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# Cultural heritage and climate change

**Report**[1]
Committee on Culture, Science, Education and Media
Rapporteur: Mr Andries GRYFFROY, Belgium, Members not belonging to a Political Group

*Summary*

All forms of cultural heritage – tangible and intangible – are now directly and indirectly threatened by climate change which brings a range of consequences such as increased temperatures, extended heatwaves, violent storms, floods, drought, landslides, wildfires, and air pollution that affect monuments, archaeological sites, historic cities, stately homes and vernacular buildings, cultural landscapes and historic gardens, museum collections, archives, and libraries.

Adequate political responses at national, regional, local, as well as European levels, will require a radical change of mindset. Most current methods and processes will have to be altered to change institutional behaviour, to create new partnerships and business models, to adapt planning processes in cities and rural areas, to ensure efficient resource and energy management, to invest in research and combine high tech with low tech solutions, to innovate and to learn from traditional sustainable solutions offered by cultural heritage.

Recalling the 2023 Reykjavík Declaration and the principles of the Council of Europe Framework Convention on the Value of Cultural Heritage for Society (Faro Convention), the report recommends including cultural heritage concerns in national strategies and climate change policies; it invites the Council of Europe and the European Union, in co-operation with UNESCO and international cultural heritage organisations, to support this process with a common framework for the monitoring and mapping of heritage vulnerabilities and guidance for assessing the impact of climate change on different categories of cultural heritage.

1. Reference to committee: Doc. 15470, Reference 4639 of 25 April 2022.

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## A. Draft resolution[2]

1. In 2021, the Parliamentary Assembly called for an ambitious new legal framework, both at national and European levels, to anchor "the right to a safe, clean, healthy and sustainable environment" to the European system of human rights. At the Reykjavík Summit in May 2023, a forward-looking agenda was set out for the Council of Europe, whereby the Heads of State and Government have committed to strengthening the work on the human rights aspects of the environment. In line with this newly set political agenda, the Council of Europe Framework Convention on the Value of Cultural Heritage for Society (CETS No. 199, "Faro Convention") asserts cultural heritage and culture in general at the centre of a new vision for sustainable development.

2. The Assembly is concerned that all forms of cultural heritage – tangible and intangible – are now directly and indirectly threatened by the consequences of climate change. Increased temperatures, extended heatwaves, violent storms, floods, drought, landslides and wildfires affect monuments, archaeological sites, historic cities, stately homes and vernacular buildings, cultural landscapes and historic gardens, museum collections, archives, and libraries.

3. Similarly, climate change is seriously threatening the values, lives and practices of heritage communities whose livelihoods are intricately linked to nature, such as Sami communities in northern parts of Europe. Their traditions and way of life are now at risk, not only through climate change but also through governmental and economic development actions in the fields of forestry, mining, and energy supply, some of which are themselves designed to combat the effects of climate change and to diversify and expand energy sources within Europe. The Assembly therefore considers that a broader trans-national European land-use plan for Sami rights is needed to deal with this European cross-border problem. This could be a two-way process in view of the Sami's thorough traditional knowledge of landscape and climate that would be valuable for scientific research, preservation of the natural world and climate adaptation in times of crisis.

4. Only a few member States of the Council of Europe include cultural heritage in climate change policies and there is generally little coordination between ministries that are overseeing different issues related to climate change. The challenges posed by climate change to cultural heritage require adequate political responses at national, regional, local, as well as European levels, a radical change of mindset and institutional behaviour, and a review of current methods and processes.

5. Accordingly, the Assembly recommends that the Council of Europe member States:

5.1. sign and ratify the Council of Europe Framework Convention on the Value of Cultural Heritage for Society, the Council of Europe Landscape Convention (ETS No. 176) and the United Nations Educational, Scientific and Cultural Organization (UNESCO) Convention for the Safeguarding of the Intangible Cultural Heritage, and accede to the European and Mediterranean Major Hazards Agreement (EUR-OPA), if they have not done so yet;

5.2. where applicable, sign and ratify the Indigenous and Tribal Peoples Convention (C169) of the International Labour Organization (ILO);

5.3. pursue the effective implementation of the Council of Europe Committee of Ministers Recommendation CM/Rec(2022)20 on human rights and the protection of the environment.

6. The Assembly also calls on national, regional, and local authorities of the Council of Europe member States, each within their competences and in coordination with each other, to include cultural heritage preservation in their strategies designed to address climate change and its impact, and in particular:

6.1. value cultural heritage that is iconic and visible to the public as an asset to raise awareness about the impact of climate change and stress the urgency of climate action;

6.2. learn about and make use of historic adaptation and mitigation strategies inherent in cultural heritage – such as water, fire and risk management; traditional land use and biodiversity; interconnections between the built and natural environment; energy efficiency, natural ventilation and cooling; local building materials, maintenance and re-use in circular economy; transmission of acquired knowledge, skills and craftsmanship;

2. Draft resolution adopted unanimously by the committee on 4 December 2023.

6.3. integrate cultural heritage and climate science to combine scientific findings and research with human experience acquired over centuries or millennia that is inherent in tangible and intangible heritage, such as climate related evidence gathered from archaeological sites or knowledge of local ecosystems, climate conditions and changes that are perpetuated within heritage communities;

6.4. undertake heritage assessment to consider the impacts of climate change on different categories of cultural heritage and in particular develop better understanding of root causes and cumulative effects, monitor and map heritage vulnerabilities and establish comparative data and indicators at national and European levels.

7. As key elements of these strategies, member States should also:

7.1. build institutional capacity, platforms and co-operation processes for climate governance, which pay due attention to threats to cultural heritage, in order to work transversally, reinforce coherence between sectors, broaden partnerships and develop innovative business models;

7.2. develop participatory governance models to involve the public, and especially young people, in monitoring and recording of heritage at risk (photogrammetry, digital inventories and mapping initiatives) to raise awareness, gather knowledge, engage citizens in climate action and build community resilience to climate change;

7.3. rethink planning of urban and rural areas to minimise climate change impacts on different categories of cultural heritage;

7.4. use life cycle assessment tools and review technical standards and energy efficiency requirements to adapt them to specific needs in the heritage sector, also to preserve authenticity and integrity of heritage sites;

7.5. foster efficient resource and energy management, and invest in research, seeking to combine high tech with low tech solutions, also learning from traditional sustainable solutions that are part of cultural heritage;

7.6. provide financial incentives, such as earmarked subsidies or tax incentives, to stimulate circular economy and reuse of building materials in cultural heritage preservation, as well as retrofitting and upgrading of historic buildings, and their regular maintenance and repair.

8. The Assembly invites the Congress of Local and Regional Authorities of the Council of Europe to assist local and regional authorities in the member States to play an active role in this process, and to include cultural heritage concerns in local or regional strategies to counter climate change.

9. In the framework of the European Green Deal and to honour the ambitions of the Paris Agreement, the Assembly invites the European Commission to build synergies with the Council of Europe, the United Nations Educational, Scientific and Cultural Organization and international heritage organisations with a view to:

9.1. develop guidance for assessing the impact of climate change on different categories of cultural heritage;

9.2. provide a framework to harmonise monitoring and mapping of heritage vulnerabilities, gathering comparative data and indicators at European level, also considering threats triggered or amplified by climate change;

9.3. review technical standards and energy efficiency requirements at the level of the European Union to adapt them to the specific needs in the heritage sector.

## B. Draft recommendation[3]

1. The Parliamentary Assembly referring to its Resolution ….(2024) "Cultural heritage and climate change", underlines the compelling need for climate action and for a radical shift towards carbon neutrality by 2050 to meet the ambition of the Paris Agreement on Climate Change alongside the global aspiration for sustainable development embodied in the 2030 Agenda for Sustainable Development. Both require a deep transformation of society and a fundamental change of mindset.

2. In this context, the Assembly welcomes the commitment of Heads of State and Government made at the Reykjavík Summit in May 2023 to strengthen the work of the Council of Europe on the human rights aspects of the environment based on the political recognition of the right to a clean, healthy and sustainable environment as a human right, as well as the decision to integrate a youth perspective in the work of the Council of Europe.

3. In line with this global political agenda, the Council of Europe Framework Convention on the Value of Cultural Heritage for Society (ETS No. 199, "Faro Convention") and Landscape Convention (ETS No. 176), place cultural and natural heritage and culture in general at the centre of a new vision for sustainable development.

4. For the Assembly, it is essential that all member States of the Council of Europe include cultural heritage concerns in national strategies for mitigation and adaptation to climate change. The Assembly considers that the Council of Europe should assist this process when required.

5. Therefore, the Assembly recommends that the Committee of Ministers:

5.1. encourage transversal co-operation of the culture, heritage, education and youth sectors in the field of sustainability and climate action, to support the implementation of:

5.1.1. guiding principles for an integrated approach to culture, nature and landscape management;

5.1.2. participatory governance models to involve the public, and especially young people, to engage in climate action and climate-related decision-making processes, and build community resilience to climate change;

5.2. develop further synergies with the European Union, the United Nations Educational, Scientific and Cultural Organization (UNESCO), and international heritage institutions on evaluating the impact of climate change on cultural heritage.

3. Draft recommendation adopted unanimously by the committee on 4 December 2023.

## C. Explanatory memorandum by Mr Andries Gryffroy, rapporteur

### 1. Introduction

1. In September 2021, the Parliamentary Assembly called for an ambitious new legal framework, both at national and European levels, to anchor "the right to a safe, clean, healthy and sustainable environment" to the European system of human rights. This was reiterated in the Assembly report on the Reykjavik Summit of the Council of Europe in January 2023[4] affirming that the Summit to be held during the Icelandic Presidency in May 2023 should set out a forward-looking agenda for the Council of Europe, putting people's interests, concerns, and expectations back to the forefront of the mission of the Organisation, including their right to a healthy environment and the fight against climate change.

2. The Committee on Culture, Science, Education and Media contributed to the Assembly debate in September 2021, with a specific report on "Research policies and environment protection"[5] and underlined that research can provide the innovative solutions that are necessary to counter both the impoverishment of the planet and the problem of climate change, and to ensure the sustainable development of our societies. I would add that research and new technologies will be crucial drivers in the identification and implementation of the mitigation and adaptation measures which will be required to combat the effects of climate change on cultural heritage.

3. The motion for a resolution tabled by Mr Alberto Ribolla[6] clearly states that "[t]he Council of Europe Framework Convention on the value of cultural heritage for society (Faro convention) asserts cultural heritage and culture in general at the centre of a new vision for sustainable development" and that "[t]he cultural heritage of Europe is today under serious threat of the devastating effects of climate change."

4. I fully share the view he expressed in the motion: "The Assembly should explore the conservation needs and research in new technologies to prevent or mitigate the effects of climate change on cultural heritage, recommending that this specific heritage-related activity be pursued in the future within the Council of Europe culture and heritage sector."

5. I wish to warmly thank the many enthusiastic men and women that we have interviewed online during the preparation of the report, for sharing their knowledge, experience, and thoughts on required action in the future.[7] Their examples of good practice are covered in the subsequent chapters of the explanatory memorandum. I also wish to warmly thank Dr John Bold, a heritage expert from the United Kingdom, who has assisted me in preparing this report.

### 2. Effects of climate change on different categories of cultural heritage

6. The conservation of cultural heritage and its sustainable use have human development and quality of life as their goal.[8] We are individually and collectively enriched by cultural heritage and consequently impoverished by its degradation or loss: an awareness of the risk to cultural heritage sharpens our appreciation of what might be lost.

7. All forms of cultural heritage are now directly and indirectly threatened by climate change which brings a variety of consequences, varying in different geographical locations and physical circumstances: increased temperatures, floods, humidity, extreme rainfall, strong storms, heatwaves, drought, landslides, wildfires, and air pollution affect monuments, archaeological sites, historic cities and houses, parks and gardens, museum collections, and libraries. The foreseen rise in sea levels will cause additional coastal erosion and invasion of

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4. See Doc. 15681 and Recommendation 2245 (2023).
5. See Doc. 15357 and Resolution 2402 (2021).
6. Doc. 15470.
7. During May and June 2023, the rapporteur held online meetings with the following experts: Dr Johanna Leissner, Chair of European Union OMC Group "Strengthening Cultural Heritage Resilience for Climate Change"; Dr Tero Mustonen, Professor of human geography, Finland, and lead author of the 6th assessment report of the Intergovernmental Panel on Climate Change (IPCC); Mr Jerker Bexelius, CEO of the Foundation Gaaltije (Sami cultural heritage), Sweden; Dr Jochen Käferhaus, consulting engineer for the preservation of cultural heritage, Germany and Austria; Ms Nathalie Vernimme, Flanders Heritage Agency; Mr Tarmo Elvisto, Tallinn Information Center for sustainable renovation, Estonia; Ms Julia Bakota Švencbir, Coordinator of 4 Grada Dragodid association dedicated to dry stone heritage revitalisation, Croatia; Mr Sébastien Dubuisson, Director of technical service at Comité Champagne, France; and Ms Giuseppina Padeletti, HERACLES and GreenHeritage Coordinator, Italy.
8. Framework Convention on the Value of Cultural heritage for Society (CETS No. 199, "Faro Convention", 2005), 1c, https://coe.int/en/web/culture-and-heritage/faro-convention.

salty marine waters affecting coastal heritage, with an effect not only on the jewels of European common heritage – such as the Venice lagoon and other historic coastal cities – but equally the livelihoods of people living in these areas.

8. So it is incumbent upon us to consider the effects of climate change and the speed of its impact (slow-onset, gradual, with long-term consequences, or rapid-onset, short-lived but intense with immediate consequences) on different categories of cultural heritage in several circumstances: on built heritage and building materials; on indoor collections in stately homes, museums and archives, recognising the co-existence of historic structures and the artifacts housed within them;[9] on historic cities and archaeological sites; on historic gardens and cultural landscapes; on coastal areas; as well as on intangible heritage that preserves and transmits traditional knowledge and skills.

9. Although not specifying cultural heritage, the parties to the Paris Agreement (UN, 2015)[10] recognised the importance of "averting, minimizing and addressing loss and damage associated with the adverse effects of climate change" (Article 8). Each heritage category will require different strategies to remedy, adapt or mitigate its effects, but considered together these may offer generic, mutually reinforcing, and sustainable outcomes. But time is short.

### *2.1. Effects on historic cities: Venice*

10. The effects of climate change on built heritage, together with other instrumental human interventions, may be most dramatically illustrated in Venice where rising sea levels and land subsidence (compacting of ancient sediment together with the pumping out of ground water for industrial processes) are significantly threatening the fabric of its buildings and people's way of life. As the rising water levels exceed the heights of waterproof basements, the buildings become impregnated with saline marine water with the consequent disaggregation of plaster, bricks, and stones. Also, as a consequence of the rising levels, the relationship between natural element and built fabric is detrimentally changed: the steps up to buildings become harder to access by boat and the bridges become too low for boats to pass under them.

11. Compounding the situation there has been a tension inherent in the management of the city and its region in which commerce and conservation have been ill-aligned: the passage of enormous cruise ships along the central Giudecca canal, eroding the foundations of buildings in their wake, and the dredging of the lagoon channels to allow for the passage of giant oil tankers, disturbing the vulnerable eco-system, are now both in the process of being corrected. The cruise ships have been banned from the centre of the city and an offshore terminal will accommodate large tankers in deep water.

12. The long-awaited flood barriers at the three inlets to the lagoon from the Adriatic at the Lido, Malamocco and Chioggia are now in operation. These will protect the city from regular surges of high water (*Acqua alta*) if not from the overall long-term rise in sea levels. Venice and its lagoon present not only the tangible incomparable riches of art, architecture, habitat and landscape, but, as recognised by UNESCO[11] the city also "symbolises the people's victorious struggle against the elements": with climate change, this struggle is destined to continue *a fortiori*.

### *2.2. Effects on intangible heritage and landscape: the Sami*

13. Analogous struggles are taking place in the rather different circumstances experienced by the Sami in Northern Europe where climate change is seriously threatening the values, lives, and practices of their communities in the northern parts of Norway, Sweden, Finland and Russia, and the combined territory of Sápmi. The Sami are the only indigenous people left in Europe, numbering almost 100 000 today, although no formal censuses based on ethnicity exist.

14. The cultural heritage of the Sami is intricately linked to the landscape on which as a fundamental principle, they leave no lasting trace so they lack precise definitions of place, although that which appears to many outsiders to be uninhabited, inhospitable wilderness is a rich cultural landscape for the Sami. Their traditions and way of life are now at risk, not only through climate change but also through governmental and economic development actions, some of which are themselves designed to combat the effects of climate change.

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9. New Orleans Charter for Joint Preservation of Historic Structures and Artifacts, 1992.
10. www.un.org/en/climatechange/paris-agreement.
11. Venice and its Lagoon, inscribed by UNESCO as a World Heritage Site, 1987, criterion vi.

15. It is paradoxical that “green” government measures (pejoratively known as “green colonialism”), such as renewable energy, can have a negative effect on the indigenous population: rivers being controlled by hydro-power plants make it impossible for the Sami to predict waterflow; giant windfarms have destroyed reindeer pastures and migration routes. Also the non-green exploitation of the land for mining oil, gas and lithium (to satisfy the ever-increasing demand for batteries while responding to EU pressure to minimise reliance on imports from China) destroys and pollutes, threatening communities and their livelihoods.

16. The Sami traditions which are most seriously impacted by climate change and development include reindeer husbandry, fishing, gathering and craftwork. Reindeers migrate according to the location of pastures, but these are threatened by warmer temperatures as snow turns to rain which then freezes on the ground, trapping vegetation under the ice where the reindeer cannot reach it. Forestry and mining activities are also displacing the reindeers from their traditional grazing grounds: supplementary feeding is costly and labour-intensive. Fishing is at risk since fish are fewer and smaller than before. In fact we need urgent measures to counter the potential world-wide collapse of the fish stock. Gathering is now problematic since the availability and ripeness of berries is affected by the changing weather, so traditional cooking must adapt in response to the accessibility of ingredients. Crafts are also changing – traditional reindeer-skin boots are no longer required in warmer winters. The destructively disruptive effects of climate change are exacerbated for the Sami by the unpredictability of the changing weather which used to provide a reliable framework for activity and location.

17. There are individual Sami Parliaments in Norway, Sweden and Finland which co-operate on indigenous rights, linguistic and cultural rights, climate, and environmental issues. Representatives of the Sami Parliaments also participate in committee meetings of the Nordic Council[12] when Sami issues are discussed and have permanent participant status on the Arctic Council.[13] But their influence is limited: there are, for example, no Sami representatives in the Swedish Parliament.

18. Norway, which has the largest Sami population, is ahead of its neighbours in protecting Sami rights. Following major Sami protests in the 1970s over hydro-power schemes, Norway became the only Nordic country to ratify the Indigenous and Tribal Peoples Convention (C169) of the International Labour Organization (ILO) which entered into force in 1991. This lays upon governments the responsibility for developing, with the participation of the peoples concerned, “co-ordinated and systematic action to protect the rights of these peoples and to guarantee respect for their integrity”, ensuring that they “enjoy the full measure of human rights and fundamental freedoms without hindrance or discrimination” (Articles 2 and 3).

19. The ILO Convention urges governments to identify and recognise the lands which the people concerned traditionally occupied and also to safeguard their right to use lands not exclusively occupied by them, but to which they have traditionally had access: “particular attention shall be paid to the situation of nomadic peoples and shifting cultivators in this respect” (Article 14). The Sami practice of leaving no permanent trace on the landscape might hamper this identification.

20. Although mapping is crucial to safeguarding rights of occupation, some Sami see it as a risk, notwithstanding the benefits, since it is feared that it might further encourage tourism, so a balance must be struck between identifying and protecting the land occupied by the Sami while permitting controlled tourism and development. Similarly, the Sami mistrust the potential inclusion of their cultural sites on a Swedish national database, fearing that sites would be vandalised if identifiable, so they are working on their own unofficial database which is not yet open to the public. This is a complex issue of trust in processes and outcomes.

21. The Sami have a limited political voice and national politics and big business provide a powerful narrative which easily privileges economic development over the interests of these often exoticised indigenous people about whom there is very limited public education and understanding: the creation by the Sami of local museums of their own history and culture is intended to counter this lack of understanding. But too often the prevailing narrative is that Sami interests hinder development, so the creation of mines on Sami land without consultation and the cutting down of Sami forests continues.

22. The lack of identifiable physical sites and structures hampers the protection of Sami interests since although the intangible cultural heritage interconnects with natural cultural landscapes and tangible built heritage, “the impacts of climate mobility on the intangible values of displaced communities are rarely mentioned in the climate-relocation debates”.[14] Since the Sami existed before the creation of nation States the answer may lie with the European Union (although Norway is not a member) rather than with the

12. Denmark, Finland, Iceland, Norway, Sweden, the Faroe Islands, Greenland and Åland.
13. Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden, the United States.

individual national governments. A broader trans-national European land-use plan for Sami rights is needed for this European cross-border problem. This could be a two-way process: we should ask in view of their thorough traditional knowledge of landscape and climate what we can learn from the Sami about the preservation of the natural world and climate adaptation in times of crisis.

## 3. Mitigation and adaptation strategies

23. Adaptation may be viewed as the poor partner of mitigation, required as a fallback position when mitigation has failed, but it is nevertheless urgently required and we should endeavour to identify mitigation and adaptation strategies for different types of cultural heritage: tangible and intangible; cities, coastal areas, and cultural landscapes. By studying traditional methods, we might rediscover traditional maintenance measures and integrate them with modern conservation techniques, combining low and high technology. In doing so it is particularly important to avoid maladaptation so as to guard against losing the elements which give cultural heritage its value. This is a pressing matter since the cheap energy which enabled the development of modern machine-based maintenance and building-servicing methods, is no longer an affordable or climate-friendly option.

24. Connecting tangible with intangible heritage could provide an alternative approach to institutional models of valuing heritage and risk assessment. The Faro Convention, which promotes the involvement of local heritage communities,[15] offers excellent guidance on rights and shared responsibilities relating to our common heritage, the contribution of that heritage to society, and the need for public participation, all of which might be brought to bear in considering our responses to adapting to and mitigating the impact of climate change on cultural heritage.

### *3.1. Low-cost mitigation techniques: Pakistan*

25. In considering the strategies required to mitigate the effects of climate change on historic buildings, we might learn from the experience of architects in the sub-continent who have become familiar with the need for innovative, low-cost buildings, particularly following natural disasters. So in Pakistan, following the devastating earthquake in 2005, the architect Yasmeen Lari responded by using long-established techniques such as building with earth, lime and bamboo which proved to be effective, cheap and environmentally friendly, using materials close to hand, with readily teachable skills.[16]

26. Since the funds in Pakistan dedicated towards the conservation and preservation of heritage buildings are negligible, low-cost mitigation techniques have been developed. The emphasis is on maintenance, which begins with cleaning in order to assess the works needed; repairing plaster and paint; removing plant growth; taking steps to prevent rain and water damage; removing mould and fungus, treating the affected surfaces and introducing natural or exhaust-fan ventilation to prevent recurrence; eliminating rodents and pests through cleaning, airing and repairing holes to stop access. The key for successful adaptive, low-cost re-use of historic buildings in Pakistan has been shown to be community involvement: if the community has a stake in the building, then people will monitor its condition and the day-to-day upkeep which inhibits deterioration will become key to survival and re-use.[17]

27. Day-to-day upkeep is always necessary with buildings, ever more so with the onset of extremes of climate in which, for example, rainwater goods designed for previous expectations of rainfall must be regularly inspected, cleaned, maintained and possibly replaced to cope with increased, often violently-delivered volumes of water which must be accommodated and taken away from the building before overflowing causes serious damage. Maintenance problems may also follow increased heat which causes the lead on roofs to become less resilient and potentially porous, and high winds which bring debris, impact damage and potential total destruction.

14. G. Aktürk and M. Lerski, “Intangible cultural heritage: a benefit to climate-displaced and host communities”, *Journal of Environmental Studies and Sciences*, 11, p. 306, 2021.
15. Heritage communities are defined as “people who value specific aspects of cultural heritage which they wish, within the framework of public action, to sustain and transmit to future generations”, Faro Convention, Article 2b.
16. R. Moore, “In praise of the barefoot approach”, *The Observer*, 7 May 2023.
17. Professor Samra Khan, notes on “Sustainable Mitigation Techniques for Conservation of Heritage Buildings in Pakistan”.

### *3.2. Improving energy performance of historic buildings: Estonia*

28. Regular maintenance accompanied by cleaning and sustainable renovation has also been recognised in Estonia as being a far better approach in mitigating the effects of climate change on buildings in the midst of an energy crisis than building anew. The Estonian guidelines for improving the energy performance of historic buildings state: "necessary repair should be carried out before or in parallel with the implementation of energy performance improvement measures. This will improve the building's energy performance".[18]

29. Steps must be taken to ensure that the planning framework also evolves in response, acknowledging that a nuanced approach is needed if the disparate demands of new build and historic buildings are to be accommodated in the advisory and regulatory frameworks: new build regulation is not applicable and might be damaging to historic buildings so it must be amended accordingly. There has been a renaissance in the rehabilitation of traditional wooden houses in Tallinn (Estonia), as in Riga (Latvia), the key here, as in Pakistan being awareness-raising and community involvement, shifting the emphasis in the built environment towards energy-saving rehabilitation over energy-intensive new build.

30. It is now a truism to state that the most sustainable building is the one that is already there: new construction requires enormous amounts of energy at great cost and creates climate-damaging emissions. In such circumstances, the conversion or adaptation of existing buildings is more sympathetic to mitigating the impact of climate change than demolishing and starting again. Sometimes a compromise position might result in recycling the existing materials and employing them in the rebuild. But in the United Kingdom, for example, in the absence of a statutory framework which encourages energy efficiency in the construction process as assiduously as it seeks to control the energy efficiency of buildings once they are built, there is an obvious limit on how much business interests might be persuaded to put climate change at the top of their corporate agenda, without governmental intervention.[19]

### *3.3. Re-use of building materials: Belgium*

31. The re-use of building materials, a practice which is being particularly promoted in Belgium by, for example, the Flanders Heritage Agency[20] and also by Rotor,[21] a co-operative design practice, is to be encouraged since it enables the re-use of ceramic tiles, once the mortar has been removed, the re-processing of wood, the re-use of furniture, building hardware and sanitary equipment. This approach to sustainability is however not always cheaper than using new materials, because of the cleaning costs, but it is energy-efficient in not requiring new manufacture and in its application to historic buildings is particularly applicable.

32. The problem to be overcome in re-using materials is that of the difficulty in certifying the resilience of the material, but this is part of the larger problem faced by historic buildings in a regulatory culture which privileges the new. Historic buildings are different, being rare and irreplaceable. They should not be subject to the same stringent regulations as new-builds, but treated as special cases, with skilled workers given improved training in crafts, and incentives provided to encourage careful owners.

33. As well as re-using building materials, a revival of traditional building components should also be considered. Hoods, canopies, and external shutters over windows will all contribute to maintaining a comfortable temperature within the building in hot weather; internal shutters are particularly effective in maintaining heat in winter. All of this can be achieved without compromising the good ventilation necessary for a healthy environment for both the building fabric – eliminating moisture and decay – and the inhabitants. Reductions in energy use through this upgrading of existing buildings will reduce carbon emissions, improve comfort and health, and save money

### *3.4. Mitigation and adaptation strategy: Champagne region in France*

34. In the winegrowing Champagne region in France, the average temperature has risen 1.4°C in fifty years. The warmer climate so far has had positive effects on wine production and adaptation by winegrowers will continue to be possible, so long as the temperature does not rise above 2°C. As well as the rising temperatures there are more intense rainy seasons and periods of dryness. Consequences include a greater risk of floods bringing the risk of increased pollutants; methods have therefore been developed to better manage groundwater to facilitate the infiltration or evacuation of rainwater where needed.

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18. Paragraph 4.5, EESTI Standard EVS-EN 16883:2017.
19. R. Moore, "Renovate, don't rebuild", *The Observer*, 9 July 2023.
20. www.onroerenderfgoed.be.
21. https://bouwen.vlaanderen-circulair.be/en/cases-in-flanders/detail/rotor.

35. There is also an increased risk of soil erosion which is being countered by the growing of grass on bare earth and by the re-instating of dry-stone walls. Different resilient grape varieties, more resistant to heat, drought and fungi, are also being introduced: a reduction in fungi has the beneficial effect of reducing the need for pesticides.

36. Growers in the Champagne region have two goals: the adaptation of the vineyards in response to climate change to continue to produce typical wines, and mitigation through the reduction of carbon emissions by 75% by 2050. The reduction of carbon emissions is being achieved across the industry by such measures as scrapping energy-intensive frost-control systems; reducing mineral fertilisers; reducing the weight of bottles and introducing the eco-design of locally-sourced boxes and packaging, so reducing $CO^2$ emissions; reducing energy consumption in storage cellars through LED lighting, and so on.

37. Attention is also being paid to biodiversity through the re-vegetation of hillsides, combating soil erosion, the planting of trees and the rehabilitation of organisms which fight the parasites which are harmful to the vines. It is acknowledged in the Champagne region that while the production of their luxury product must evolve to survive the effects of climate change, they are in a stronger position than many other wine growers to take such steps as reducing the use of herbicides and so spending more time on labour-intensive tillage, often with expensive heavy machinery, because their market, mostly well-off and informed, can bear the increased costs.

### *3.5. Reviving traditional art and know-how: drystone walls in Croatia*

38. The reinstatement of drystone walls in the Champagne region is part of the much wider recognition of their attractiveness and utility, with initiatives in Croatia, Cyprus, Greece, Italy, Slovenia, Spain and Switzerland as well as France. Although they are clearly tangible features of the landscape, it is as important to recognise the intangible traditional art and know-how which goes into their skilled construction by stacking and interlocking stones without using mortar, so it is noteworthy that the ”Art of drystone walling, knowledge and techniques” was inscribed in 2018 on the UNESCO Representative List of the Intangible Cultural Heritage of Humanity.

39. Drystone walls have a significant role to play in helping to combat the effects of climate change and countering the damaging effects of the wide-open-prairie style of agricultural management, created for massive agri-businesses which use expensive machinery and have now through their exposure to the elements proved very vulnerable to extreme climatic events. Drystone walls sub-divide the land in a humanly manageable manner. They play a vital role in inhibiting the occurrence of landslides, floods and avalanches, combating erosion and desertification of the land, enhancing biodiversity and creating the microclimatic conditions in which agriculture thrives. They also regulate the exposure to sun, wind and rain on crops.

40. Drystone walls, with accompanying terracing, have also always been an important element of sites for the cultivation of vines and olives. In Croatia, Association 4 Grada Dragodid[22] was established to preserve and pass on the tradition of drystone walling. Their work is multi-faceted, encompassing environment, society, education and sustainability. The focus is upon awareness raising rather than direct repair, so it strengthens and empowers the local community to become involved in the preservation of walls,[23] something which is crucial in rural areas in particular, for example on the island of Cres where depopulation following the decline of the traditional industries of agriculture and fishing has resulted in the progressive decay of village settlements and their vernacular building. Into this gap, the tourist industry has arrived, seeking to fulfil the expectations of visitors expecting highly serviced air-conditioned accommodation, putting serious unsustainable pressure on electrical and water supplies and drainage.

41. In these tourist-development circumstances the traditional stone buildings and drystone walls are at grave risk. The Ministry of Culture is thus working to encourage a local collaborative and interdisciplinary approach to manage these issues, stimulating owners, developers and the local population to recognise the potential of built heritage in economic regeneration and not allow development associated with the servicing of tourism to destroy the vernacular heritage built at human scale which encourages tourists to come in the first place.[24]

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22. www.dragodid.org
23. https://baoformation.fr/en/the-hero-project/
24. D. Johnson, “Reconstruction in South-East Europe and Georgia”, in J.Bold, P. Larkham and R.Pickard, *Authentic Reconstruction*, London 2018, p.148.

## 4. Innovation and research

42. Technologies which have most commonly been used to maintain stable indoor temperatures and humidity to preserve indoor collections – historic documents and archives, paintings, furniture, precious objects, or textiles – have become problematic since the cost of artificial heating and cooling is becoming unaffordable. We must identify examples of a more pragmatic and integrated approach, reconciling heritage conservation, energy saving and sustainable development. Adequate protection and conservation management of heritage sites require a systematic approach as a basis for diagnoses and actions, flexible enough to consider the evolving cause and effect relationship of degradation phenomena.

43. To strengthen resilience against the adverse effects of climate change, it is important to include cultural heritage in the future modelling of climate impacts. Such mapping could provide a basis for an early warning system as a first step in building resilience.

44. In response to previous crises in the 19th century such as outbreaks of epidemics in cities, the importance of a hygienic environment was recognised and various natural techniques were developed to improve indoor air quality and temperature. Natural ventilation exploits the differences in air pressure which come from temperature and wind pressure. To achieve consistency, natural ventilation may be aided by fans and ventilators or cowls to induce airflows.[25]

45. At the forefront of ventilation developments in the United Kingdom, the Scottish chemist, David Boswell Reid, provided the ventilation plan for the temporary House of Commons, erected after the fire in the Palace of Westminster in 1834, then in the permanent replacement building: an external source of heat – either a fire or a steam engine – was used to create a current through the buildings, using vertical shafts to evacuate putrefied air and draw in fresh air.[26] In the United States, Frank Lloyd Wright innovatively introduced air intakes alongside the stairwells in the four corner towers to ventilate the Larkin Administrative building in Buffalo (1904): air was drawn down into plant rooms, cleaned, heated or cooled and distributed through ducts throughout the building.[27]

46. There was no humidity control at the Larkin building so this was not yet the energy-intensive electrically powered air-conditioning which could be rapidly and consistently deployed, often in portable form, superseding natural ventilation, which had minimal demands for power. The development of powered air conditioning in the twentieth century liberated architectural design but it came with a caveat: “for anyone who is prepared to foot the consequent bill for power consumed, it is now possible to live in almost any type or form of house one likes to name in any region of the world that takes the fancy”.[28] Those days have passed: air conditioning has high capital costs, high running costs and high levels of energy consumption, so architects and engineers must once again be imaginative.

47. It is now recognised that to counter the temperature and humidity effects of climate change during an energy crisis, a return to cheaper, natural methods of temperature control is necessary. Professor Jochen Käferhaus is a leader in recent developments applicable to historic buildings, arguing for a reduction in the use of machinery, regulating heat by using tunnels within the building, augmented by ice blocks and using the building itself to minimise the demand for temperature and humidity controls by exploiting through-draughts between openings on each side of the building, opening windows at night, introducing outside shading, better insulation, triple-glazing and photo-voltaic panels on the roof to convert thermal energy into electricity.

48. He has pointed out the harsh effects of powerful air conditioning on museum contents and argued for using the building itself as a passive means of climatisation, adding shafts and openable flaps to release warm air in summer and closing them in winter: “warm, radiating walls are the best damage prevention and the best way, to transport heat (and cold) into a room instead of using expensive and destroying convective air conditioning in winter and summer”.[29]

49. The recent development of vacuum glass may revolutionise the treatment of historic buildings in an energy crisis by offering a new technological strategy for retrofitting windows in historic buildings: two layers of 3mm glass with a 1mm vacuum will provide a greater thermal reduction than double-glazing while fitting into existing window frames and so preserving traditional appearances.

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25. M.van der Tempel, I.Wouters, F.Descamps & D.Aerts, “Ventilation techniques in the 19th century: learning from the past”, *WIT Transactions on The Built Environment*, 118, 2011.
26. E.J.Gillin, “Reid, David Boswell”, *Oxford Dictionary of National Biography*, 2004.
27. R. Banham, *The Architecture of the well-tempered environment*, London, 1969, pp.86-92
28. R. Banham, op.cit. p.187
29. J.Käferhaus, “Why does sustainability stop in museums???”, *Museum Aktuell*, November 2011.

50. In the United Kingdom, both English Heritage and the National Trust have introduced solar panels to properties in their care to generate green energy and reduce their carbon footprint. LED lights have also been installed, using over 75% less energy than incandescent lighting. Both these organisations are faced with the problems of maintaining both building fabric and historic collections while accommodating visitors. They share this management and conservation problem with the Palace of Versailles about which Danilo Forleo addressed the committee in December 2022.

51. At Versailles "the question arose as to how best preserve fragile indoor collections when the cost of artificial heating and cooling is becoming unaffordable. The technical conservation solutions usually recommended by museum professionals and developed in recent decades are no longer sustainable, either financially or in terms of energy consumption". We need to go beyond the widely accepted dichotomy that sees conservation on the one hand and climate management and sustainable development on the other, as two opposing and inversely proportional variables. New strategies must be adopted and disseminated so as to resolve this apparently insoluble conundrum.[30]

52. The EPICO (European Protocol in Preventive Conservation)[31] programme for the conservation of historic houses and palace-museums was mentioned here. The EPICO method, which has been developed since 2014 with the collaboration of a multidisciplinary team, is an assessment system for assisting with decision-making based on analysis of deterioration indicators, causes and diagnostics. With its novel systemic approach, the method links up deterioration patterns, environmental trends and knowledge about heritage items and monuments to determine the measures needed for long-term conservation. In line with the objectives of environmental transition, this tool seeks to strike the right balance between the various elements of the system, namely conservation, climate change, energy consumption and carbon footprint.

53. To this end, solutions have often been found through traditional materials and conservation methods aimed at reducing dependence on central heating, ventilation and air-conditioning (HVAC) systems and the resulting energy consumption. These include the use of natural ventilation, the combined use of shutters, solar filters, technical fabrics and restored curtains to regulate the amount of solar radiation entering rooms, and the benefits in terms of energy costs and conservation of local heating systems close to the occupants compared to central heating. This approach has also been adopted by the National Trust in the United Kingdom, which proposes relatively low heating targets (16-17°C) for the purpose of regulating humidity to levels suitable for conservation (40-70% depending on the collections) so as to avoid the use of humidifiers and dehumidifiers.

54. EPICO has confirmed the value of such simple solutions to contemporary problems, starting with knowledge of the condition of collections and their real conservation needs; followed by indoor climate regulation strategies based on reasonable temperature and humidity targets depending on the historical environment of the works; building insulation; and the identification of traditional methods combined with modern conservation technology. So, whether for monumental stone buildings in Europe or vernacular buildings in Pakistan, the first steps in combating the effects of climate change on built heritage are maintenance and preventive conservation. For instance, facades blackened by pollution absorb heat and contribute to global warming; cleaned facades reflect solar radiation and reduce indoor temperatures.

55. Rather than simply acting to mitigate the effects of climate change on cultural heritage, sometimes after the event, predicting likely outcomes will enable the museum curators to take necessary mitigating steps in advance. Paul Lankester[32] sought to identify predictive models for assessing the impact of climate change on historic interiors. He employed building simulation, typically used before constructing new buildings, using the EnergyPlus software, developed by the US Government energy department, to predict the indoor environment when given the details of the physical properties, construction materials, orientation of the building, and the outdoor environment: temperature, humidity, wind speed and direction, atmospheric pressure, solar radiation and cloud cover, with some of these being more routinely measured and collected than others.

56. The transfer function which was developed during research, calibrated through observations of indoor and outdoor conditions, specific to each room and location used in testing, was able to predict the temperature, specific humidity and relative humidity. On this basis, it is possible to predict future damage –

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30. Hearing of Mr Danilo Forleo, Head of preventive conservation at the National Museum of the Palaces of Versailles and Trianon (France), meeting of the committee on 5-6 December 2022 in Paris.

31. European Protocol in Preventive Conservation for historic houses and palace-museums (EPICO programme), www.europeanroyalresidences.eu/epico/; www.chateauversailles.fr/presse/collections/preserver-les-chateaux-musees-heure-changement-climatique#historique-du-programme-epico.

32. P.Lankester, "The impact of Climate Change on Historic Interiors", PhD thesis submitted in 2013 at the University of East Anglia, in collaboration with English Heritage.

paper and silk degradation, mould growth, increase in insects, and to take appropriate mitigating action, also bearing in mind that: “it is important to balance the threat of climate change to other future threats to heritage, and maybe the balance between this and other important threats, environmental pollution, financial stringency, changing population etc.”

57. During the same time period, “Climate Change Modelling and Whole Building Simulation as a Tool for Assessing Indoor Climates in Buildings” was researched by Dr Johanna Leissner and others.[33] Climate for Culture was an EU-funded project (2009-14) which coupled climate modelling with building simulation tools (normally designed for new buildings, they were adapted by using real data from historic buildings) to estimate the impacts of climate change on the indoor environments and collections in historic buildings. The outdoor climate influences the building envelope and governs the indoor climate: “its buffering and insulating capacities have a strong effect on temperature and relative humidity and these parameters establish either a safe or an unsafe environment for the cultural heritage displayed” – hence the current debates about the appropriate indoor climate in museums and historic buildings, prompted by changing climate conditions and rising energy bills, and the search for new agreed standards. It is desirable that international agreement on standards is reached since the absence of a consensus on conditions might inhibit inter-museum loans for exhibitions if institutions are applying differing measures.

58. Although there is now a body of research into predictive climate conditions and building behaviour, impacting interior collections, standards and norms have not been so far sufficiently extrapolated: research is carried out but the results are not widely taken up; projects are funded but implementation, which is less attractively innovative and potentially ground-breaking, tends to fall outside project-funding parameters, so findings are not followed through as researchers perforce move on to the next funded project; and there is the recurrent enervating battle with developers whose vested interests privilege profit above all other considerations.

## 5. Awareness-raising, education and training

59. There has been growing awareness of the increasing scientific evidence of global climate change since the 1980s: warming oceans, melting polar ice and glaciers, rising sea levels, more extreme weather events. The United Nations Framework Convention on Climate Change (New York, 1992), “acknowledging that change in the Earth’s climate and its adverse effects are a common concern of humankind”, entered into force in 1994. The first Conference of the Parties (COP 1)[34] followed in Berlin in 1995.

60. COP 27 took place in Sharm el-Sheikh in 2022. It was noted in the subsequent Implementation Plan, in the context of mitigation, that limiting global warming to 1.5°C requires rapid, deep and sustained reductions in global greenhouse gas emissions of 43% by 2030, and that to achieve this will require accelerated action on the basis of equity and the best scientific knowledge, reflecting differentiated responsibilities and capabilities, in the light of different national circumstances and in the context of sustainable development and efforts to eradicate poverty (IV, 11-12). In the context of adaptation, the gap between levels of adaptation and levels needed to respond to the adverse effect of climate change was noted ominously with serious concern. The major achievement of COP 27 was the agreement of a fund to compensate developing countries for loss or damage, and to rebuild physical and social infrastructure of countries devastated by extreme weather, but how it will be funded and distributed remains to be seen: COP 28 was held in Dubai in November 2023.

61. So, this acknowledgement and combating of climate change has been going on for forty years with ever increasing force; yet we are still arguing and we are still complaining about a lack of awareness. But is this really a lack of awareness or is it avoidance, either by the wealthy with vested interests who profit and do not wish to pay to redress or alleviate a dire situation, or by the poor who feel that they cannot afford to do so without financial compensatory incentives, or by those who feel it is a southern problem, not a northern problem? Is it a lack of awareness of the threat of climate change or a lack of awareness about what individuals might do to contribute towards mitigating its effects?

62. The descriptive language of climate change is often technical and not well understood, and how individuals might influence a global crisis is not always equitable: when airline companies fly empty planes simply to retain their slots at international airports, and private jets proliferate, how might one persuade travellers to reduce their consumption of cheap flights?

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33. *Cultural Heritage Facing Climate Change: Experiences and Ideas for Resilience and Adaptation*, ed. R-A.Lefèvre & C.Sabbioni, 2018.

34. Established “as the supreme body of this Convention” charged with keeping the implementation of the Convention under regular review (Article 7).

63. We need better awareness of how to engage building owners and demonstrate to them, with financial and planning incentives, how they might adapt their buildings in response to the challenges of climate change. Publicity campaigns through the media might be used to address the issues. We must give close consideration to how the message is delivered and who delivers it, since too often in regulations for historic buildings, the response is negative rather than enabling, advising owners that they cannot do something, rather than advising them how they might achieve a better outcome. The situation is compounded in those countries whose regulations for historic buildings are administered by an "Institute of Protection", a very restrictive, negative sounding title which implies prevention rather than opportunity. Perhaps "Institute of Buildings Maintenance", or similar, would be more encouraging.

64. To achieve the provision of good, constructive advice to owners, an increase in fully-trained historic buildings maintenance experts will be required. The reduction in historic buildings expertise at local authority level has adversely affected the provision of advice since there are no longer enough knowledgeable and creative members of staff to advise building owners on how they might be able to adapt historic buildings to new climate circumstances.

65. Above and beyond all these considerations is the short attention span of many politicians who see no value in looking beyond the likely result of the next election. The devastating humanitarian disaster of the war in Ukraine and the consequent rise in energy costs has had a more immediate impact on energy reduction strategies in the West than decades of climate change discussions.

66. We must change the narrative if the message is to be heard and acted upon. Although awareness of climate change overall is rising, awareness of its impact on cultural heritage remains low: "Awareness of the vulnerability of cultural heritage and the increasing threats posed by climate change to European heritage is still very low in the heritage community and even lower in wider society and at the political decision-making level".[35] To change the narrative, we need better information that is precisely targeted. As Historic England noted, "successful adaptation to the challenges and opportunities presented by a changing climate is very much dependent upon having access to up to date and relevant information".[36]

67. The effects of climate change on different categories of cultural heritage, mitigation and adaptation strategies and awareness raising, education and training have been addressed in two EU-funded projects: HERACLES (Heritage resilience against climate events on site) and the recently commenced GreenHeritage (the impact of climate change on intangible cultural heritage). HERACLES considered archaeological sites and coastal monuments in Crete affected by sea-level rise, increased salinity and changes in weather patterns, and historic cities in Italy affected by heavy rains, temperature variations and moreover by seismic risks. During the lifetime of the project, specific events involving schools, policy makers, cultural heritage managers and so on, were organised to raise awareness.

68. Similar initiatives and events are proposed in Green Heritage (which among other things will consider drystone walling in Italy, religious rituals in Italy, food and agricultural traditions in Spain and Greece and fishing in Latvia), since raising the awareness of civil society as a whole is seen as a primary purpose of the project. It is anticipated that an emphasis on risk to intangible cultural heritage and what might be lost through climate change, will raise awareness, encouraging public knowledge and participation. It is always the threat to cultural heritage which concentrates the mind and lays the ground for protective action.

69. Projects such as these have considerable potential in changing the narrative of climate change and focusing minds on risks and how they might be countered. This is especially important in building management since university education in architecture continues to privilege the design of new buildings rather than adaptation and re-use of historic buildings, and even when considering the new might overlook climate considerations. We must learn from hot countries and reduce our reliance on concrete and steel, and temper our use of glass, which without shading to protect the interiors will be very hot in summer and very cold in winter, requiring unsustainable amounts of energy to correct the imbalances and make the building comfortable.

70. A radical re-orientation of architectural education is required in response to the climate crisis and the need to maintain and re-use existing buildings – not necessarily just the obviously historic buildings but also modern buildings capable of re-use. Students should be instructed in how to accommodate the existing building stock rather than consistently being required to design new build. This is not just an issue for individual architecture schools and universities but also for the regulatory bodies which oversee standards and set the requirements for architectural qualification.

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35. European Union, *Strengthening Cultural Heritage Resilience for Climate Change*, 2022.
36. H.Fluck, Historic England, "Climate Change Adaptation Report", 2016.

71. We should learn also that adaptive re-use of historic buildings not only creatively preserves the existing stock and brings it back into beneficial use but also helps achieve low-carbon targets since it is demolition and new construction which increases $CO^2$ levels in the atmosphere.

## 6. Required policy action

72. Climate change is one of the major political, economic, and social crises of our time. It involves everybody and requires concerted international co-operation if it is to be adequately confronted and combated. It is worrying that climate activists are still having to repeat arguments first enunciated forty years ago. Education, awareness raising, and training are key to changing attitudes and perceptions, to co-operating across and within sectors, and involving the public in the process, but these require political leadership, a change in governance models and funding. Cultural heritage professionals must ensure that both tangible and intangible heritage are part of the narrative since cultural heritage is too often perceived as a desirable add-on rather than being fundamental to social cohesion and well-being.

73. Consideration must be given to the following policy actions for the future: change institutional behaviour, create new partnerships and business models, adapt planning processes in cities and rural areas, including changes to existing standards (for museum collections, for urban planning, for agriculture and landscaping, etc), ensure efficient resource and energy management; invest in research, combine high tech with low tech solutions, innovate and learn from traditional sustainable solutions offered by cultural heritage; make good use of traditional materials and methods.

74. Government and the media must be persuaded to support initiatives for real tangible change so that problems and their solutions are brought home to individuals, institutions and corporations. As we look on with horror at instantaneously transmitted images of wildfires ravaging southern Europe and elsewhere, we can no longer protest ignorance or inertia. Cultural heritage is fundamental to our well-being – we all have the right to benefit and to contribute towards its enrichment, and the responsibility to respect the cultural heritage of others (Faro Convention, Article 4) – but cultural heritage does not stand alone; it is part of a wider world, and that world is now at risk.

75. Full transparency is required to combat this crisis. People must be educated on what must be done, how they might contribute and how they might benefit. Young people's meaningful participation in climate related decision-making processes and in initiatives of protection and preservation of cultural heritage must increase. The problem in hoping for this is that a lot of the very influential media and many politicians are in thrall to vested interests and in denial about the scale of the problems and how they might be overcome, so they dissemble and mislead when honesty and clarity are required. We should make it easy for people to understand the problem and to understand what they might do and show them in clear terms what their responsible behaviour will achieve.

76. We should insist on the provision of incentives such as tax reductions to encourage maintenance, monitoring and adaptation to mitigate the effects of climate change on cultural heritage assets – it remains absurd and iniquitous in the United Kingdom that 20% VAT is levied on repair and maintenance works to historic buildings but not on demolitions or new build, so there is "a perverse incentive to demolish old buildings rather than repairing and re-using them".[37]

77. We should take steps to ensure, through local planning authorities and through bodies responsible for historic buildings, that owners are made fully aware of the many options available to them, possibly with financial incentives or tax breaks, in adapting their buildings for climate change.

78. Collaboration will be key to success. The agreement in Cancun (COP 16, 2010) that "enhanced action and international co-operation on adaptation is urgently required to enable and support the implementation of adaptation actions aimed at reducing vulnerability and building resilience [...]" (II, 11), informed the recommendations of the Paris Agreement (UN, 2015). These included sharing information, good practices, experiences and lessons learned; strengthening institutional arrangements; increasing scientific knowledge, including research and systematic observation; assisting other countries in identifying effective adaptation practices; and improving the effectiveness and durability of those adaptation actions (7.7).

37. The Heritage Alliance, *The Heritage Manifesto, 2023.*

79. Decisions made collaboratively must be followed through to implementation. Although collaboration already takes place at the international level and agreements are regularly made at the annual COP meetings, they are not always honoured when politicians return home and are faced with a potential loss of votes when opposed by those with vested interests who might inhibit or slow down implementation: "Give me chastity and continence, but not yet".[38]

80. Policy makers might be hampered also by the scattering of responsibilities among different agencies, not always transparently enough to see where those responsibilities have come to lie. The bunker mentality which characterises institutional and political life, in which departments are in competition with each other for funding and influence, inhibits the collaboration which will be required to combat climate change.

81. All ministries and authorities should be enabled to create a forum in each country for regular co-operation, learning from each other, planning, developing mitigation strategies, ensuring their practical application, and documenting and sharing results. Departments should shelve their differences in order to work together with a common purpose, crossing the traditional lines of demarcation which have tended to stipulate (for example) that the Department of Culture advises on the protection of built heritage and counsels against modern replacement windows, while the Department of the Environment advises on saving heat and costs through installing double glazing.

82. Cultural heritage in its broadest sense, both tangible and intangible, is impacted by the actions of many different ministries and agencies, not just those with "cultural heritage" in their title. We must therefore highlight the cultural heritage concerns of which all ministries should be aware since they share a common responsibility. More narrowly the specific administration relating to cultural heritage and climate change in most countries is usually the responsibility of separate institutions, with separate ministries taking the lead on each.[39]

83. The Heritage Alliance has emphasised the need for strengthening "collaborative working between environmental regulators and heritage sector bodies … to understand the vital role heritage has to play in our response to the changing environment". The promotion of understanding and collaboration must be underpinned by a more engaged assessment approach to the energy demands of historic buildings. If net-zero targets are to be met within an acceptable timeframe, funding will be required to enable the retrofitting of historic buildings, carried out by trained, conservation-skilled contractors.[40]

84. There is strength always in working together, across and between countries, learning from the experience of others, providing examples of best practice from which others might benefit, disseminating information and experimental results, and sharing strategies so as not to waste resources on solving problems already solved by others: "As a non-renewable resource of intrinsic importance to our identity, there is a need to develop more effective and efficient sustainable adaptation and mitigation strategies in order to preserve these invaluable cultural assets for the long-term future. More reliable assessments will lead to better prediction models, which in turn will enable preventive measures to be taken, thus reducing energy and the use of resources".[41]

85. Museums have a special role, since notwithstanding an occasional regrettable tendency in the past in some cases to rely on green-washing fossil fuel sponsorship, they tend to be trusted institutions, so they are in a very strong position to speak authoritatively in raising awareness, ensuring the prominence of cultural heritage in all climate action mitigation plans. They already help in raising awareness by publishing their own strategies to achieve net-zero carbon emissions. Such consciousness-raising in tangible form in a trusted museum might well help to counter the "climate exhaustion" and feelings of disempowerment felt by many and spur them to make changes in their own lives.[42]

86. Collaboration to engage the support of the people is crucial. It has been recommended that the European Commission "must establish a common European platform for exchange, discussion, expertise and knowledge sharing about the impacts of climate change on cultural heritage and the latter's contributions to the fight against climate change, providing a central entry point for cultural heritage in times of climate change".[43]

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38. St Augustine, *Confessions*, VIII/7.
39. In Germany, culture is administered at federal state level so an agreed national policy would first involve the 16 länder in negotiations.
40. *The Heritage Manifesto, 2023.*
41. J.Leissner *et al*., "Climate Change Modelling and Whole Building Simulation", p. 42.
42. N.Merriman, "Museums must take action on climate change now – before it's too late", *The Art Newspaper*, 1 November 2021.

87. The Council of Europe is the co-ordinating forum for human rights in its member States; there is a fundamental symbiosis between human rights and the protection and celebration of cultural heritage, as stated in the Universal Declaration of Human Rights (UN, 1948): “everyone has the right freely to participate in the cultural life of the community” (Article 27). This is cited in the Faro Convention in which the Parties to the Convention agree to “recognise that rights relating to cultural heritage are inherent in the right to participate in cultural life, as defined in the Universal Declaration of Human Rights” (Article 1a). It is here recommended that through the Parliamentary Assembly the Council of Europe might complement the European Commission’s platform by convening a forum for discussion, awareness raising, information-sharing, documentation and promotion of adaptation and mitigation strategies and actions relating to cultural heritage and climate change, as a function of human rights, which will impact in each of the member states.

88. We all have a stake in our cultural heritage, and we are all adversely affected by the rapid progression of climate change. We must all respond to it by working together in collaboration, putting in place participatory and governance models in which civil society and young people are meaningfully involved, making it easier for people to know where to go, what to do and how as individuals and collectively they might contribute towards countering this world-wide crisis.

43. European Union, “Strengthening Cultural Heritage Resilience for Climate Change”, 2022.