and social responsibility within the principle of responsible and sustainable museum practice. The approach increasingly emphasises climate justice, recognising the unequal social consequences of climate change and the role museums can play in supporting communities. For heritage, the principal relevance lies in the long-term stewardship of collections, the environmental performance of museum buildings and operations, and the use of collections and interpretation to understand environmental change. Compared with Historic England, however, the Museums Association provides less detailed guidance on the conservation and adaptation of physical heritage assets or on managing unavoidable heritage loss. Its distinctive contribution is instead to frame climate change as an ethical, organisational and civic responsibility for the museum sector.

Summary

UK policy has shifted from viewing climate change as a threat to heritage alone toward recognising heritage as part of climate solutions. The emphasis is now on integrating conservation with decarbonisation and climate adaptation, rather than treating them as separate objectives. While this direction is well established in guidance and strategy, independent assessments have argued that the UK's overall adaptation efforts still need strengthening to adequately address increasing climate risks, including those affecting the historic environment.

Recent policy discussions in the UK increasingly focus on embodied carbon – recognising that retaining and adapting existing buildings can reduce emissions compared with demolition and rebuilding and improving the resilience of heritage assets to more frequent extreme weather events.

More broadly the UK's heritage and climate policy framework aims to balance two objectives. Firstly, this is protecting heritage from the impacts of climate change, including flooding, coastal erosion, overheating, and extreme weather. Secondly, it can be seen as using heritage as part of the climate solution by encouraging adaptive reuse of buildings, reducing embodied carbon, improving energy efficiency sensitively, and integrating heritage into broader sustainability and resilience strategies.

5.5 National policy comparison

Looking across the four case study countries in Europe draws out some key policy similarities and also distinctive approaches to heritage and climate. For the Netherlands we can see heritage integrated at a

national level into climate adaptation and water management, influenced by the Netherland's millennia-long history of modifying land and water. In Germany there is a federal framework in which national policy takes a secondary role to implementation at the regional Länder level and adaptive reuse of heritage buildings.

Secondly, whereas the Netherlands primarily integrates heritage within climate adaptation and spatial planning, Germany's principal climate legislation is centred on emissions reduction (mitigation). Consequently, the relationship between climate policy and heritage in Germany is shaped less by explicit heritage provisions in climate legislation than by the challenge of reconciling building decarbonisation with the conservation of historic buildings. This has made adaptive reuse, energy-sensitive retrofit and the retention of embodied carbon central themes in Germany's evolving approach to heritage and climate change.

For Finland the distinctive feature is the concept of the cultural landscape in which the natural and the cultural cannot be divided. This is particularly relevant to the case study of forests which bring in Sami cosmological concepts and Indigenous heritage. Forests have a role to play in adapting to the climate crisis as carbon sinks. However, a key tension emerges here between balancing climate objectives with timber harvests.

In England, the central focus is on historic buildings and how conservation practices can ensure influential in promoting embodied carbon, retrofit and reuse.

One of the striking things that emerges out of the policy review is the lack of connection between global and supranational projects like the EGD and the specificity of climate change issues such as the compensation for houses destroyed by the Groningen gas fields or the decline in carbon sinks in Finnish Forests. It is in these specific examples where the concept of 'just transitions' becomes especially relevant.

A recurrent theme across multiple policies is that of viewing heritage as not simply at risk due to climate change but as part of a solution of adaptation. This is particularly noticeable at the state level on the repeated emphasis on how traditional ways of managing landscapes provide a more sustainable way of managing the land. By necessity this means understanding local conditions and traditions. However, at this local level there may be tensions in which different views and priorities exist – as such heritage and museum spaces provide arenas in which abstract dialogues around policy can be given concrete examples and in which individuals can debate them.

RECOMMENDATIONS

Based on the overall review of policies at both an international and a European level the report makes the following recommendations for heritage sites and museums.

1. Embed climate action into governance

Climate change should be made a core strategic priority rather than a standalone environmental initiative. Climate risks should be included in governance, business planning, and collections management. Clear responsibility for climate adaptation and mitigation should be made at a directorate and senior management levels. At the management level, institutions should regularly assess climate risks to buildings, landscapes, collections, and communities.

2. Prioritise adaptation alongside mitigation

UNESCO and ICOMOS both emphasise that many heritage places are already experiencing climate impacts. As a result, museums and heritage sites should develop climate adaptation plans for individual sites and monitor changing environmental conditions affecting collections and historic fabric. Institutions should also prepare emergency response and recovery plans for extreme weather events.

3. Reduce operational carbon emissions

Museums and heritage organisations can contribute to net-zero goals while protecting heritage values. Actions include improving energy efficiency using heritage-sensitive approaches, transition to renewable energy where appropriate and reduce emissions from exhibitions, loans, travel, and procurement.

4. Put conservation and sustainability together

ICOMOS promotes conceptualising conservation as inherently sustainable. This includes the reuse of historic buildings before constructing new ones. It also includes retaining embodied carbon through repair rather than replacement and the use of traditional materials and skills where appropriate.

5. Integrate Indigenous and traditional knowledge

UNESCO and ICOMOS increasingly recognise local and Indigenous knowledge as essential for resilience. This includes co-producing conservation strategies with local communities and document traditional environmental knowledge and cultural practices that strengthen climate resilience. Throughout museums and heritage organisations should respect community rights and cultural values in adaptation decisions.

6. Strengthen community resilience

Heritage institutions should support communities rather than simply protect assets. This includes using heritage as a resource for climate education and providing spaces for dialogue on climate change. Museums and heritage organisations should ensure equitable participation in decision-making.

7. Use heritage as climate education

Museums and heritage sites are increasingly recognised as trusted institutions for climate communication. This includes integrating climate narratives into exhibitions and interpretation, connecting cultural heritage with biodiversity and nature. Museums and heritage sites can also highlight historical examples of adaptation and resilience and showcasing local climate solutions and community initiatives.

8. Monitor and evaluate progress

Across all these actions museums and heritage sites should develop indicators covering carbon emissions, energy use, climate risks, community engagement, visitor behaviour and staff capability. Regular reporting will support transparency and continuous improvement.

Overall conclusion

The overall conclusion of this policy review is that there is significant policy support at the international, European and national level for the integration of cultural heritage and museums with climate adaptation and mitigation, with the important educational potential of these institutions highlighted. However, the ways in which these international, European and national level policies relate to regional and local priorities and individual organisations is less consistent and as such the onus appears to be on individual organisations to take their own initiative in driving forward relevant projects and programmes. Rather than a lack of policy support, there appears to be a significant lack of case examples on which to draw for museums and cultural heritage organisations to develop the forms of carbon literacies which would allow them to do this consistently and across the whole of the sector. As such, PITCH, and in particular its Carbon Matters toolkit, has a key role to play in promoting and promulgating such carbon literacies for the sector.

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