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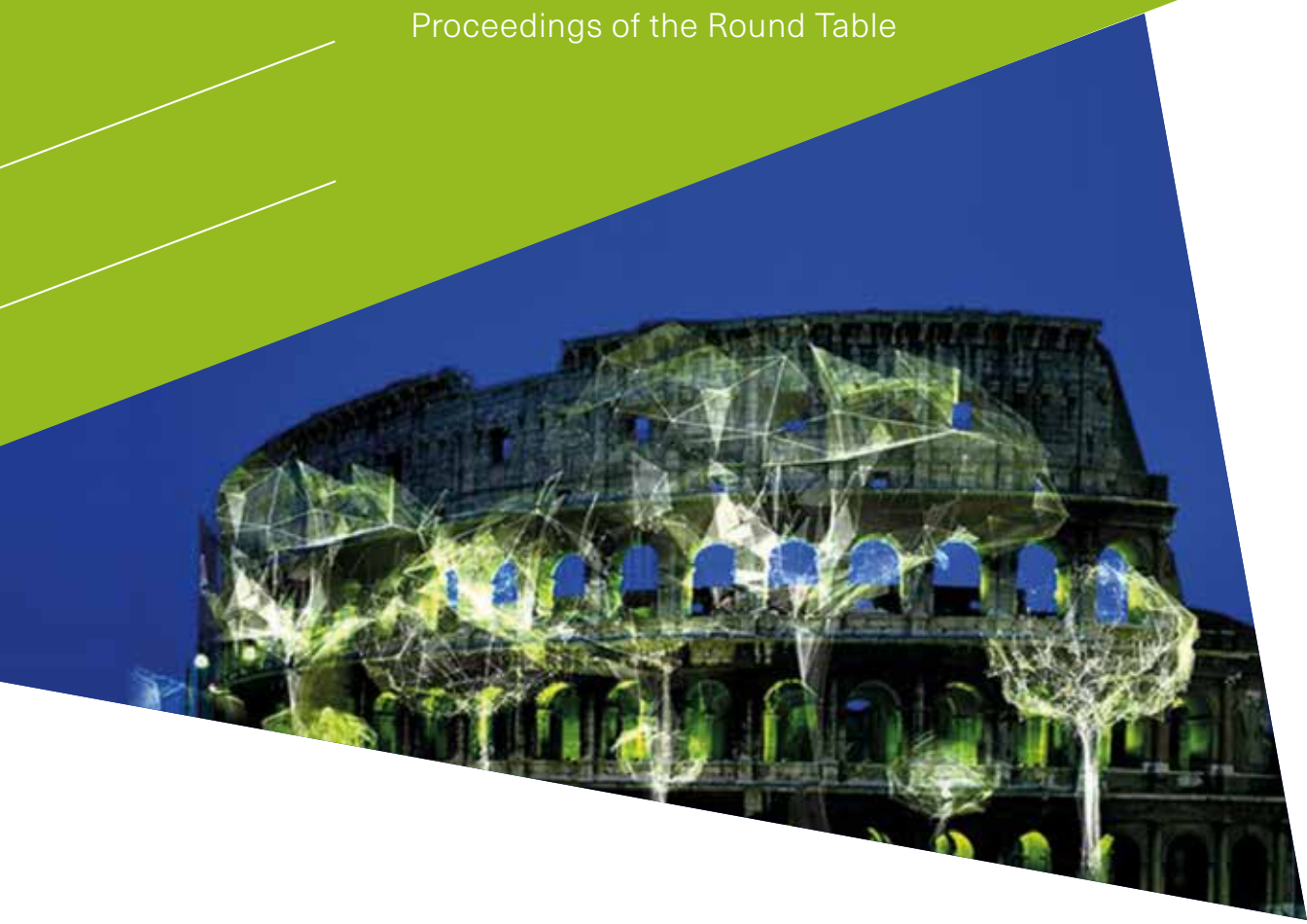
THREE KEY QUESTIONS ON CULTURE, CULTURAL HERITAGE AND CLIMATE CHANGE

Proceedings of the Round Table



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Foreword

I am very pleased to present the proceedings of the round table *Three Key Questions on Culture, Cultural Heritage and Climate Change*, organised by the Fondazione Scuola dei beni e delle attività culturali in January 2022.

The contributions made by the speakers on the possibility of fighting climate change in the urban environment while preserving cultural heritage are of general interest and we now make them available to a large public through this publication. The volume presents the round table transcript and, to enrich the proceedings, a section dedicated to projects which concretely explore viable instruments to tackle climate change.

The round table approached both the theoretical and the experimental aspects of climate action, and the discussion set out to stimulate a dialogue among experts with different backgrounds addressing distinct professional domains.

The theme of what strategies culture professionals and institutions can develop to counter climate change is urgent and critical and needs to be integrated into all the activities of educational institutions. We hope the reflections gathered in this publication will contribute to open the debate on effective ways to talk about this issue, empowering people and institutions in the fight against climate change.

Alessandra Vittorini
Director, Fondazione Scuola dei beni e delle attività culturali

INTRODUCTORY REMARKS

Three Key Questions on Culture, Cultural Heritage and Climate Change is a round table aiming at throwing a little drop in the wide ocean of climate change. The Fondazione Scuola dei beni e delle attività culturali, in collaboration with the Ministry of Culture, has carried out a challenging project concerning these themes. The project was about the feasibility of setting up an Observatory on climate change and cultural heritage in the urban context. This project is one of the initiatives included in the Urban Agenda for the EU, promoted by the European Commission.

I would like to outline three simple reasons why the Fondazione is highly committed to these themes.

First of all, I wish to stress that in this kind of policy a gap can be found between theory/strategies on one side and daily practice on the other side. We think that training and dissemination are fundamental for bridging this huge gap.

The second reason is that, in our opinion, this gap can only be bridged through cooperation: connections are very important in this perspective and today we are here to try to put together various perspectives that deal with culture and climate change (researchers, pilot actions, activists, artists, etc.).

Finally, we think that dealing with climate change and cultural activities requires transversal competencies and not only specialisms. Therefore, the Fondazione – as an educational institute dedicated to people operating in managing culture – is deeply committed to enabling and training transversal competences. We think that the new complex challenges regarding cultural heritage can be faced only by professionals with a profile rich in transversal, horizontal and specialised skills. In this context, the round table revolves around three questions on how to talk about the climate crisis and culture, as the understanding of this issue is crucial to move from theoretical strategies to daily practices. The round table sets out to discuss the ways in which culture professionals should act in order to contribute to the topic: is it an individual or a collective responsibility? Should they act in a cognitive or in an effective way? Do they acknowledge any alternatives to "loss and damage"[1]?

The *Three Key Questions on Culture, Cultural Heritage and Climate Change* round table's recording is available on the Fondazione's web learning platform, where one can find a rich catalogue of lectures, conferences and other educational material.

"The Culture/Cultural Heritage and Climate Change Knowledge Base"[2] offers the first deliverables of our project, together with a rich source of data and information about culture and climate change, such as policies, programmes, projects, etc.

Finally, I wish to thank Francesca Neri, Head of the Innovative Project Area and chair of this round table; Paolo Verdone (Director of International Relations) and Giuliana De Francesco (Head of Unit, Coordination of European and International Affairs) from the Secretariat General of the Ministry of Culture; Paolo Vitti and Andrew Potts, who addressed the fundamental scientific aspects of the project, Agnieszka Śmigiel and Francesca Pajno, who researched the topic with a deep sense of responsibility and passion, and Sneška Quaedvlieg-Mihailović, from Europa Nostra, for their support.

Marcello Minuti
General Coordinator, Fondazione Scuola dei beni e delle attività culturali

[1] "Loss and Damage" is one of the key concepts of the Paris Agreement (Art. 8), reviewed and applied as one of the four categories in the 2019 ICOMOS report *The Future of Our Pasts: Engaging Cultural Heritage in Climate Action*. For the work under the Urban Agenda for the EU, these four categories have been adopted as the main framework and guidelines for classifying content related to climate change and culture in the urban context. The concept was presented again as one of the themes for discussion between the experts at the round table.
The expression "loss and damage" is used, with lower case "l" and "d", to describe the manifestation of climate change impacts which are not or cannot be avoided by adaptation and mitigation efforts (i.e., reducing emissions), whereas "Loss and Damage," with capital "L" and "D", is used to describe policies and plans that are used to address loss and damage, such as those that are negotiated at the United Nations Framework Convention on Climate Change (UNFCCC).

[2] The database is available on the Fondazione's website: < https://www.fondazionescuolapatrimonio.it/innovazione-e-sperimentazione/the-culture-cultural-heritage-and-climate-change-knowledge-base/ > accessed 25 October 2022.

We all know what an active role culture, cultural heritage and the arts can play in climate action, contributing to the success of policies and strategies and addressing climate change on all levels. Creative imageries drive desires and narratives, while artistic performances find their way into people's emotions, shaping the perception of reality. Therefore, they can motivate action and behavioural changes regarding climate change.

The relationship between culture/cultural heritage and climate change is bidirectional: cultural heritage must be protected from climate change and, at the same time, it can help in addressing it. In fact, cultural heritage is able to provide solutions for mitigation and adaptation and can contribute to the achievement of ambitious political goals, such as those set by the European Green Deal, as the Europa Nostra's *European Cultural Heritage Green Paper* brilliantly demonstrated.

At a global-policy level, the first ever G20 meeting of the Ministers of Culture, which was held in Rome under the Italian presidency in July 2021, issued an official declaration recognising, among other issues, the importance of addressing climate change through culture. *The Rome Declaration* of the G20 Ministers of Culture also underlined the role of culture and creativity as drivers for sustainable development, able to foster the resilience of our society committed to further pursuing the G20 cooperation on culture.

Now is the time to speed up the participation of cultural communities in climate action: we all know that community involvement is always a key factor for the success of policies. Therefore, I strongly believe that this round table will contribute to shedding light on the potential that culture and cultural heritage can unleash for successfully addressing climate change, stressing how contributions coming from different contexts, projects, and initiatives can become valuable input to policy developments at local, national, as well as European and international level.

Paolo Verdone
Director of International Relations, Secretariat General, Ministry of Culture

This very important round table discusses the vital relationship between culture, cultural heritage, and climate change. After the opening words of Marcello Minuti and Paolo Verdone, I am delighted to see that we are all on the same page: we are all very much aware that we have an extremely important topic to discuss and that we must urgently bridge the serious gap between strategic policy orientation and practice. Fortunately, thanks to our common endeavours, we have achieved recognition of the strategic relationship between climate action and cultural heritage at all levels of policy, but we now need to put this policy into practice.

As a representative of Europa Nostra, the European voice of civil society committed to cultural heritage, I am therefore delighted to see that we have started working closer together to bridge these gaps. Our joint aim is to bring together, in a transversal and multidisciplinary way, all the various stakeholders, know-hows and disciplines, and to have citizens, civil society organisations, and inhabitants and their communities in the cities involved in this fundamental transformation of our lives, our way of thinking, and our mindset.

This was also a key message from our important document, the *European Cultural Heritage Green Paper* produced by Europa Nostra in collaboration with the International Council on Monuments and Sites (ICOMOS) and Climate Heritage Network, with the support of the European Investment Bank Institute, presented in March 2021. I hope you would agree with me that 2021 was a year of policy breakthrough at a European level, a year when true momentum was created. Combined with the positive drive created by the New European Bauhaus initiative, the aforementioned *Green Paper* that we have produced as well as the ongoing work of the European Urban Agenda programme, we now know that we cannot achieve the European Green Deal if we do not put culture and cultural heritage at the heart of that green transformation of our society and of our economy. Let me remind you that only three years ago, when the European Green Deal was adopted in 2019, culture was not mentioned in its fundamental document. Then, we all joined forces, combining our voices and our knowledge to fill that very serious gap. Fortunately, we were helped in this process by the launch of the New European Bauhaus, with the President of the European Commission stressing that this initiative will help give a “soul” to the European Green Deal. Now we face the incredible challenge to put all this knowledge and forces together and, in terms of cooperation, I wish to pay tribute to our Italian hosts. I, as a non-Italian, want to applaud Italy’s leadership in this context, for your country plays – and has been playing for some time now – an extremely important role in promoting the vital intersection between cultural heritage and climate action.

This was clearly demonstrated in 2021, when Italy was the chair of the Ministers of Culture G20 and the historic *Rome Declaration* was adopted in the Colosseum, and when it also played an important role within the 26th UN Climate Change Conference of the Parties (COP26), held in Glasgow.

At COP26, there was a never-before-seen number of culture and cultural heritage voices represented in various side events. In Glasgow, Europa Nostra also accepted the role of co-chair for Europe of the Climate Heritage Network, showing that the commitment we took to this topic would not end with the publication of our *Green Paper* earlier that year; this publication has rather been the beginning of our much stronger involvement and close cooperation with multiple partners, from the European Union to members of the European Parliament, to the research community and of course to public authorities at all levels, from local and regional to European and global. Indeed, we have a great challenge ahead of us and we stand ready to contribute to a collective mobilisation bearing in mind our shared responsibility for the future of both our cultural heritage and our planet.

I already said that we wish to pay tribute to Italy. It is not a mere coincidence that Europa Nostra is represented at this round table also by Professor Paolo Vitti, eminent Italian member of our Board who contributed – on behalf of Europa Nostra – to the work of the Fondazione Scuola dei beni e delle attività culturali. Let me also applaud the work that the Fondazione has done in compiling a relevant knowledge base on the topic and producing an important report that will underpin the work of the European Union for the creation of an Observatory on the relationship between culture, cultural heritage, and climate action in the urban framework.

Let me end by stressing that Europa Nostra and I are truly delighted to be part of this mobilisation: time is running, and we cannot afford fragmentation and duplication of efforts. Europa Nostra is committed to working together with the Fondazione and many other partners in Italy and in Europe. We very much look forward to bringing all the partners together in this process, including civil society, and you can count on Europa Nostra to be a very active player in this fundamental transformation of our way of life and our way of thinking for the benefit of ensuring a more sustainable and more inclusive future for our Europe and our Planet.

Sneška Quaedvlieg-Mihailović
Secretary General, Europa Nostra

THE FRAMEWORK: URBAN AGENDA FOR THE EU

Giuliana De Francesco
Head of Unit Coordination of European and International Affairs, Secretariat General, Ministry of Culture

The Policy Framework

The idea of the Urban Agenda for the EU sets out from the premise that cities are the main actors in facing the challenges of our time: two-thirds of Europeans live in cities, cities are the engines of the European economy; they are the places where challenges meet with opportunities. Bringing cities closer to the European Union policy level would improve the effectiveness of the institution's action, tighten the relationship with its citizens and empower its cities.

The UN Agenda 2030 for Sustainable Development was adopted in 2015, one year before the Pact of Amsterdam launched the Urban Agenda for the EU. It identified 17 interrelated goals to be pursued with a holistic and cross-domain approach to promote the well-being of people, the planet, peace, and prosperity. In the same year, 2015, the Paris Agreement was adopted, a UN legally binding international treaty on climate change which came into force in 2016; through it, 196 State parties committed to ambitious efforts to limit global warming and greenhouse gas emissions as soon as possible, and in any case by mid-century. The implementation of the Paris Agreement requires deep economic and social transformation for member States.

A direct inspiration for the Urban Agenda for the EU was the New Urban Agenda, adopted at the United Nations Conference on Housing and Sustainable Urban Development (Habitat III, 2016), representing a shared vision for a better and more sustainable future, the key to which lies in urbanisation, that, if well-planned and well-managed, can contribute significantly to sustainable development.

The main development strategy in the European Union was then Europe 2020, a strategy aimed at reaching smart, sustainable and inclusive growth by 2020. Only in 2019 would the von der Leyen Commission launch the Green Deal for Europe, embracing the Paris Agreement and its goals.

The Urban Agenda for the EU

The Urban Agenda for the EU was launched in May 2016 by the Pact of Amsterdam with the aims of unlocking the potential of cities, strengthening the urban dimension in European Union's law and decision-making processes while facilitating internal cooperation at

national, regional, and local levels. The Urban Agenda partnerships introduced informal multi-level cooperation as a new working method, focusing on strong partnerships on urban matters across all government levels and promoting cooperation between cities, regions, member States and the European level. The European Commission takes an active part in partnerships, sometimes with more than one Directorate-General, as in our case; other European Union bodies are involved, too.

The three key objectives of the Urban Agenda are achieving: "Better regulation", improving policy and law-making and implementation of regulations; "Better funding", improving the European Union funding mechanisms; "Better knowledge", improving data availability and knowledge sharing, key to the development of effective policies and projects in our knowledge society.

The Partnership on Culture/Cultural Heritage of the Urban Agenda for the EU

The Partnership on Culture/Cultural Heritage is one of 14 partnerships of the Urban Agenda. The call for partners was launched in mid-2018, the European Year of Cultural Heritage, and the partnership kicked-off in 2019, jointly coordinated by Germany (Federal Ministry of the Interior, Building and Community) and Italy (The Territorial Cohesion Agency together with the Ministry of Culture).

The Partnership on Culture/Cultural Heritage is particularly broad, counting around 30 members (whereas an average partnership is composed of 20 to 25 members) which indicates the relevance of the Partnership's topic for our cities and society. Partners include member States, regions, cities, the European Commission, the Committee of the Regions, the European Investment Bank, and several stakeholders, research, civil society, and professional organisations at the European level. The theme of the Partnership embraces culture and cultural heritage in their entirety, dealing with creativity, tangible and intangible heritage, and landscape in their social, economic and environmental dimensions and interconnections.

The main output of each Urban Agenda partnership is an Action Plan, which describes pilot actions whose implementation begins during the last year of the partnership. The Action Plan of the Partnership on Culture/Cultural Heritage was agreed in 2020 and is composed of 11 interlinked "Actions." They contribute to 5 integrated and mutually related strategies dealing with cultural services, cultural tourism,

resilience, transformation and adaptive reuse of cultural heritage and the contribution of the cultural and creative sectors to urban regeneration.

Action 9: Towards an Observatory on Culture/Cultural Heritage and Climate Change

Action 9 addresses culture and cultural heritage in relation to climate change in the urban framework, in the perspective of the establishment of a European Observatory on the matter. The action is led by the Ministry of Culture, in cooperation with the Fondazione Scuola dei beni e delle attività culturali. Members of this Action reflect the composition of the partnership and include cities, regions, the European Commission, JRC - Joint Research Centre, URBACT, ICLEI; the two European coordinators support the activities.

In the year 2020, when the Action Plan was developed, we were confronted not only with clear information on the risks caused by climate change for people and the environment in various areas of our planet, but also with increasing evidence of how climate change could affect cultural heritage via floods, fires, drought, coastal erosion, humidity, parasites etc. A main source of inspiration for the Action were SDGs 11 and 13 of the 2030 Agenda for Sustainable Development. The European Green Deal had just been launched in December 2019 as an ambitious sustainable growth strategy: we realised that it did not explicitly mention culture and cultural heritage. However, we were convinced that culture and cultural heritage were not only deeply affected by climate change but could also contribute to addressing it by providing solutions, inspiration and behavioural change: the Europa Nostra *Green Paper* later effectively demonstrated the articulation of cultural heritage with the Green Deal.

The Action was aimed, therefore, at analysing the feasibility and usefulness of a think-thank organisation, or a formally established Observatory, aimed at contributing to achieving that culture and cultural heritage benefit by the instruments put in place by the European Green Deal; preventing risks of possible cultural heritage loss in the renovation wave needed to achieve energy efficiency; exploring the potential of culture and cultural heritage in supporting climate action and transitions to sustainable development; and to promoting the adoption by urban authorities of integrated adaptation plans that include culture and cultural heritage.

The first activity performed by the Action was mapping the context. With the substantial support of the Fondazione, a knowledge base was put together including 140 policies, 40 programmes, 150 projects, more than 200 actors and 200 papers. The categories adopted by the knowledge base follow climate action categories, inspired by the approach of the 2019 ICOMOS report *The Future of Our Pasts: Engaging Cultural Heritage in Climate Action.* Alongside Paolo Vitti, architect and professor at the Notre Dame University (Indiana), Andrew Potts, Coordinator of the ICOMOS Working Group on climate change and heritage, was principal advisor to the Action.

Another activity was aimed at identifying the possible objectives, functions and target public of the Observatory and starting to build the network. Here, I would like to thank Agnieszka Śmigiel and Francesca Pajno, together with Francesca Neri from the Fondazione, for their dedication and the high level of professionalism with which they conducted more than 30 interviews with key actors in this thematic area of culture/cultural heritage in relation to climate change. We are gathering rich, inspiring and important feedback from this exercise. Today's round table is also inspired by input gathered from the interviews.

Just to mention some of the feedback gathered which is relevant to the further development of the Action, more than 70% of respondents find an Observatory on culture and climate change useful. According to the opinions expressed by the majority of the experts interviewed, primary functions of such an Observatory should be: capacity building, networking, creating connections across all government levels and various sectorial communities; pooling various sources of data and information; bringing together the local and the global level by transferring input gathered by local initiatives to policymakers at higher level. The main target audience should be policymakers in the first place, then experts and civil society organisations. The functions of the Observatory might include organising workshops and conferences and providing further exchange opportunities. These and all other outcomes will be discussed further with the Partnership.

THE THREE KEY QUESTIONS

Andrew Potts
Coordinator, Climate Heritage Network Secretariat

It is with great pleasure that I recommend to you these proceedings of the debate held on January 17, 2022, on key topics on culture/cultural heritage and climate change. Frankly, I am delighted by the simple fact that cutting edge climate change questions (three in fact!) were debated at all in a cultural policy context, and even more delighted by the calibre and richness of that debate.

Writing, as I am, in 2022, I see no need to repeat yet again the dire warnings about the unfolding climate crisis. For years, 350 parts per million (ppm) had been judged the upper safe limited of global warming-causing Carbon Dioxide (CO2) in the atmosphere. When concentrations reached 415 ppm in 2020, it prompted the International Council on Monuments and Sites (ICOMOS) to declare a climate emergency. And now concentrations are above 420, pushing the atmosphere further into territory not seen for millions of years. We risk this decade overshooting the Paris Agreement's goal of holding global warming to below 1.5°C, with irreversible adverse impacts,[1] including those to culture and heritage.

A warning I would like to repeat, however, regards the persistent failure of culture and heritage leaders and institutions to adequately take on board this unfolding climate crisis. It was in 2018 that the world's leading climate science body, the Intergovernmental Panel on Climate Change (IPCC), concluded that avoiding the worst impacts of climate change by limiting global warming to 1.5°C would require rapid and far-reaching transitions in the way we use land, buildings, cities and more. The next year, Professor Toshiyuki Kono, President of ICOMOS, wrote:

> It would be foolish to imagine the practice of heritage remaining static while the world goes through the rapid and far-reaching transitions discussed in the IPCC's recent Special Report on Global Warming of 1.5°C.[2]

And yet, business as usual persists with many cultural institutions, ministries, public bodies, and NGOs. There are impressive counter-examples, but too often these exceptions prove the rule.

One consequence of this failure is the under-developed nature of the climate discourse within many cultural policy and practice arenas. Climate science is constantly evolving. Urgent debates rage about

the ethics, politics, and strategy of climate action. Too often, these topics do not register in the culture sector. To be effective and relevant, cultural policy and practice must treat these topics as the core cultural concerns that they are, and become accustomed to engaging with them. This is precisely what the *Three Key Questions* debate does.

Urban Context

It is worth noting that this debate arose in the context of urban policy. In particular, it was conceived with reference to Action 9 (Observatory on culture/cultural heritage and climate change in the urban framework) of the Partnership on Culture/Cultural Heritage Action Plan set up under the 2016 Urban Agenda for the EU. The Urban Agenda for the EU is a multi-level working method promoting cooperation among stakeholders in order to stimulate growth, liveability, and innovation in the cities of Europe and to identify and successfully tackle social challenges. The Partnership's Action Plan aims to create an "integrated and coherent" approach to using culture and cultural heritage to develop urban development policies, with a focus on better regulation, funding and knowledge.

It should perhaps come as no surprise that an urban framework would emerge as a driver of considering climate change and culture/cultural heritage. With more than two-thirds of Europeans living in cities, climate adaptation and mitigation at the city level will make crucial contributions to tackling climate change. The urban context also presents steep challenges as cities are on the frontlines of issues such as inequality and the need for transparent institutions. As cultural expressions themselves, cities are also arguably one of humanity's greatest inventions for crafting solutions for the future. From historical times to the present, they bring creative people together.

Consistent with the importance attached to the cities-climate nexus, the world's leading climate science body – the abovementioned IPCC – is preparing a special report on cities as part of its forthcoming 7th Assessment Report cycle. An International Co-Sponsored Meeting on Culture, Heritage and Climate Change convened by the IPCC, UNESCO and ICOMOS in December 2021 expressly addressed synergies and gaps concerning the intersection of culture and heritage and climate change in urban areas. Overall, the evidence considered pointed to the need for new partnerships, connections and research supporting a larger role for culture and heritage in climate change science of cities.

Individual or Collective Responsibility?

The first question debated in these proceedings probed the continuum from individual to collective responsibility. It re-centred in the cultural policy context a debate raging throughout the climate change discourse which asks whether an emphasis on individual responsibility and small actions in fighting climate change can actually undermine momentum for needed, far reaching systems change. Should we, for example, be appealing to individuals to order fewer burgers or be focusing on the contemporary agri-business systems that displace traditional diets and local gastronomy with increasingly meat intensive options? The *Three Key Questions* debate illuminates the usefulness of culture as a lens for understanding the broader question.

Cultural value orientations are an aspect of the cultural system of societies; basic values are an aspect of the personality system of individuals. Distinguishing the two makes it possible to examine influences of the normative culture of societies on the values of their members.[3] The cultural lens, then, helps reveal the unhelpfulness of the personal action versus political action binary and instead asks how we can employ them together to attain a much richer understanding of human behaviour. Achieving that understanding matters. Recent climate science establishes that changes to underlying social and cultural norms, while more difficult to accomplish than transitory behavioural changes, are likely to be more durable and to support a wider range of low-carbon lifestyles.[4]

The debate also implicates the appropriate scope of climate action from cultural institutions. Should cultural institutions focus primarily on their own carbon footprints or something more? To my way of thinking, focusing exclusively on which lightbulbs a museum uses or whether a heritage site snack bar offers plastic straws is a cramped and self-defeating vision of the power of culture as a societal force. At the same time, though, this type of internal action can help build institutional competence and a sense of connectedness[5] – not to mention reflecting organisational integrity. Such individual action can (and should) in turn embolden and inform broader engagement by cultural institutions.

The “Loss and Damage” approach

With death and destruction linked to climate change mounting around the world, the issue of climate change-induced loss and damage is increasingly occupying a central role in the climate debate. Climate change is the result of centuries of industrialisation, globalisation and colonialism, processes that made rich countries rich. But its effects are

being experienced disproportionately by the countries that contributed least to causing it – making them poorer and even more vulnerable. This clash of interests played out at COP26 where least developed nations demanded a new financing facility for loss and damage as matter of climate justice. Industrialised countries refused and the final COP26 text called merely for a "dialogue" to discuss "arrangements." Small island nations vowed to return to COP27 in Egypt in November 2022 to press their demands.

Culture and heritage modulate the recognition, identification, and valuation of the scope and scale of losses and damages in complex ways. The possibility of valuing losses and damages to culture and heritage themselves has important implications for the legal and political Loss and Damage debate. The experience of losses and damages of cultural resources may intersect not only with the recognition of loss but also with human agency to respond to loss, influencing the measurers adopted to cope and rebuild. Despite the growing centrality of the loss and damage topic, correlations between it and culture and heritage are under-explored, making the spotlighting of loss and damage in the *Three Key Questions* debate particularly welcome. Several dimensions of this complex topic stand out.

Equity, justice, and inclusive decision-making also come across strongly in the discussion of loss and damage and culture and heritage. As discussed in the debate, priorities must be established to determine which sites can be protected *in situ* and those in which alternate forms of documentation or memorialisation should be carried out. As *The Future of Our Pasts* notes, there is a danger that climate action may be undertaken in ways that perpetuate existing inequalities. There is also danger that climate impacts and response may be overly "expert/scientific-driven" choices, imposed upon communities. Where loss is inevitable, anchor points for cultural memory must be found and new cultural techniques for living with and learning from loss deployed.

Another issue the debate raises is the need to better link heritage safeguarding (i.e. resisting loss and damage) to action on decarbonisation. Greater rates of global warming mean greater rates of loss and damage to culture and heritage. Climate science tells us that most adaptation needs will be lower with global warming of 1.5°C compared to 2°C. *In situ* conservation of many heritage places will simply not be possible at higher rates of warming. The current draft of the new UNESCO World Heritage Policy on climate change makes this connection when it provides:

> The implementation of a precautionary approach that pursues pathways limiting global warming to 1.5°C, with no or limited overshoot, is the most effective approach for the protection, conservation and management of the cultural and natural heritage[6].

And yet, while it is common for culture advocates to decry loss of culture to climate impacts, it is not equally common to find culture advocates on the vanguard of championing the transformations needed to avoid the worst of this loss by holding global warming to 1.5°C.
This must change.

The prospect of loss and damage to cultural heritage *from climate action*, indeed the very discontinuity and culture disruption that transformative climate action itself portends, can also challenge notions of continuity, preservation, and safeguarding that suffuse aspects of cultural policy. The loss and damage to cultural heritage as a result of maladaptation and mal-mitigation is a real possibility, as for example from the siting of renewable energy infrastructure in cultural landscapes. The *European Cultural Heritage Green Paper*, another input to the *Three Key Questions* debate, explored the need for methodologies that prioritise finding "win-win" climate action and culture safeguarding outcomes.

It is also the case that some aspects of culture are part of the problem of climate change, for example lifestyles and values deeply entangled with fossil fuels and extractive/colonial systems. The expertise of cultural actors is needed to support transformation of these "petrocultures" and related "carbonscapes." The Provocation[7] of the Climate Heritage Network prepared in advance of the UNESCO World Conference on Cultural Policies and Sustainable Development – MONDIACULT 2022 explores this "heritage of the Anthropocene" and asks whether the methodologies developed to document and interpret the heritage of the North Atlantic slave trade (e.g., the slave markets and other places it has marked on our landscape) hold relevant analogies.

Cognitive or Emotional Sphere?

More than six years after the adoption of the Paris Agreement, the world remains dangerously off course to meeting its targets. The build-up of CO2 continues to grow, as does the amount of heat being added to the oceans and atmosphere. This in turn means faster melting ice caps and raising sea levels, as well as even more destructive extreme weather events. Notwithstanding all the talk and real work on decarbonisation and climate action, we have not yet bent the emissions curb.

The reasons for this failure are of transcendent importance. The *Three Key Questions* debate brings this issue home to the cultural sphere, asking whether the greatest contributions to tackling climate change lie in data or imaginaries.

In an influential article[8] released just before the 2021 UN Climate Change Conference on the Parties (COP26), authors Isak Stoddard, Kevin Anderson *et al*. lay the blame for the failure to bend the emissions curb in part on a system of climate planning dominated by technocratic forms of modelling and cost-benefit analyses which tend to exclude social, political, and ethical issues. They locate this shortcoming in the context of a pervasive failure in industrial, modern societies to imagine desirable ways of living not wedded to the carbon economy.

In its newly launched three-year Action Plan,[9] the Climate Heritage Network (CHN), a global network whose members are committed to mobilising arts, culture, and heritage to address climate change, responded expressly to this provocation. The CHN Action Plan centres a "Theory of Change" which posits that it is culture – from arts to heritage – that can enable transformative climate action by empowering people to imagine and realise low-carbon, just, climate resilient futures.

In traditional climate planning, culture (if it is considered at all) is often assigned a pedagogical role, helping to broadly communicate complex climate data. In the CHN telling (and as explored in the *Three Key Questions* debate), the role of cultural and cultural institutions is much more central. Culture helps to interrogate, to shape, and to reshape epistemological systems that inform our engagement with data and, more broadly, with the fundamental task of imagining sustainable forms of living.

The Action Plan means to realise this potential by prioritising approaches that engage with art, culture and heritage that points the way to circular, regenerative ways of living, or that challenge and interpret elements of culture that have helped cause the climate emergency. The former includes:

- Traditional knowledge, buildings, and landscapes that pre-date (or work independently of) the fossil fuel era can point the way to post-carbon living.
- The worldviews held by Indigenous Peoples and local communities never co-opted by modern take-make-waste

approaches, offering counterpoints to unsustainable paradigms of "progress".
- Artistic, creative and imaginative tools support transformative reinterpretation of today's carbonscapes and their accompanying mindsets.

None of this is to disparage the role of data – both data for informing the management of cultural heritage in the face of climate change and also the data collected about climate change via heritage science (including citizen science). Rather, it is to say that the power of culture to help people imagine and realise climate resilient futures may be uniquely crucial to effective climate action, an urgently important potentiality that cultural operators must not fail to fully explore in its many dimensions.

Conclusion

The three questions addressed in these proceedings connect to "wicked problems" that are being debated across every sector in an almost infinite variety of contexts. By furthering the internalisation of such question into the cultural context, this debate makes a valuable contribution to cultural, climate and urban policy alike. I am pleased to offer my warm congratulations to the Italian Ministry of Culture and the Fondazione Scuola dei beni e delle attività culturali, and to comment these proceedings to the reader's attention.

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[2] ICOMOS Climate Change and Cultural Heritage Working Group, *The Future of Our Pasts: Engaging Cultural Heritage in Climate Action* (Paris: ICOMOS, 2019).

[3] S.H. Schwartz, *Values: Cultural and Individual*, in F.J.R. van de Vijver, A. Chasiotis, and S.M. Breugelmans (eds.), *Fundamental Questions in Cross-cultural Psychology* (Cambridge, MA: Cambridge University Press, 2011), 463–493.

[4] S. Capstick, *et al., Bridging the Gap – the Role of Equitable Low-carbon Lifestyles*, in United Nations Environment Programme, *The Emissions Gap Report 2018. United Nations Environment Programme, Nairobi. 75*, as cited in A. Potts, "The Role of Culture in Climate Resilient Development", UCLG Committee on Culture Reports, no 10, and Climate Heritage Network (Working Group 5), Barcelona, 5 November 2021.

[5] K. Green, *et al., Climate Change Needs Behavior Change: Making the Case for Behavioral Solutions to Reduce Global Warming* (Arlington, VA: Rare, 2018).

[6] Thought the failure of the General Conference of the World Heritage Committee to act on the draft has put a cloud over this accomplishment.

[7] ResiliArt x Mondiacult Event, *Can Cultural Infrastructures Be Drivers of People-centred Climate Action? A Provocation* (Climate Heritage Network, 2022).

[8] K. Anderson, *et al*., "Three Decades of Climate Mitigation: Why Haven't We Bent the Global Emissions Curve?", in *Annual Review of Environment and Resources* 46:1, 2021: 653-689, accessed 20 February 2022.

[9] Climate Heritage Network, *Empowering People to Imagine and Realise Climate Resilient Futures Through Culture – from Arts to Heritage* (CHN, 2022).

Speakers

Alessandra Bonazza
Alessandra Bonazza holds a PhD in Earth Science. Since 2004, she has been a researcher at the Italian Institute of Atmosphere and Climate Science, National Research Council (ISAC – CNR) where she leads the unit Impacts on Environment, Cultural Heritage and Human Health. Her research was funded by the European project Noah's Ark, Europa Nostra Grand Prize Award in 2009. Alessandra Bonazza also teaches "Environmental impact on materials, deterioration, and ageing" at the University of Bologna. Currently, she coordinates the project Interreg Central Europe STRENCH – STRENgthening resilience of Cultural Heritage at risk in a changing environment through proactive transnational cooperation (2020 – 2022).

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Stefano Della Torre
Stefano Della Torre is the President of the SIRA – Società Italiana per il Restauro dell'Architettura. Since 2001, he has been Full Professor of Architectural Restoration at the Politecnico di Milano. He was a consultant for Lombardia Regional Government and Cariplo Foundation, focusing on policies for planned conservation of built cultural heritage. He serves as coordinator of the Cultural Heritage sector of Programma nazionale della ricerca 2021-27. He is the author of nearly four hundred publications.

Rodney Harrison
Rodney Harrison is Professor of Heritage Studies at the UCL Institute of Archaeology, University College London. He has professional experience teaching and researching natural and cultural heritage conservation, management and preservation in the UK, Europe, Australia, North America and South America. He has coordinated or participated in a number of large research projects, including: Heritage Futures, Reimagining Museums for Climate Action, Landscape Futures and the Challenge of Change: Towards Integrated Cultural/Natural Heritage Decision Making. He is the (co) author or (co)editor of twenty books and guest edited journal volumes and almost a hundred peer-reviewed journal articles and book chapters, some of which have been translated into Chinese, Italian, Polish and Portuguese language versions. His most recent books include *Reimagining Museums for Climate Action*, *Heritage Futures* and *Deterritorializing the Future: Heritage in, of and after the Anthropocene*.

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Toon Maassen
Toon Maassen is one of the founders of De Ceuvel, an urban multifunctional playground for innovation, experimentation, and creativity with the aim to make sustainability tangible, accessible and fun. De Ceuvel was born from the idea of a group of architects, winner of a call for bids to turn the site into a regenerative urban oasis in the former shipyard in Amsterdam North. Toon Maassen holds a Master's Degree in Physics and Sustainability and led TV programmes for children on sustainability, setting out to join his passion for art and the fight against climate crisis.

Marco Scotini
Marco Scotini is the artistic director of FM – Centro per l'Arte Contemporanea and director of the Visual Art and Curatorial Studies Department at NABA, Milan. He is the programme coordinator for Parco Arte Vivente (PAV) in Turin, and he has worked with many international institutions (Biennale di Venezia, Biennale di Praga, Van Abbemuseum, Museo Reina Sofía, Bangkok Art Biennale, Castello di Rivoli, MIT) as a curator. He has been working on contemporary ecology, environmental and climate ecology, and social and cultural ecology. As the curator of many exhibitions in the ecological field for the Parco Arte Vivente, he starts artistic practices for a bottom-up ecological transition. In 2018, he was curator for the Yinchuan Biennale, aimed at answering the question "What is ecology today?"

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Alison Tickell
Alison Tickell is the founder of Julie's Bicycle, a non-profit organisation focusing on the ecosystem of culture as a central, vital driver in the fight against climate change. Alison Tickell works with the full ecosystem, from funding, procurement, infrastructure, and logistics to government ministries and funders, as well as the cultural practice itself: the artists and the stories they tell. Over the past thirteen years, she has found a truly unique approach to tackling climate change by leveraging this major industry for international policy shift, creating tens of millions in energy savings and utilising the unique outreach of cultural producers to change mindsets and behaviours, with a strategy fully prepared for the urgency of the moment.

DISCUSSION ON

INDIVIDUAL OR COLLECTIVE RESPONSIBILITY

The main focus of this round table is how we construct a discourse about climate action and climate change. Researching this field, we perceived a strong polarisation: while some actors propose communication focused on individual responsibility, others insist on the role of collective agency. What approach do you think is more effective?

Rodney Harrison

I am going to answer this question by introducing the project Reimagining Museums for Climate Action*. Reimagining Museums for Climate Action began life as an ideas' competition where we invited members of the public, anyone who is not really involved in the museum sector ordinarily, to tell us how they think museums would need to change to help them – both as individuals and as collectives – to take the kinds of climate action they might wish to take. We launched the project in May 2020 for International Museums' Day, and we received around 250 proposals from 50 different countries. We worked with a shortlist of 80 people and collectives that developed proposals to put together a website and an exhibition which we curated for COP26 in Glasgow, at the Glasgow Science Centre. We have also produced a book and a toolkit for museums out of this work. The project was led by myself and my colleague Colin Sterling from the University of Amsterdam, working in close partnership with Henry McGhie from Curating Tomorrow. The project was developed to address the part of the Paris Agreement and the United Nations Framework Convention on Climate Change that has to do with the responsibility of institutions and educators to facilitate public participation in climate action, generally known as Action for Climate Empowerment, or ACE. The Glasgow Work Programme on Action for Climate Empowerment particularly emphasises the role of museums and other cultural institutions (also universities) in facilitating action for climate, as did the previous one, known as the Doha Work Programme on Action for Climate Empowerment (see further discussion in Henry McGhie's book *Action for Climate Empowerment. A guide for galleries, libraries, museums and archives*).

What emerged in the competition is that many participants focused on the need to communicate and facilitate the understanding of the impacts of climate change on individuals and communities across the globe to motivate collective action for climate. This action must take on board the perspectives of a range of different actors and constituents, not just those of human beings but also of non-human actors and agents. The competition invited us and the participants to think about how climate change affects individuals and collectives in different places around the world and how we can understand the experiences of climate change whilst also speculating on how climate will affect humans and non-humans in the future. In answer to the question, I do not see it as particularly helpful to place individual and collective action in opposition to one another, but, instead, I would like to emphasise that these different forms of action are not mutually exclusive; cultural institutions have this responsibility to facilitate *individual* as well as *collective* climate action.

Alessandra Bonazza

Surely both individual and collective involvement and responsibility should be taken into consideration and one approach should not exclude the other.

Awareness-raising and active citizen involvement are very important processes that can contribute to putting cultural heritage at the centre of attention in the fight against climate change. Regeneration, safeguarding and protecting cultural heritage have only recently been recognised as fundamental actions for increasing society's resilience to climate change. As a researcher, I see the communication of the results as a key step and I believe that in communicating outcomes we need to work on the communication process itself; I think that what is needed is a co-creative approach (and this is what we

have experienced during the last projects that I have coordinated, such as, the Interreg Central European project STRENCH* and ProteCHt2save*). Furthermore, what we need is to look at what society's needs and requirements are to drive our research to contribute to solving the still existing challenges.

Alison Tickell

The question of polarisation is really important and it lies right at the heart of the challenge for society to take meaningful climate action. Regardless of the best ways to mobilise action, the core problem is not the method but the polarisation itself. During my fifteen years at Julie's Bicycle, one of the biggest challenges I have encountered has been how to encourage collaboration and avoid polarisation. It is immensely difficult because each of us carries a huge amount of conscious and unconscious baggage, including our understanding of the past, the present and our views of ourselves. Polarisation is a hard-wired cultural practice. It is, in part, the cause of the environmental crisis itself, with the polarisation of humans and nature, positioning nature as something hostile that must be conquered. The reason our climate is in this unbalanced state is an inevitable consequence of polarisation and competition in human thinking. On top of that, polarisation is what means that certain communities are seen as less deserving than others in the framework of a global economy built on competition and conflict. I also believe we are becoming increasingly polarised as a society, which has been turbocharged by social media. You see it in our politics and you see it in the culture wars seeping into our everyday conversations, particularly online. In terms of climate action, I believe individual and collective agency are not mutually exclusive. They are one and the same, a constant dynamic of reinforcing change. Each depends on the other to stand, otherwise any attempt at action falls – collective action cannot happen without individual responsibility, for instance.

We need to take a more system-based approach to climate action, a more balance-based approach and put much greater value on collaboration. We need to move from the poles of the equator, so to speak, so we can bring balance, justice, and fairness. These are the core principles of Julie's Bicycle in our work with organisations in the cultural sector. We try to work in this way because art, music, theatre and the spaces in which these take place are hugely powerful instruments of change, and change can go in all sorts of directions. This is the moment for us to take on the implications of the climate and environmental crises in culture, to be responsible and aware of the role we each play and not become polarised, because, ultimately, every action matters. This involves how we design a cultural community that is fair and brings into it about reparation and honesty and helps us rethink what we do on a day-to-day basis, so that we can orient towards honesty and good purpose.

Stefano Della Torre

I quite agree with what I have heard about these collaborative and non-exclusive approaches, blending individual and collective responsibility for actions. Actually, I am used to dealing with buildings and with the use and reuse of historic buildings, so I know how to identify individual responsibilities not only towards actions and engagement. But for everyday activities there are everyday decisions to make, such as lowering the heating system impact, or investing money to step from a traditional heating system to new renewable energy sources, and such decisions

can also happen at a very individual scale. Yet such individual choices are the result of both individual awareness and collective actions, and therefore it is very important that both bottom-up and top-down approaches find a meeting point and a way to cooperate. I do think that the issue of energy efficiency in historic buildings is very important in contributing to the reduction of the carbon footprint, but also to raise awareness of the role that cultural heritage can play in driving public opinion towards wiser decisions. Therefore, in my opinion, it is very important to support research and to encourage a knowledge exchange between traditional systems and new scientific trends. Actually, we have already carried out a lot of applied research in this direction on built cultural heritage and many solutions are already available for implementation.

Toon Maassen

During these times of increasingly accelerating climate crisis, it is very important to think about what the most effective way to tackle this crisis is. Regarding the opposition between individual action or collective action, I – of course – agree with what has been said by Rodney Harrison and by the rest of you that these approaches can go together.
Yet I believe it is important to discuss what should we emphasise more and, first of all, I think individual action can be really important. I, for instance, chose to be vegan, I decided to start a sustainable restaurant and I maintain that individual actions can have an impact.
At the same time, the climate crisis has become so severe that collective action is crucial, and companies and governments should develop policies to ensure that global temperature increase remains below 1.5°C. But the point I would like to make regarding this discussion is that both sides of this argument can be used to avoid taking responsibility on our own shoulders: you can say: "Well, it's up to governments to solve climate crises, so I can still fly," or "I may be a polluting company, but it's up to individuals to make their own choices as aware consumers." This is why I think that it is crucial that everybody takes on as much responsibility as possible, given everybody's own position, both individually and collectively.

Marco Scotini

As a representative of contemporary art (and it is known that contemporary art is always in some way responsible for a somewhat dissident discourse), I do not want to immediately align myself with what has already been said unanimously. The issue of the relationship between collective responsibility and individual responsibility is not an issue of voluntary work and do-goodism, but rather a really serious problem that presupposes a questioning of these same categories.
I would like to start precisely from the Kyoto Protocol of 1997, when it was believed that countries and people had to take on common but diversified responsibilities, which is Dipesh Chakrabarty's approach. This is a macroscopic question, we risk reconstructing yet another version of Westernism through climate change slogans, that is, another version of abstraction. Therefore, this is totally opposite to the ecological theme we are discussing.
Let me give an example: if I ask a student what climate change is, he will have learned the answer thanks to the mass media, and if I ask an art student what climate is, he will naturally show me the weather news, as he no longer knows what climate is. On the contrary, what makes sense is to start from a limited and situated context, helping to produce new imagery regarding the environment, living beings (human and extra-human), and

production systems, which are never abstract but always the effects of history. Therefore, on the one hand, I think that before the question of "collective responsibility, individual responsibility and diversified collective responsibility," we must ask ourselves to what extent a theme such as climate change is not an issue that exceeds individual and community possibilities for intervention both in a spatial and in a temporal sense. But on the other hand, I have the impression that we are faced with something, an unknowable object, a "hyper-object," as Timothy Morton says, which discourages individual and collective initiative. On the one hand, communication strategies insist on the guilt of individual conduct, making the responsibilities of large multinationals invisible. On the other hand, the catastrophic discourse validates any action that is not technocratic. All this does nothing but subtract any capacity for autonomous bottom-up intervention and legitimises only an authoritarian and top-down administration of the disaster. So, the question that is always asked about how to intervene is purely rhetorical: it is only apparently democratic.
Another aspect relates to the notion of "community:" but what kind of community? We focus on the urban community, but the rural community is another fundamental aspect. This is the importance of situated knowledge.
On the other hand, a further question arises: if we are to act collectively (I refer to examples of collective artists: Karrabing Film Collective from Australia, Inland by Fernando García-Dory from Spain, Navjot Altaf and DIAA from India), we have to deal with situations in which the common thread is what is defined as "devolution" compared to "empowerment" (this is the case of Karrabing Film Collective, in which founding-member Elizabeth A. Povinelli, of Columbia University, works with indigenous people from districts of northern Australia). It is a mutual pedagogy rather than the typical attitude of the classical left-wing leadership that leaves people out of the decision-making process. Concerning the question of safeguarding heritage, these aspects are fundamental. It both surprises me and does not surprise me, from a certain point of view, that the first version of the European Green Deal did not include culture, while culture is central and fundamental. If we want to use only scientific categories, we are all still inside modernity, inside the capitalism of modernity.
So, then, what do we want to achieve? That is, what do we want to change? This is my fundamental question, being in contact with artists of different origins and latitudes.
And, when talking about the European Green Deal, we know very well that this undoubtedly involves a mutual interdependence on a global scale, but whose are the responsibilities, and how should they be treated? This really seems fundamental to me.
Working with indigenous Australians rather than with Indians from hot areas of the planet (and with other so-called "disadvantaged" realities) helps us understand what culture is and what the preservation of culture is: I believe it is far more useful to avoid talking about the decentralisation of human beings, while it is crucial to engage with the decentralisation of the West.

* The project has been included in "The Culture/Cultural Heritage and Climate Change Knowledge Base" published on the Fondazione's website at the following link: < https://www.fondazionescuolapatrimonio.it/innovazione-e-sperimentazione/the-culture-cultural-heritage-and-climate-change-knowledge-base/ > accessed 25 October 2022.

Publications mentioned by the speakers in this section: H.A. McGhie, *Action for Climate Empowerment, a guide for galleries, libraries, archives and museums* (Curating Tomorrow, 2022); T. Morton, *Hyperobjects: Philosophy and Ecology after the End of the World (Posthumanities)* (Philadelphia: University of Minnesota Press, 2013).

DISCUSSION ON

THE “LOSS AND DAMAGE” APPROACH

The category “Loss and Damage” was introduced by the ICOMOS report *Future of our Pasts* and it embraces actions to be undertaken when mitigation or adaptation to climate change are no longer possible. This category introduces the idea that not all cultural heritage can be saved, or at least not in the actual or in the best condition. We would like to analyse whether a discourse focusing on loss and damage can be effective in fostering change, outside any ethical perspective.

Stefano Della Torre

From my perspective, it is difficult to accept loss. I am militant in the preservation sector and firmly convinced that I cannot replace cultural heritage in the event of its damage, loss or destruction. Referring to the Italian context, if I lose or destroy a historical bridge, I cannot accept that the new bridge could be better than the previous one.

I think that the lesson learned from natural disasters of the past was that even when all is lost, something survives that is still capable of giving a direction for reconstruction, preserving the memory, providing a basis for reconstruction, and feeding a resilient policy. Even the memories of abandoned sites could be substantial, allowing us to keep imaging assets for the future. Traditional practices should change, taking into account this kind of transformation, but change is a condition of our existence and I do not think it is limited to cases of adaptation or loss.

I suggest we think in terms of dynamic identity from a coevolutionary perspective: we should not consider only adaptation but the potential of new technologies, new techniques, devised by learning from the past for the future, in a kind of continuity, without losing the connection with traditional knowledge systems; thus, it becomes possible to build something new that is strongly related to our heritage and to what we can learn from it.

Alison Tickell

Since irrevocable loss and ongoing damage are already happening, it is critical that we anticipate likely impacts and understand that we have choices to make about what and who is protected, and how. This means that culture and the arts need to pay much greater attention to adaptation, and to loss and damage. This is a huge question for the industry, particularly in developed economies, like the European Union, where there are the resources and the responsibility to fund Loss and Damage projects. It should be possible to recognise Loss and Damage as an instrument to facilitate reparations and live up to our responsibilities as historical and ongoing contributors to the uneven outcomes of climate change. This is important both for tangible art and intangible heritage, such as storytelling and poetry.

It is important to note that Loss and Damage as a theme was blocked at COP26 by the European Union and the US because of the associated economic implications. It is worth reflecting on what instruments of justice are at our disposal. In the art world, for example, we should ask ourselves who benefits from saving a theatre or an artwork, who gets the research grants to look at cultural heritage in danger, whose culture and whose dominant values they are representing.

So, Loss and Damage can be a critical lens through which we understand justice and the real opportunities for transformation. There are also, of course, opportunities to prevent further loss and bring art that is under threat to a wider audience that may not otherwise be exposed to it. The stories of climate injustice that this art can communicate can be extremely powerful. Julie's Bicycle hosted talks on Loss and Damage looking very specifically at the arts and creative sector, at performative and creative practices.

Alessandra Bonazza

Loss and damage is a delicate issue, and my immediate reply to this question would be: "No, I don't want to accept losing anything." However, on the other side, when we talk about loss and damage caused by climate change, I feel that we do not have enough knowledge. In fact, there is still not a clear understanding from a quantitative point of

view: what are the losses and the damages to the different types of heritage, both tangible and intangible?
I firmly believe that we need to continue working on increasing awareness both individually and collectively, because if we are aware of what we risk losing, we feel more committed and involved in the process of protecting.
Moreover, listening to what has been said today, I think that considering the past is very important. I see the process of protecting culture and cultural heritage from climate change effects as a cycle: looking at the past to be more prepared to face future and current challenges. We should investigate traditional techniques of the past and integrate them into our processes, as in a continuous cycle: a change of paradigm is needed for adopting a sustainable approach. In my opinion, integrating all the benefits from past experiences is undeniably important to make our society more resilient to the changes of the future.
As a researcher, I have often been called upon to set priorities and to decide what kind of cultural heritage is more important, considering both tangible and intangible assets. This is extremely difficult because it is related to the socio-economic value of cultural heritage and to people's identity. The process becomes particularly challenging as we are asked to rank priorities. In this context, we should reflect on the parameters and indicators that we employ in the process for identifying cultural heritage to be protected.

Rodney Harrison

I would like to answer from the perspective of a research project called Heritage Futures* that I was the principal investigator on for about five years. The project involved a large team of 16 academic researchers working across a number of different countries to explore a range of different fields of heritage practice in partnership with 25 organisations representing the fields of natural as well as cultural conservation and preservation (from endangered language preservation to cryogenic freezing of endangered DNA, to built heritage conservation, to landscape management). We worked also with a range of fields and actors that we do not normally think of as related to conservation, which we however felt would be helpful to bring into the conversation with heritage practitioners, such as the nuclear waste management and interplanetary communication initiatives. For example, we worked with one of the artists who were involved in NASA's Voyager Golden Record project, which is another sort of world heritage involving selective representations of "the world" and humanity.
The project aimed to engage deeply with the idea that heritage is preserved on behalf of future generations, which is a common claim in the discussion of natural and cultural heritage conservation practices. But this work raised a series of questions: "When is the future that you're conserving things for?"; "How long into the future do you think you're going to be able to conserve things?"; "Who will inherit that future?"; "How do you know what those entities who will inherit that future will value or need?". And suppose you think about very long-term futures – in the case of nuclear waste we are thinking of 100,000 years into the future for example –, this vision begins to change one's perspective about the appropriate conservation mechanisms for whatever endangered item one is attempting to conserve. There is a kind of vanity or falsehood to the idea that we will be able to hold on to certain things forever: it is a sort of fiction to believe that we can conserve heritage for eternity. When one begins to think

of change as inevitable, as one must in taking this longer-term perspective, preservation defined as an attempt to arrest long term changes might be seen to be quite wasteful and unsustainable.
Heritage Futures raised two issues:
First, we need to find ways of working with, rather than against natural processes that bring about change. In other words, we need to come up with better ways of losing things. My colleague Caitlin DeSilvey has been leading a related project, Landscape Futures and the Challenge of Change: Towards Integrated Cultural/Natural Heritage Decision Making*, with the National Trust, Historic England and Natural England. The project aims to consider how certain kinds of natural and cultural heritage and landscapes might be managed in a way that facilitates their dynamic transformation – which might involve processes previously conceptualised as ruination or decline. We have been writing about this as a form of "adaptive release," a concept which we hope will help provide heritage practitioners with a language to acknowledge the creative potential of loss and change. Indeed, loss and change has always been integral to what we understand as heritage and what we define as such: heritage is something that we perceive to be somehow rare or at risk or in danger, as Fernando Vidal and Nélia Dias make clear in their book *Endangerment, Biodiversity and Culture*.
Secondly, we need to find new ways of acknowledging and celebrating the values of the things that we hold on to from the past, which is really what preservation is about – it is a kind of culturally appropriate mode of valuing or attributing values to things. The Climate Emergency forces us to consider how we might embrace new ways of appropriately mourning objects, places and practices that will inevitably be lost. I think there is one great example of this, which is a project called Foghorn Requiem, developed by the artists Lise Autogena and Joshua Portway: it is a piece of music that was written to mourn the loss of the sound of the foghorn from the British coastal landscape. It was performed by three brass bands, plus lighthouses and the foghorns of 50 boats: all these appear in a wonderful film that captured the foghorn music performance, marking this loss in an appropriate way. I think that finding appropriate ways to mourn and getting better at losing are issues that the cultural heritage sector needs to engage urgently, as my colleague Caitlin DeSilvey argued in her book *Curated Decay*.

Marco Scotini

I have worked with an Indian group called U-ra-mi-li (from the Nagaland region in India), which has tried for years to record not only noises and sounds directly derived from work dynamics, but also work songs, all belonging to disappearing work practices. If these songs in the terraced rice fields had been lost, it would have meant the loss of the key to access that world.
This way to conceive an ecosystem – where people try to create a new relationship with the environment through the interrelation and the mutuality of relationships – becomes crucial to rethinking culture.
Referring to the chance to overcome the fundamental gap discussed earlier, I believe that if we go on thinking in traditional ways, we will not tackle this gap or choose between loss and the possibility of preservation.
We need to remember that there are crucial modes of interconnection, modes that relate to us and that are transdisciplinary and transcultural. We need to identify the means of preservation that do not necessarily

correspond to musealisation, i.e., the idea of the survival of things through their physical preservation, idea that does not consider the context of such things, which is therefore necessarily missing. In this sense, the capitalisation strategy appears to be a form of privatisation that prevents the use (of territories, practices, languages) and interrupts cultural links, creating others under the sign of capital.
In other words, I believe that this way of thinking, the idea of the musealisation of cities, buildings, cultural heritage, and landscapes by separating them from their use, as recently put by Giorgio Agamben, is part of a Western-centric and anti-ecologist framework.
What I find crucial in this discourse is to start abandoning what Gilles Deleuze and Félix Guattari called "State science" in relation to what they defined as "nomad science."
A huge effort is required to free our thinking from State science, from that theoretical model that prevents turbulence, which constrains movement from one point to another with previously assigned objectives and paths. State science obliges space to be measured, centred, homogeneous, and subject to the civilised rules and metrics destined to limit and control it; it makes work fixed, sedentary, assigned to corporations, and the fluid dependent on the solid. On the contrary, the idea of an itinerant, wandering science is one that takes on the burden of such notions as becoming, heterogeneity, and continuous variation, standing in opposition to the stable, the identical, and the constant. I think that if we want to keep all the Western prerogatives of State science, thus encompassing all our understanding based on seeing nature on one side and the cultural artefact on the other, animals at the bottom and plants at the top, etc., within a field that can be measured and calculated, there is not enough space for that nomad science which is the only *condicio sine qua non* to thinking ecologically.
In my opinion, this is fundamental. Otherwise, what I see is this umpteenth position of the Western World reaffirming its own fully Western paradigms.

Toon Maassen

I think the topic of loss and damage and mourning is very important in terms of climate change. Professor Della Torre mentioned that he did not want to accept losing things.
Yet I believe it is crucial that everybody takes the time to mourn and process that we are in such a dire situation concerning the state of our planet that we are losing cultural heritage, lives, and ecologies. Even if we suddenly started treating this crisis as a crisis, acting together to prevent the current global temperature increase, there will still be a lot of damage. But, if you have mourned and accepted that this is the case, you will also be more willing to accept those significant changes that our society needs to make and to fight harder to keep temperature increase below 1.5°C. I think it is really important to think about loss and damage as this could prevent further mourning.

* The project has been included in the "The Culture/Cultural Heritage and Climate Change Knowledge Base" published on the Fondazione's website at the following link: < https://www.fondazionescuolapatrimonio.it/innovazione-e-sperimentazione/the-culture-cultural-heritage-and-climate-change-knowledge-base/ > accessed 25 October 2022.

Publications mentioned by the speakers in this section: N. Dias, F. Vidal (eds.), *Endangerment, Biodiversity and Culture* (London: Routledge, 2017); C. DeSilvey, *Curated Decay: heritage beyond saving* (Minneapolis: University of Minnesota Press, 2017).

DISCUSSION ON

COGNITIVE OR EMOTIONAL SPHERE

Most awareness-raising activities on climate change have been entrusted to statistical data that can only be processed by our cognitive sphere. In order to change behaviours, it could, however, be necessary to involve the emotional sphere. What role can culture have in this respect and how can it contribute to building an imagery of possible futures in a world touched by climate change?
This question is about whether data are enough to move consciousness and to change behaviours; whether the emotional sphere needs to be taken into account in order to bring about climate change and the imagery as well.

Marco Scotini

I have been asked the following question many times before: "What can an artist do against climate change?". To this question I have always answered "Nothing," as this is the first answer we give when we face such a huge theme which exceeds our possibilities of intervention.

However, I believe that a lot can be done indirectly. I hereby refer to the "commons'" theory, to a feminist philosophy that I find fundamental as it articulates a substantial answer, i.e., that contemporary art has the fundamental goal of re-enchanting the world. Re-enchanting the world means to try to give back autonomous cognitive and decisional capacity to communal subjects and to individuals and to naturally favour a fundamental sensibilisation to the relationships which made us interdependent from phenomena.

With respect to the Anthropocene**,** we could maintain that the Western world has reached its highest climax, something that it has always wanted, turning from a biological entity into a geophysical force, such as nature; somehow the Western world has fulfilled this goal and has done so on a global scale.

This has also to do with the theme discussed in the second question, that of loss and conservation. The Western world has lost much but what it has mainly lost is the ability to take autonomous decisions, to self-govern itself, the ability – talking about climate change – to understand what climate is. For those who came before us, climate was not mere meteorology, it did not just mean looking at our phones to check what the weather will be like tomorrow; it was something different, fundamental. When we aim at rebuilding something fundamental interrelating us and the natural elements, I wonder if a conceptual separation remains – the conceptual separation which sees nature as something outside time and history and, on the other side, mankind as something outside nature and inside historical time.

Considering the point of view of organising dissent, of artists from all the world's latitudes that I have worked with and who are proposing a very activist and critical discourse regarding the fundamental issues of today, I still believe that the goal of contemporary art remains that of re-enchanting the world.

Re-enchanting the world substantially means giving back to our ability of action and of interacting with things a totally different dimension from what we inherited from the past five centuries of history. Obviously, these are no easy processes; it is mandatory to start a discourse about urgency and about necessity otherwise we will be applying medical therapies that we all know but that do not remove the original causes of the diseases. Therefore, in the end my impression is that it could be a commercial palliative remedy or a *mise-en-scène*. At the same time, we are facing a global phenomenon that needs new ways of listening, new cultural forms, and new forms of re-enchantment in face of the disenchantment we went through in the last five centuries.

Returning to the question of whether we also appeal to the emotional aspect, the question is another. Today it is not a question of knowledge or lack of information. We already know well enough that the production system in which we live operates destruction and inequality; it is rather about giving visibility and supporting all the movements taking place on a planetary scale that seek to transform our production system. Before changing the climate, we will have to change our capitalist system.

Stefano Della Torre

Marco Scotini pointed out an extremely important issue which is the necessity of changing our minds if we want to affect processes that negatively contribute to the changing of climate.

Personally, I cannot accept the loss and I refuse simple mourning.

I believe it is crucial to focus on the real issue, which is that it is impossible to cut off heritage from life and development. We must keep using heritage, considering it part of our lives and we cannot separate the real world from museums; and then, inside museums, we could develop a discourse about the future.

We must develop a real change about attitudes and opinions because climate change is a matter of awareness, and awareness implies practical actions. On the other hand, implementing practical actions does not actually depend only on awareness, it is also a matter of engagement.

I know that we are losing a lot, but I am used to loss, as I usually restore buildings. The main issue here is that life needs to go on and we must understand how it can go on: it is a matter of changing the management paradigm.

Going back to the question, data are necessary to move consciousness and to change behaviours; yet it is also a matter of empathy, of imagery. At the same time, in order to change things, it is necessary to involve people in real processes, but I am not sure about how far ordinary people have a real knowledge about heritage: sometimes it is just storytelling which passes through official medias, television, etc.

I believe people need to be involved, also via social media, in real practices, as this is the way towards change.

Change management needs to confront and accept resistance: to foster change it is necessary to address resistance processes, such as the fear of change or the fear of loss.

Alison Tickell

Art has an amazingly important role to play today in climate action. It has the power to reveal the reality of the environmental crises in our hearts, souls, and minds.

In general, society has not fully engaged with artists and activists on climate change. Through Julie's Bicycle, we want to champion and strengthen creative responses and activism in this field. This is one of the main reasons why Julie's Bicycle set up the Creative Climate Leadership Programme*, to connect creative climate activists and artists with one another, to model what a creative ecology could look like and celebrate the creative work that is already out there.

Data is crucially important for our understanding of the crisis, but data alone will never be enough to deeply connect the climate crisis with people and drive change. We need data to understand better how we are impacting the world, but we need something more to inspire us to take up a stand. Art and culture can play this role. We also need the creativity of the sector to unlock the solutions and ways of thinking to bring change.

In this time of loss and trauma, we also owe it to ourselves, to one another and to Earth to be aware that everything we do has a consequence. I therefore think it is really important that we all live up to our responsibilities and play our role in this incredible moment. That means recognising we can create change, whether we're artists, policymakers, managers, or curators, wherever we are. We need to give back more than we take, and in so doing we can change fundamentally.

Toon Maassen

Referring to what Alison Tickell said about thinking change, I do fully agree with her and I believe that what she pointed out is important:

it is really hard to change your mind about something, unless you actively start doing something; only that way, through practice, it is possible to get into a different and more creative mindset that makes you want to try out new things.
As for the third question ("should we focus on data or also on the emotional side of things?"), I think it is important to start with the data: the first step should be listening to science and making sure that we acknowledge what is going on as much as possible. However, I really think that there is a very important role for the arts to play in this climate crisis for several reasons.
For instance, art is sometimes able to actually show the absurdity of some situations. I think for example about the installation known as "Politicians debating climate global warming" (*Follow the leaders*, Berlin, Germany, 2011, by Isaac Cordal): this work of art represents politicians arguing while they are almost drowning in water, and it tells a story you would never be able to tell in any other way. Art can therefore increase awareness.
Art is also a means to bring people together. For instance, we organise several music festivals in our "incubator," Café De Ceuvel, and we were able to get a lot of people together, also people who were within the discourse about climate and climate crisis.
The last but probably the most important thing I would like to point out is imagination. We will have to change almost everything in our lives (the way we eat, the way we transport ourselves, the way we live, the way we treat each other and treat nature): it means that we have to imagine a whole different future and we can do it only if we are able to start to imagine a new way of organising ourselves, otherwise we will never get to the change. In this context, I strongly believe art can create the imagination we need to get to the change.

Alessandra Bonazza
In dealing with the assessment of impacts of climate change on different sectors, among them cultural heritage, scientific data are necessary, because this is the only way to transfer the achieved knowledge to policymakers and decision-makers, who need data to take decisions and to make recommendations for mitigation and adaptation. Moreover, the approach used for the elaboration of data is also extremely important, since it guides our interpretation of facts and situations; bearing in mind that the final objective of the research should drive our interpretation.
I would say that even in this case, like in the case of individual/collective responsibility, both aspects are important. Not only are data important, but also the affective approach and it is necessary that people and citizens are involved in the whole process. In this framework, in my view, arts can do a lot to maximise the impact of communication on the effects of climate change, on other natural disasters, and on all social challenges that our society is facing.

Rodney Harrison
I would like to start my answer by commenting some of the points that the other speakers made. Firstly, regarding Allison Tickell's comments about not polarising a range of different factors, I wish to say that to me thinking and doing are the same thing, thus meaning that doing is thinking and thinking is doing. I would also like to focus on some of Marco Scotini's points about what I would call "world-making practices." When we consider work on the history of science, such as Geoffrey Bowker's or Lorraine Daston's contributions for example, data do not just reflect worlds, but they make worlds, they build them, and the ways in which data are

operationalised helps to realise particular kinds of worlds. This is the underpinning premise of the collaborative work on the *Collecting, Ordering, Governing. Anthropology, Museums, and Liberal Government* book, and the Heritage Futures project.

Indeed, much of my work has actually focused on this question of the world-making capacities of different kinds of collective cultural and institutional practises. I started my career working with Indigenous Australians, and I have been significantly influenced by Indigenous philosophies of world-making, according to which, for example, singing a particular songline over a particular tract of land assembles the world in a specific way. The work of technicians in laboratories or the work of museum curators in museums also shapes particular kinds of worlds.

And the world that we are in now has been integrally shaped by some of those practices within heritage institutions, which precisely emphasise the forms of human exceptionalism, the need for endless progress and the hierarchical understandings of race and culture which underpins so much social, economic and political inequality. These are all concepts that were developed in Western museums, in Western anthropology and Western archaeology. They were all developed for particular reasons, to develop a sort of Western white hegemony, which is precisely the kind of philosophical underpinning that we now need to challenge. Therefore, I think that museums and heritage organisations are not only deeply implicated in the crisis, but they also have a number of different roles to play in facilitating people to take action in the crisis, and to fundamentally rethink the way in which they work.

It is not simply a matter of the ways in which arts and culture can facilitate the communication of climate data, which is often what arts or cultural organisations are asked to do – i.e., "here is this complicated data, can you help us communicate it in a way that makes them legible for the public?". This process also requires a fundamental revision of the museum's notions of expertise and of their understanding of their own role: their role may be to educate but it must also facilitate action.

So, my point would be that heritage organisations of all kinds need to completely reform themselves and re-imagine what their roles are. Also from the perspective of the work that we did with the Heritage Futures project – which also fundamentally dealt with the role of creative speculation in developing productive and innovative future imaginaries, I think that what these organisations really need is to take seriously their claims to act on behalf of the future, not simply to use it as a sort of moral justification for "business as usual," but to really engage with the concept of the future in a much more fundamental and realistic way. In the end, to me, these are the critical questions which cultural organisations need to address in relation to the climate crisis.

* The project has been included in the "The Culture/Cultural Heritage and Climate Change Knowledge Base" published on the Fondazione's website at the following link: < https://www.fondazionescuolapatrimonio.it/innovazione-e-sperimentazione/the-culture-cultural-heritage-and-climate-change-knowledge-base/ > accessed 25 October 2022.

Publications mentioned by the speakers in this section: T. Bennett, *et. al., Collecting, Ordering, Governing. Anthropology, Museums, and Liberal Government* (Duhram: Duke University Press, 2017).

CLOSING REMARKS

Paolo Vitti
Board member of Europa Nostra and Professor at the University of Notre Dame

This round table offered a unique opportunity for discussion among six people who are passionate about culture and cultural heritage. Their approaches to the three questions show there are numerous ways in which cultural heritage can play a role in climate action. Each of them brings their experience and knowledge into the discussion, and they thus demonstrate that culture has multiple ways to interact with human beings and to be "used." Culture and cultural heritage can retain past knowledge and memories (tangible and intangible); generate new perceptions; allow interpretation of an articulated and multifaceted reality; stimulate changes in behaviour and open to new horizons (not always positive ones). In climate action we need all of this, particularly in the context of urban realities, where human interaction is particularly complex.

We need thus to approach the topic of culture and climate change from different points of view. Each of the speakers brought something to think about: sometimes – I would say – positions were in contrast, apart from the first question, where everybody agreed on the fact that climate actions are a matter of both individual and collective responsibility.

I would like to start these short closing remarks with a contribution we received from one of the virtual attendees, from Turkey. He pointed out that there is a human drama that is happening as a consequence of climate change. This drama is connected to the massive transfer of people to the cities. Megacities will need to face concrete problems to address the needs of an ever-growing population, while the countryside will be more and more abandoned. What could the role of cultural heritage and culture in addressing this emergency be? To answer this question, we might refer to Pope Francis, who said that human and environmental crises are one and the same thing. We cannot think about environmental and climate crises without considering their impact on human beings. My perception is that the current narrative excludes culture and cultural heritage because they are perceived as ancillary to the key actions that will be needed to solve the emergency. However, if we take into consideration the powerful message offered by the encyclical *Laudato si'*, we understand that culture is a fundamental component, because it shapes behaviours. Discussing the effects of climate change without considering the

cultural part of human expression – the way people communicate, exchange, share, discuss and behave as they face new challenges – is nonsense.

I take the point raised by one of the speakers who pointed out that the Western world has generated values which work against creating or maintaining an equilibrium with nature. Personally, I do not think that referring to primitive cultures which continue to apply ecological practices is the only possible solution. Western culture has generated something uniquely deep in understanding the way people act, and we simply need to re-evaluate those cultural attitudes which can result in recovery of the lost balance with nature.

In the comments to the three questions there are several points that underline the fact that there is still so much to do. Although it is impossible to sum up everything that has been said, one important remark that needs to be reiterated is that culture is an important tool, especially in the urban context. Cities are the incredible result of cultural expressions and, as such, they can change and develop over time. What we now posit is that the way cities have evolved over the last 50 to 100 years has broken something that was more balanced in earlier times, something that we consider to be the result of a "healthy society." What does "healthy" as applied to a society mean? It means that there is a relationship between the individual and the community, going in both directions: the individual feels part of the community and the community acts where the individual has a position. We should acknowledge that this is a cultural matter and that by looking back to the experience of the past we could learn a lot about how to recover some elements that connected single human beings to their fellow women and men, for the benefit of society as a whole.

The degree to which we can make sense of what we do is connected to our capacity to control and understand processes. We live with things that happen, but most of the time we do not understand how things work and how we can interact with them. This means that we do not control the processes anymore. Thus, one of the most important things in healthy societies is that everybody should be inside the processes. We should acknowledge the fact that, in order to find ways to identify models, we can learn a lot from the past.

Another point that was stressed in the discussion is that the climate crisis inevitably entails some loss. We should remember that the loss is not limited to tangible heritage; rather, I would say that this loss is very

much related to intangible values. These intangible values are part of the cognitive stratum of the way we work: the more we reinforce the intangible part, the more the tangible part will be preserved in many different ways. All past cultures developed from practices, generating objects that were the result of knowledge which is unusable if it is not transferred from person to person.

To conclude, I would like to thank all the speakers for their contributions: we have learnt about the role of arts, the role of research, the role of scientific work, the role of applied sciences. We have understood that there are incredible values still existing in society, and that we really need to bring back and discover these values in the most effective way, by looking to what the past has taught us and by regenerating these values in the future. And, above all, investing in young generations.

PROJECTS' SELECTION

Approaching the discussion on climate change from the perspective of cultural heritage, it is not uncommon to feel uncertain about what one can do, both individually and as an institution, to help counter the effects of climate change on cultural heritage. There is also uncertainty about how to take action to spread a climate-aware culture.

Both the round table and the related projects we selected originate from the work the Fondazione Scuola dei beni e delle attività culturali carried out together with the Italian Ministry of Culture in the framework of the Urban Agenda for the EU partnership (see p. 20). The output of the project was an online Knowledge Base[1] where our team, with the support of Giuliana De Francesco, Andrew Potts and Paolo Vitti, included actors and initiatives that provide interesting examples of climate action and heritage preservation in the urban context.

As already mentioned in this volume, the interaction between culture and climate change can be at least twofold, as it regards built heritage conservation while influencing contemporary culture, lifestyles and habits. This peculiarity found a direct correspondence in our mapping of projects and institutions belonging to very different areas. Earth science, computing and sensor studies, contemporary arts and activism all add their own subjective perspective to the discussion, enriching it.

Understanding what people active in this field are doing, regardless of their background, may provide guidance and inspiration to others who are climate aware. Thus, in this volume we collected practices and asked the round table participants to identify projects of particular interest.

As a limitation of scope was necessary, we decided to include only projects active from 2015 onwards, the year of the Paris Agreement. Moreover, the field of research was limited to the EU and UK, and we did not include artistic projects in our selection. However, both the thematic and the geographical scope could be expanded in future editions.

Of the over 150 projects included in the online Knowledge Base, the smaller selection presented in this volume is not intended to indicate the best and most effective initiatives but rather to give an overview of what is happening in this experimental and very vibrant field. We hope that this last section of the volume can work as a chart and as a repository of projects, institutions and professionals to refer to for further initiatives.

The projects are described via a simple template presenting their scope, partnerships, duration and outputs. We hope that indicating specific outputs for the selected projects will be of help to the community, which sometimes struggles to connect theory, technical solutions and perspectives that are viable for a wider public.

Francesca Neri
Head of Unit Innovation and Experimentation Projects, Fondazione Scuola dei beni e delle attività culturali

[1] The database is available on the Fondazione's website: < https://www.fondazionescuolapatrimonio.it/innovazione-e-sperimentazione/the-culture-cultural-heritage-and-climate-change-knowledge-base/ > accessed 25 October 2022.

Adapt Northern Heritage

Project Leader: Historic Environment Scotland / Àrainneachd Eachdraidheil Alba, Edinburgh
Time Duration: 2017 – 2020
Countries Involved: Iceland, Ireland, Norway, Russia, Scotland, Sweden
Keywords: *Data Collection, Engagement, Monitoring of Climate Impacts, Prevention, Protection, Risk Management*

Description
Adapt Northern Heritage is a project supporting communities and local authorities to adapt Northern cultural heritage to the environmental impacts of climate change and associated natural hazards through community engagement and informed conservation planning. The project involves four Project Partners and eleven Associated Partners from Iceland, Ireland, Norway, Russia, Scotland, and Sweden. It is supported by Iceland, Norway, and the European Union through the Interreg programme for the Northern Periphery and Arctic. The Project Partners will assess the risks and vulnerabilities of historical places, guide planning strategic adaption measures that consider cultural, economic, environmental and social sustainability and initiate a community network for interdisciplinary learning, knowledge exchange, and stakeholder networking. Adapt Northern Heritage supports stakeholders by helping build capacity and providing tools that enable communities and authorities in Northern world regions to better cope with the complexities of historic town management in a changing climate.

Output
The project has produced a toolkit consisting of five tools to help understand better how climate change will affect Northern historic places and explore options for what can be done to respond to this change. The principal tool is a guide for Assessing Risk and Planning Adaption which is supported by secondary tools, namely Adaptation Stories, Conservation Factsheets and Information Sources.
The guide is for use by both conservation professionals and those involved in caring for historic sites. To support the risk management process described in the guide, workbooks and slideshow tutorials are also available.

adaptnorthernheritage.interreg-npa.eu

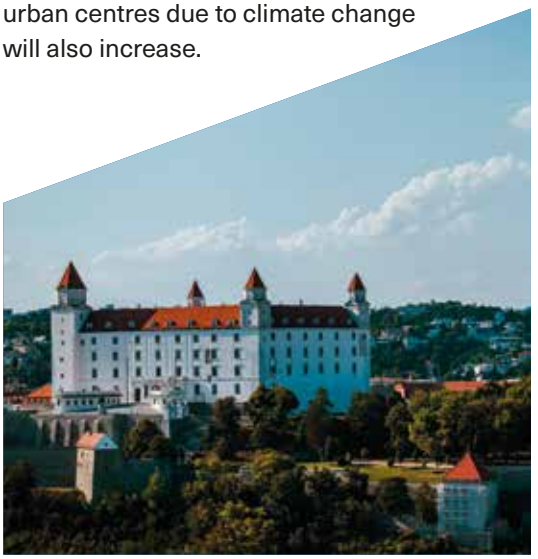
ARCH Project

Advancing Resilience of Historic Areas against Climate-related and Other Hazard

Project Leader: Fraunhofer-Institut für Intelligente Analyse – und Informationssysteme IAIS
Time Duration: 2019 – 2022
Countries Involved: France, Germany, Ireland, Italy, Slovakia, South Korea, Spain
Keywords: *Built Heritage, Data Collection, Evacuation Plans, Monitoring of Climate Impacts, Risk Management*

Description

ARCH is a European-funded research project aimed at the better protection of cultural heritage from hazards and risks. The ARCH team with the cities of Bratislava, Camerino, Hamburg, and Valencia co-created tools to help cities save cultural heritage from climate change. The impacts of climate change are global and unprecedented in scale. Cities will face frequent extreme events in the future, and the risks for cultural heritage and historic urban centres due to climate change will also increase.



savingculturalheritage.eu

Output

ARCH developed a framework for assessing and managing the resilience of historic areas to climate change and natural hazards. Models, methods, datasets, and tools to improve decision-making were designed for local authorities and practitioners, the urban population, and national and international expert communities. These results have been collected in a resilience knowledge base, the ARCH HUB.

Outputs of the project are: a conceptual resilience framework combining disaster risk management, climate change adaptation, and heritage management; an Information Management Systems for area condition and hazard information; a database of resilience measures, coupled to financing options; a tool to visually construct implementation plans for resilience measures; Methods and tools for impact and risk assessment; an online resilience self-assessment tool.

All tools are finished and published. They can be accessed via the project website and the ARCH HUB (hub.savingculturalheritage.eu).

Bratislava Castle in Bratislava, Slovak Republic
[ARCH Project (photo: Daniel Lückerath)]

Art-Risk

Artificial Intelligence Applied to Preventive Conservation of Heritage Buildings

Project Leader: Pablo de Olavide University
Time Duration: no date available
Countries Involved: Chile, Colombia, Cuba, Ethiopia, Guatemala, Italy, Peru, Portugal, Spain, United Kingdom
Keywords: *Built Environment, Data Collection, Monitoring of Climate Impacts, Prevention, Risk Management*

Description

The Art-Risk Project, Artificial Intelligence Applied to the Preventive Conservation of Heritage Buildings, comes about through the technical, social, and economic need to establish an effective support tool for handling uncertainties in the conservation of cultural heritage. Its main objective is to design and validate models and free software to investigate and develop a new computerised tool for the preventive conservation of heritage in urban centres, based on artificial intelligence models. The predictive model at the basis of the development of the tool for the first time includes a multi-scenario study, assessing environmental risks, climate change, the use level of buildings and structural risks together with historical data from monuments life. Two types of monuments (very common in Spain) are studied: churches and walls/bastions. The validation of these two model types is performed by a blinded inter-laboratory diagnostic exercise in order to establish whether the prediction approaches the decision of separated workgroups. The expected result is a new artificial intelligence programme that enables users to reproduce human reasoning to study relations between vulnerability factors, risk factors and the historical parameters of the monument.

Training developed in La Habana, Cuba [TEP199 Heritage Environment and Technology (photo: TEP199 Heritage Environment and Technology)]

Output

The project has produced the Art Risk Models (ARTRISK 1, 2, and 3) and their application to various types of tangible heritage in different contexts, both European (Spain, Portugal, United Kingdom and Italy) and non-European (Chile, Colombia, Cuba, Peru, Guatemala and Ethiopia). One of the models has been turned into free online software, ART-RISK 3.0, useful for the initial assessment of cultural heritage within urban management and town planning. It performs a multi-scenario vulnerability analysis using a prediction model based on fuzzy logic methods and geographic information systems (GIS).

upo.es/investiga/art-risk-en/index.html

C-Change

Arts & Culture Leading Climate Action

Project Leader: City of Manchester
Time Duration: 2017 – 2021
Countries Involved: Croatia, Germany, Italy, Poland, Portugal, United Kingdom
Keywords: *Arts for Climate*, *Engagement*

Description

C-Change is an Urbact transfer network of six European cities committed to developing collaborations within the arts and culture sector on climate action. It is led by Manchester (UK) with Wrocław (Poland), Šibenik (Croatia), Agueda (Portugal), Mantova (Italy), and Gelsenkirchen (Germany). These are cities with the arts, culture and creativity at their heart, including four UNESCO World Heritage sites, one UNESCO World Book Capital, two former European Capitals of Culture and one former national Capital of Culture, all already experiencing the impacts of climate change. C-Change's main objective is to transfer the learnings and best practices of the Manchester Arts Sustainability Team (MAST) to support the network cities to mobilise their arts and culture sectors into climate change action. This is achieved through: developing local policies, governance, and capacity to act; developing plans to reduce CO2 emissions and/or adapt to climate change, and supporting their implementation; developing plans to use arts and culture to engage citizens to act and supporting their implementation; encouraging replication in other cities.

Output

The C-Change model is built on four key strands – collaboration, support, policy and engagement – which combine to frame and drive sector action.
The collaboration path aims to create five new cultural groups that collaborate on climate, one in each partner city. These groups organise meetings, webinars, workshops, talks, concerts, events in theatres, libraries and orchestras and raise awareness on the topic. The support route foresees the capacity building and new skills training (eleven climate change training sessions across five cities; new digital training and learning tools for culture in Manchester). The support path also includes help in finding new funding opportunities for climate action and engagement. The engagement route envisages undertaking, for each city, a wide range of creative and inspiring engagement of arts and culture, and running a pilot action programme, providing micro-grants to selected actions (such as a chamber orchestra's music workshops with children using recycled instruments in Mantova, a city library's DIY urban wildlife campaign in Wrocław, a children's theatre performance done in association with a local "plastic-free" campaign in Šibenik, etc.).
From a policy point of view, the project helped develop integrated cultural strategies, helping underline the importance of taking action and commitment to the climate and the environment as a part of this strategy.

g-mast.org/c-change

CENTRINNO

Heritage as a Catalyst for a New Industrial Revolution

Project Leader: City of Milan
Time Duration: 2020 – 2024
Countries Involved: Croatia, Denmark, Estonia, France, Iceland, Italy, Spain, Switzerland, The Netherlands
Keywords: *Built Environment, Circular Economy, Smart Cities, Urban Planning*

Description
CENTRINNO is a four-year research project focused on the transformation of industrial historical sites. It showcases the potential of historic areas to become part of a new industrial revolution that puts citizens at the core of a sustainable transformation. Leveraging the potential of underutilised historic spaces to become creative production and manufacturing hubs, the project envisions sustainable and inclusive futures for the city and its residents. CENTRINNO aims to test and assess innovative strategies, approaches and solutions for urban regeneration in nine European cities. The project will adopt circular economy principles in the new urban transformation of historic industrial sites into productive and creative hubs.
The main objective of CENTRINNO is to recover the heritage value of industrial sites in Europe fostering a more inclusive and sustainable productive model in city neighbourhoods. In addition, CENTRINNO will generate a series of operative resources to facilitate transformation processes across historic areas.

Output
The project aims at developing online platforms, how-to guides and practical toolkits that will be available as open-source data on the project website as soon as they are ready.

Local manufacturers from the CENTRINNO Barcelona Pilot
[Fab Lab Barcelona (photo: Fab Lab Barcelona]

centrinno.eu

Changes

Project Leader: The Polytechnic University of Milan
Time Duration: 2015 – 2017
Countries Involved: Belgium, Italy, Sweden, The Netherlands
Keywords: *Built Heritage, Dissemination, Green Economy, Prevention, Protection*

Description
The project aims at producing new local models capable of including the diversity of European cultural heritage and all the skills required in built heritage activities to support the Planned Preventive Conservation, Maintenance and Monitoring approach. The main benefits of the new approach are cost-effectiveness for private owners and managers of historic properties, improved quality of protection of built heritage and environmental enhancement and empowerment of local communities. The project's objectives were reached by increased understanding of: conservation and valorisation as preventive measures; effectiveness of maintenance involving relevant craftsmanship and expertise; economic mechanisms underlying built heritage conservation in the context of the regional economy and the (wider) construction sector; the impact of knowledge gain and its dissemination on the smart economy for built heritage conservation, heritage management and the construction sector.

Output
The research developed materials, technologies, and procedures for sustainable long-term care as a strategy to manage changes in the learning environment framework where heritage is understood in connection with people as a tool for the production of social and human capital.
The project's outcome includes the proposal for a funding scheme providing the conditions to support the transition toward a sustainable conservation process.

Main elevation of Villa Reale in Monza, Italy, case study analyzed as part of the Changes project [Lorenzo Cantini (photo: Lorenzo Cantini)]

changes-project.eu

CLIC Project

Circular Models Leveraging Investments in Cultural Heritage Adaptive Reuse

Project Leader: Institute for Research on Innovation and Services for Development, National Research Council (IRISS CNR), Italy
Time Duration: 2017 – 2021
Countries Involved: Croatia, Italy, Sweden, The Netherlands
Keywords: *Built Environment, Circular Economy, Landscape*

Description

The CLIC project is related to international research, policy orientation and innovation activities on the role and impacts of cultural heritage/landscape for sustainable local development. The project applies the circular economy principles to cultural heritage adaptive reuse for achieving environmentally, socially, culturally and economically sustainable urban/territorial development. The CLIC project adopts a trans-disciplinary and systemic approach that integrates technology, business models, economic organisation, finance, governance, regulations and social innovation, framed in the perspective of the circular economy as a possible model for a more inclusive, resilient and sustainable development. The overarching goal of the CLIC transdisciplinary research project is to identify evaluation tools to test, implement, validate and share innovative "circular" financing, business and governance models. This is for systemic adaptive reuse of cultural heritage and landscape, demonstrating the economic, social and environmental convenience, in terms of long-lasting economic, cultural and environmental wealth.

Output

The project developed reports, guides, and maps. The final output was the creation of the CLIC Knowledge and Information Hub. It is an online platform that provides a common space for researchers and practitioners to share and exchange knowledge on adaptive reuse of cultural heritage, collecting international best practices.

clicproject.eu

The Climate Connection

Project Leader: The British Council
Time Duration: 2021 – ongoing
Countries Involved: United Kingdom
Keywords: *Arts for Climate, Cultural Activities, Dissemination, Education, Engagement, Networking*

Description
The Climate Connection is a global initiative uniting people worldwide to meet the climate challenge through arts, culture and education starting from creative ideas, innovation and the desire for real change. The Climate Connection programme connects 200 million people from different countries, generations and backgrounds including young people and policymakers, artists and scientists, business and community leaders, and many others. In particular, it focuses on the next generation of climate leaders. It gives practical support to young people and communities most impacted by climate change helping them share their perspectives globally and achieve real change.

Output
The project has produced numerous global climate conversations, art and science showcases on the topic, various scholarships, identifying financing possibilities, new research and many training opportunities.

britishcouncil.org/climate-connection

Creative Climate Cities Programme

Project Leader: Julie's Bicycle
Time Duration: 2019 – ongoing
Countries Involved: Worldwide
Keywords: *Arts for Climate, Cultural Activities, Engagement, Green Economy, Green Energy, Mobility, Smart Cities*

Description
Julie's Bicycle has been working in partnership with World Cities Culture Forum a network of 38 global cities who share a belief in the vital role of culture in their future prosperity – to support its member cities to understand, connect and scale-up their culture and climate change agenda. To do that, Julie's Bicycle has launched a new reporting system celebrating cities worldwide becoming more innovative and sustainable with culture as their driver, focusing on four thematic areas: policy and strategy; resource and support; partnerships and innovation; creative programmes and campaigns.

Within the same programme and in partnership with ROCK project, Julie's Bicycle is working on a series of webinars and podcasts exploring innovations, discoveries, and policy initiatives at the intersection of environmental sustainability and cultural heritage. Julie's Bicycle also collaborates with URBACT on the C-Change, developing responses for arts and culture leading climate action in cities.

Output
The initiative's outputs range from reports collecting good practices (that highlight creative climate initiatives, programmes, and campaigns) to webinars and podcasts exploring innovations, discoveries, and policy initiatives at the intersection of environmental sustainability and cultural heritage (in partnership with the ROCK project).

Visual notes summarising ROCK programme on urban regeneration
[Julie's Bicycle (graphic: Ada Jusic)]

juliesbicycle.com/news/creative-climate-cities-programme

Creative Climate Justice Hub

Project Leader: Julie's Bicycle
Time Duration: 2020 – ongoing
Countries Involved: Worldwide
Keywords: *Arts for Climate, Cultural Activities, Dissemination, Engagement*

Description
The Creative Climate Justice Hub is a dynamic library of climate justice resources curated for the arts and culture community. It is for artists and cultural practitioners who want to understand the systemic causes of the climate crisis, how it intersects with issues of social, economic and environmental injustice and how arts and culture are responding creatively.

Output
The Creative Climate Justice Hub's goal is to present an overview of: resources and educational tools explaining the fundamentals of climate justice; resources exploring how climate injustice manifests and is challenged in Britain and Ireland; case studies of global impacts and creative responses to climate change; art, artists, policymakers, and community groups reclaiming alternative knowledges, reshaping climate stories, and innovating systems; people, campaigns, media and movements to follow and support.

Fog Everywhere, *performance (featuring Tobi King Bakare) by Camden People's Theatre*
[Donkey Studio (photo: Joe Twigg)]

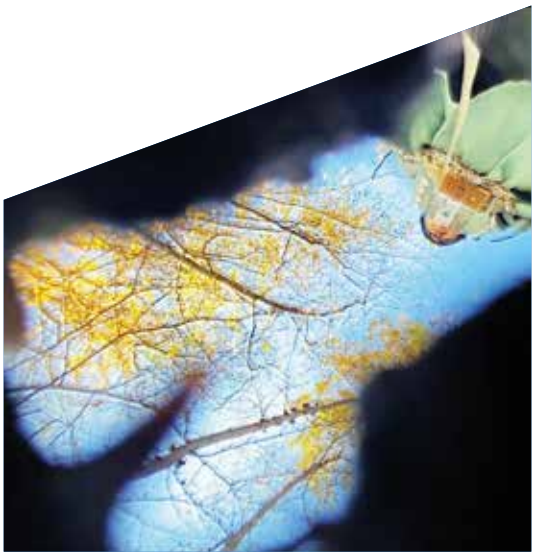
juliesbicycle.com/creative-climate-justice

General Ecology

Project Leader: Serpentine Galleries
Time Duration: 2018 – ongoing
Countries Involved: United Kingdom
Keywords: *Cultural Activities, Dissemination, Engagement*

Description
General Ecology is the Serpentine's long-term and ongoing project which researches complexity, more-than-humanism, climate justice, and environmental balance. Founded in 2018, General Ecology is a strategic effort to embed environmental subjects and methods throughout the Galleries' outputs, structures, and networks. General Ecology concerns itself simultaneously with environmental and organisational ecologies.

Output
General Ecology's output consists of publications, exhibitions, study programmes, radio, symposia, live events, and structural and systemic initiatives, bringing together practitioners from the fields of art, design, science, literature, and anthropology, among many others.



EARTHEART. The Shape of a Circle in the Mind of a Fish: The Understory of the Understory
[Bones Tan Jones]

serpentinegalleries.org/general-ecology

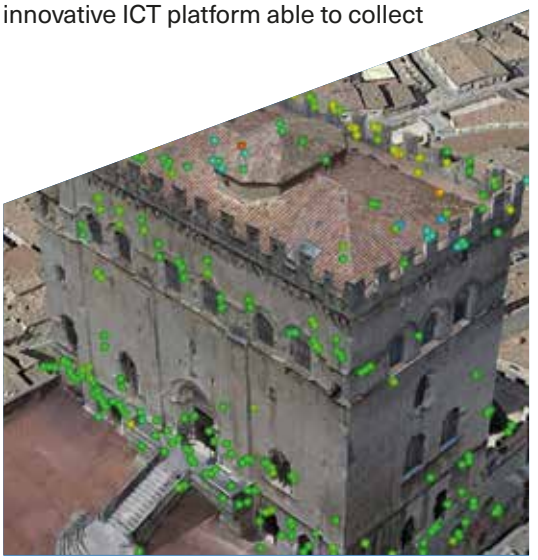
HERACLES Project

Heritage Resilience against Climate Events on Site

Project Leader: National Research Council (CNR), Italy
Time Duration: 2016 – 2019
Countries Involved: Greece, Italy
Keywords: *Monitoring of Climate Impacts, Prevention, Protection, Risk Management, Technologies*

Description

The main objective of HERACLES is to design, validate and promote responsive systems/solutions for effective resilience of cultural heritage against climate change effects, considering as a mandatory premise a holistic, multidisciplinary approach and the involvement of different expertise (end-users, industry/SMEs, scientists, conservators/restorers, social experts, decision-makers and policymakers).
The objectives of HERACLES can be summarised as follows: the development and validation of a scalable and flexible innovative ICT platform able to collect and integrate heterogeneous data for situational awareness and decision support; the design and implementation of new environmentally sustainable solutions and materials for the long-term maintenance and restoration of cultural heritage, under the climatic change impact; the elaboration and integration of forecast climate models and experimental data into the platform; the set-up of specific guidelines for long-term prevention and maintenance actions which can account specifically for cultural heritage site features and the risks affecting them;
The development of strategies and tools to promote HERACLES results to a widespread arena of recipient communities;
The demonstration of the effectiveness of HERACLES at three challenging test beds (two in Crete, Greece: the Knossos Palace and the coastal Venetian fortification; the third is the historical town of Gubbio in Italy).
Through these objectives, the project aims to design and validate manageable methodologies and define operational procedures and guidelines for risk mitigation and management.



Consoli Palace monitoring, 3D PSP results
[Consorzio HERACLES]

Output

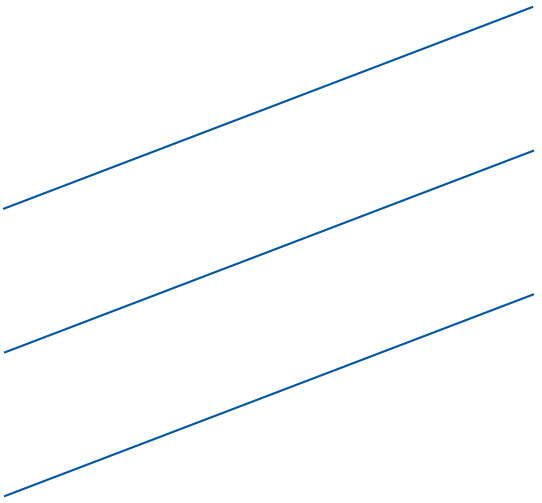
The project works on developing a system exploiting an ICT platform that collects and integrates multisource information. This is to effectively provide complete and updated situational awareness and support decisions for innovative measurements to improve cultural heritage resilience including new solutions for maintenance and conservation.

heracles-project.eu

Heritage Futures

Project Leader: UCL Institute of Archaeology
Time Duration: 2015 – 2019
Countries Involved: Worldwide
Keywords: *Research & Innovation*

Description
The project carries out ambitious interdisciplinary research to explore the potential for innovation and creative exchange across a broad range of heritage and related fields in partnership with several academic and non-academic institutions. The project starts from the assumption that current global crises and transformations (from climate change to mass migration) highlight the need to develop more sustainable and resilient future-making practices and encourage different areas of interest to pursue common goals and learn from one another. The project is based on the belief that a comparative analysis of different conservation and preservation practices expands the notion of heritage in creative and productive ways.



heritage-futures.org

The research is structured around four main themes, each of which identified a challenge for the future of heritage and looked at various institutions that aim to tackle it in multiple ways: Uncertainty, Transformation, Profusion, and Diversity. Within these thematic areas, the project team undertakes fieldwork on heritage and other conservation practices to understand what is done and why with various groups and institutions working within the diverse heritage and heritage-like fields. In addition, the team works with these groups to identify how specific strategies and practices from each field might be creatively redeployed in others. The follow-on project, Landscape Futures and the Challenge of Change, comes after this project.

Output
The research provides intellectual and practical templates for alternative ways of thinking about and managing heritage and other conservation targets. It highlights the advantages and problems of particular approaches and demonstrates alternative action. The project has produced numerous publications, workshops, talks, films, sound recordings, media coverage and exhibitions.

HUB-IN

Hubs of Innovation and Entrepreneurship for the Transformation of Historic Urban Areas

Project Leader: Lisboa E-Nova – Local energy agency of Lisbon
Time Duration: 2020 – ongoing
Countries Involved: Cyprus, France, Italy, Portugal, Romania, Slovenia, The Netherlands, United Kingdom
Keywords: *Cultural Activities, Dissemination, Engagement, Traditional Practices*

Description
HUB-IN is an EU-funded project that aims to transform and regenerate Historic Urban Areas (HUAs) while preserving their unique cultural and social identity and the environment. Eight pilot cities work on their selected historic area to transform each of them into a "Hub of Innovation and Entrepreneurship" by co-developing new business models and innovative solutions that bring sustainability and cultural heritage together.

The project intends to select at least 20 additional historic urban areas to follow the project and potentially develop their own hubs of innovation. They will be part of the Hub-In Alliance (https://hubin-project.eu/alliance/), where they will have access to the network and knowledge, as well as exclusive content and support for their own regeneration processes.

Output
The cities part of the HUB-IN project aim to develop action plans for their historic urban areas, based on the needs and values of their local communities, according to the principles of the circular and sharing economy. They will make sure local stakeholders and citizens will be able to contribute to the regeneration of their historic urban areas by using engagement methods and innovative tools, developing alternative financing models and acceleration programmes for start-ups.

Truogoli di Santa Brigida, Genoa, Italy
[Alessandro Falcone (photo: Alessandro Falcone)]

energy-cities.eu/project/hub-in

HYPERION

Project Leader: Institute of Communication and Computer Systems (ICCS), Greece
Time Duration: 2019 – 2023
Countries Involved: Cyprus, Finland, Germany, Greece, Italy, Norway, Spain, Switzerland
Keywords: *Built Environment, Monitoring of Climate Impacts, Prevention, Protection, Research & Innovation, Risk Management, Technologies*

Description
Studies highlight the potential impact of climate change and geo-hazards (such as landslides and earthquakes) on historic areas hosting cultural heritage sites and monuments, which in turn yield significant adverse impacts on economies, politics, and societies. Currently, there is no specific process towards understanding and quantifying climate change effects on historic areas.
HYPERION performs analysis of cultural heritage sites and makes damage assessment under normal and changed conditions, based on the climatic zone, the micro-climate conditions, the building materials, the surrounding environment, the historical data regarding the structures and the effect of previous restoration. Taking into account the local ecosystems in the cultural heritage areas, HYPERION designs then a truly integrated/sustainable reconstruction approach (technical, social, institutional, environmental and economic level), by incorporating active communities' participation and by providing proper adaptation and mitigation strategies.
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement number 821054.

Output
HYPERION aims to leverage existing tools and services (e.g., climate/extreme events models and their impacts, decay models of building materials, Copernicus services, etc.), novel technologies (terrestrial and satellite imaging for wide-area inspection, advanced machine learning, etc.) to deliver an integrated resilience assessment platform, addressing multi-hazard risk understanding, better preparedness, faster, adapted and efficient response, and sustainable reconstruction of historic areas.

Pilot Site of Rhodes, Fort of St. Nicholas, Greece
[Sevasti Tapinaki]

hyperion-project.eu

KAIRÓS

Heritage as Urban Regeneration

Project Leader: Mula City Council, Spain
Time Duration: 2019 – 2022
Countries Involved: Bulgaria, Croatia, Greece, Italy, Lithuania, Poland, Spain
Keywords: *Cultural Heritage, Networking, Urban Planning*

Description
KAIRÓS is an URBACT Action Planning Network led by Mula and joined by Šibenik, Ukmergé, Cesena, Heraklion, Belene and Malbork. It focuses on expanding the role of cultural heritage as a driver for sustainable urban development and regeneration. To that aim, an ad-hoc integrated approach was tested by assembling a number of key dimensions, namely: Space, Economy, Social Cohesion, Attractiveness and Governance. The KAIRÓS five-pillar model has proved to be helpful in driving action planning in a variety of circumstances and local needs.

From revitalising Šibenik's old town, a place of outstanding beauty on the Croatian coast suffering from depopulation, tourism-driven gentrification and lack of urban vitality during the low season, to reverting the vicious circle of degradation of the historic Barrios Altos of Mula, in the southeast of Spain.

Output
KAIRÓS works at two levels. Locally, each network city has co-produced an Integrated Action Plan along with a group of selected stakeholders. Internationally, a learning and exchange itinerary has been rolled out, including baseline study, thematic workshops, study visits and peer-reviews. The experience is summed up in the booklet *Making heritage work for sustainable urban development. The KAIRÓS five-pillar model*.

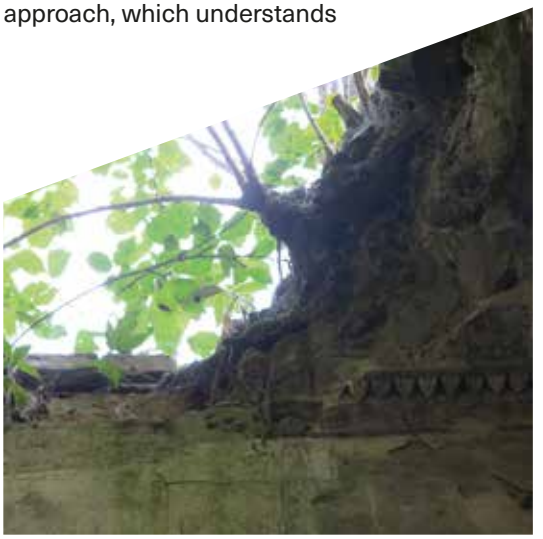
Agia Triada historic district, Heraklion, Greece
[TASO Desarrollos SL (photo: Miguel Rivas)]

urbact.eu/kairós

Landscape Futures and the Challenge of Change: Towards Integrated Cultural/Natural Heritage Decision Making

Project Leader: University of Exeter
Time Duration: 2020 – 2022
Countries Involved: United Kingdom
Keywords: *Built Environment, Data Collection, Dissemination, Landscape, Monitoring of Climate Impacts, Research & Innovation, Technologies*

Description
The Landscape Futures and the Challenge of Change (LFCC) project convened a two-year programme of outreach and consultation which brought together historic and natural environment practitioners to develop a new pathway for proactively and positively managing heritage transformations: "adaptive release." This approach delivers practical solutions for challenging sites and is underpinning discussion about emerging frameworks for policy and planning in both the UK and international contexts. A landscape approach, which understands cultural heritage assets as part of continually changing ecological and geophysical systems, has a key role in supporting a transition to more integrated and adaptive management of heritage and land assets.
The project followed on from the AHRC-funded Heritage Futures research programme, which developed innovative approaches to cross-sectoral knowledge exchange aimed at identifying barriers to effective change management.



Output
Through ongoing monitoring and structured engagement, the project provides a proactive, adaptive management option for historical features and environments affected by accelerated environmental change. The project serves as a model for knowledge co-creation that delivers benefits directly to policymakers, regulators and decision-makers. It has contributed to a paradigm shift in heritage practice, demonstrating that value and significance can be generated by working with processes of change and transformation as well as by securing preservation. As a direct project outcome, Historic England established an online forum (Heritage Lost + Found), where practitioners are actively discussing new approaches and developing best practices. Moreover, the "adaptive release" concept is included in jointly-developed guidance for climate change adaptation for historic places – an initiative led by the National Trust in partnership with Cadw, the Department for Communities Northern Ireland, Historic Environment Scotland, English Heritage Trust, National Trust Scotland and Historic England.

Old and new growth at Gibside Hall, England
[Caitlin DeSilvey (photo: Caitlin DeSilvey)]

landscapedecisions.org
exeter.ac.uk/research/esi/research/projects/landscape-futures

Museums Facing Crisis

Renovating Historic Buildings Towards Zero Energy

Project Leader: We Are Museums
Time Duration: 2019 – ongoing
Countries Involved: United Kingdom
Keywords: *Arts for Climate, Cultural Activities, Engagement, Participation*

Description

With climate change bringing about uneven and irregular weather conditions, human-related disasters changing the heritage landscape and the pandemic transforming the way we function, museums need to work together to safeguard humanity's heritage, promote peace and build resilience. This concerns new regenerative models of systems. This impacts the ways and means through which museums can address, react and respond to social tensions such as those tied to social and health tensions, political pressures, military conflicts and natural disasters. It is also how museums champion the ideals and aspirations of their societies, meaning that museums cannot and should not remain neutral.
The project aims to activate museums as catalysts of the processes that bring the issues of climate change and ecology to the fore, recognising the highly topical issues that must be addressed daily in museum planning and management.

Output

The project involved the implementation of different webinar actions and cycles, such as: Dialogues on Museum Resilience in collaboration with UN Live – Museum for the United Nations (May 2019 – February 2021); Community Support Meetups #MuseumsFacingCrisis (April 2020 – June 2020).
The programme is periodically updated and implemented.

Museums Facing Crisis
[We Are Museums (graphic: Alina Holtmann)]

wearemuseums.com/museums-facing-crisis

POCITYF

Leading the Smart Evolution of Historical Cities

Project Leader: EDP Labelec
Time Duration: 2020 – 2024
Countries Involved: Austria, Belgium, Denmark, Finland, Germany, Greece, Hungary, Italy, Portugal, Slovenia, Spain, Switzerland, The Netherlands
Keywords: *Built Environment, Circular Economy, Green Economy, Green Energy, Mobility, Renewable Energy, Smart Cities, Urban Planning*

Description

POCITYF is an EU-funded smart city project that will help historical cities become greener, smarter and more livable while respecting their cultural heritage. By 2050, 80% of the population is expected to live in urban areas and at the same time urban areas are responsible for 80% of global energy consumption. Since most European cities have buildings of historical interest it is vital for historic towns, which often face legal restrictions in retrofitting buildings of historical interest, to become more sustainable.
By implementing and testing "Positive Energy Districts" in two Lighthouse cities – Alkmaar (NL) and Evora (PT) – and replicating technologies in six fellow cities, POCITYF will support Europe in the race to become the first Carbon Neutral Continent by 2050.

Output

The primary goal of the project is to provide in the two Lighthouse cities and replicate in other cities: solutions at the building and district level that increase energy self-consumption, energy savings and a high share of locally produced renewable energy; P2P energy management and storage solutions; the integration of electro-mobility solutions; the integration of the latest generation of ICT solutions within existing city platforms; active citizen engagement services and solutions providing an open innovation ecosystem for citizens to participate in co-creation, decision-making, planning and problem-solving.

Speed of light in London City, London, England
[ICONS]

pocityf.eu

PROCULTHER

Protecting Cultural Heritage from the Consequences of Disasters

Project Leader: Italian Presidency of the Council of Ministers, National Civil Protection Department
Time Duration: 2019 – 2021
Countries Involved: France, Italy, Spain, Turkey
Keywords: *Monitoring of Climate Impacts, Prevention, Protection, Risk Management*

Description
The PROCULTHER project, co-funded by DG ECHO (the Directorate General for European Civil Protection and Humanitarian Aid Operations) under an initiative of the Union Civil Protection Mechanism (UCPM), contributed to increasing cultural heritage resilience by reinforcing technical and operational capacities at European level. In particular, PROCULTHER focused on the definition of a common European methodology and technical Standard Operating Procedures in this field and promoted a UCPM-driven inter-disciplinary capacity to safeguard cultural heritage in emergencies.
Participating institutions: the International Centre for the Study of Preservation and Restoration of Cultural Property (ICCROM), the Fondazione Hallgarten – Franchetti Centro Studi Villa Montesca, with the participation of UNESCO Regional Bureau for Science and Culture in Europe.

Output
The PROCULTHER team has provided a knowledge base and expertise in the fields of preparedness, capacity building and disaster risk management through the implementation of two main activities. The first one is the publication of *Key elements of a European Methodology to Address the Protection of Cultural Heritage during Emergencies*. This methodology, grounded in the best practices and lessons learned by all the project partners, has been elaborated through an inclusive and proactive process involving national and international stakeholders engaged in the safeguard of cultural heritage and provides a set of elements to advance preparedness and response activities with a view to including the protection of cultural heritage in all disaster risk management processes. The second one is the development of a set of minimum requirements for a UCPM-driven response module capable of intervening and supporting national response actions worldwide to protect cultural heritage at risk. On January 2022, a new project was launched in order to consolidate the results achieved by PROCULTHER. The project, called PROCULTHER-NET (Protecting Cultural Heritage from the Consequences of Disasters Network), aims at supporting and complementing the European Union's efforts in the field of civil protection by setting up a thematic community on the protection of cultural heritage at risk of disaster within the Union Civil Protection Knowledge Network (KN).

procultther.eu
civil-protection-knowledge-network.europa.eu/projects/procultther-net

ProteCHt2save

Risk Assessment and Sustainable Protection of Cultural Heritage in Changing Environment

Project Leader: Institute of Atmospheric Sciences and Climate – National Research Council (ISAC – CNR), Italy
Time Duration: 2017 – 2020
Countries Involved: Austria, Croatia, Czech Republic, Hungary, Italy, Poland, Slovenia
Keywords: *Built Environment, Monitoring of Climate Impact, Prevention, Protection, Risk Management*

Description

The ProteCHt2save project contributes to an improvement of the capacities of the public and private sectors to mitigate the impacts of climate change and natural hazards on cultural heritage sites, structures, and artefacts. The project focuses on developing feasible and tailored solutions for building the resilience of cultural heritage to floods and events of heavy rain. In addition, it helps regional and local authorities prepare measures and evacuation plans in emergencies.
The outputs and results aim to improve cultural heritage protection, management, sustainable use and valorisation in a changing environment.

Output

The primary outcome of the project is the development of a set of tools in support of policy and decision-makers for the development of measures and strategies of preparedness with short and long-term perspectives aiming at the protection of cultural heritage in Central Europe exposed to extreme events linked to climate change (hefty rains, flood, and fire due to drought periods): a WebGIS tool for risk mapping; a vulnerability rate for each pilot site in the target regions, integrated into the WebGIS tool for risk assessment; a decision support tool for analysing the criticalities determining the vulnerability of cultural heritage; a manual to support policymakers and decision-makers in the management of cultural heritage. Moreover, pilot actions aimed at developing local emergency plans for improving capacities in risk management were carried out.

Emergency evacuation of a museum
[Hannes Schramm / DBU (photo: Hannes Schramm)]

interreg-central.eu/Content.Node/ProteCHt2save.html

PROTHEGO

Protection of European Cultural Heritage from Geo-hazards

Project Leader: Institute for Environmental Protection and Research (ISPRA), Italy
Time Duration: 2015 – 2018
Countries Involved: Cyprus, Italy, Spain, United Kingdom
Keywords: *Data Collection, Monitoring of Climate Impacts, Prevention, Protection, Technologies, Risk Management*

Description

Tangible cultural heritage is continuously impacted and weathered by internal and external factors, including natural hazards – such as landslides, earthquakes, subsidence, and extreme meteorological events – all of which could be worsened by climate change and human interaction. In this context, PROTHEGO applies novel space technology based on radar interferometry (InSAR) to monitor monuments and sites in Europe which are on UNESCO's World Heritage List (WHL) and potentially unstable due to geo-hazards. This is to provide a comprehensive picture of sites affected by these processes. In addition, local-scale geological interpretation, advanced modelling and field surveying have been carried out for some of these sites to determine the causes and the extent of the observed displacements and to provide an enhanced understanding of any geological processes affecting the heritage properties. Through these different scale monitoring activities, the project aims to enhance cultural heritage management practices at the national/local level, reinforcing institutional support and governance through knowledge and innovation, identifying, assessing and monitoring risks and strengthening disaster preparedness at heritage properties.

Output

The project created a European map showing each UNESCO site and its geo-hazard level and satellite data availability. The map is searchable thanks to a "map viewer" on the project's (http://mapapps2.bgs.ac.uk/prothego/index.html). The project also produced many scientific publications, posters and conference proceedings.

The Roman Forum in Rome, Italy
[BeBo86, via Wikimedia Commons (photo: BeBo86)]

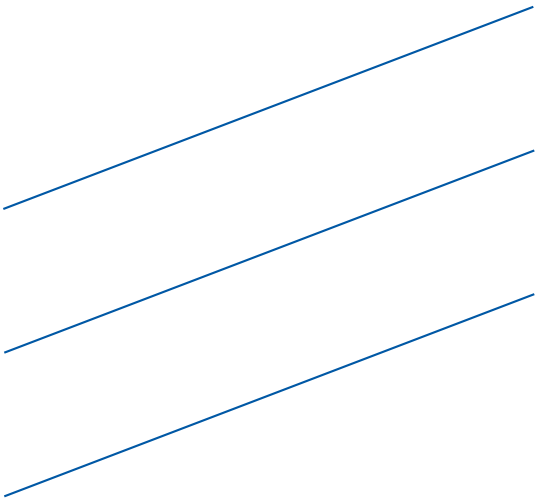
prothego.eu

Reimagining Museums for Climate Action

Project Leader: UCL Institute of Archaeology
Time Duration: 2020 – 2022
Countries Involved: Worldwide
Keywords: *Arts for Climate, Cultural Activities, Dissemination, Engagement*

Description
The starting point for the project is the desire to overturn the obsolete vision of museums seen as static and more concerned with the past than the present and the future. While this impression is slowly changing, museums are not the most obvious subject to focus on climate action. The urgent challenges of a warming planet can seem quite distant from the contemplative world of museums. Climate change, however, is much more than simply an environmental or scientific concern. It impacts social, cultural, political, and economic life, including museums. Questions of sponsorship, carbon emissions, waste, transport, and the need for more sustainable buildings are currently being debated across the sector. At the same time, museums have an essential role in communicating the climate crisis to the public.
The project begins as a design and ideas competition, launched on International Museum Day 2020. Responding to the two main pillars of climate action – mitigation and adaptation – the competition asks how museums could help society make the profound, transformative changes needed to achieve a net-zero or zero-carbon world. Rather than focus on a specific location or type of museum, the competition invites proposals that aim to unsettle and subvert the foundations of museological thinking to support and encourage meaningful climate action. The coordinators specifically asked for design and concept proposals that were radically different from the "traditional" museum or that explored new ways for traditional museums to operate. The responses, which could address any aspect of museum design and activity, ranged from fantastical to highly practical.

Output
Reimagining Museums for Climate Action is developed as the AHRC Priority Area for Heritage's contribution to the UK's time as host of COP26. The project aims to support radical climate action in and with museums before, during and after COP26. In particular, the Green Zone exhibition at the Glasgow Science Centre is created to highlight the critical role of cultural institutions in shaping tomorrow's world.



museumsforclimateaction.org

ROCK

Cultural Heritage Leading Urban Futures

Project Leader: City of Bologna
Time Duration: 2017 – 2020
Countries Involved: Belgium, France, Greece, Germany, Italy, Lithuania, Portugal, Republic of North Macedonia, Romania, Spain, Switzerland, The Netherlands, United Kingdom
Keywords: *Built Environment, Circular Economy, Engagement, Green Energy, Urban Planning*

Description

ROCK (Regeneration and Optimisation of Cultural Heritage in creative and Knowledge cities) focuses on historic city centres as unique laboratories to demonstrate how cultural heritage can be a unique and powerful engine of regeneration, sustainable development and economic growth for the whole city. ROCK develops an innovative, collaborative and circular systemic approach to the regeneration of historic city centres and adaptive reuse. Implementing a repertoire of successful heritage-led regeneration initiatives in seven "Role Model" selected cities, ROCK tests the replicability of the spatial approach and successful models addressing the specific needs of historic city centres in three "Replicator Cities." ROCK brings together thirty-two partners from thirteen countries to support historic city centres to become labs demonstrating the role of cultural heritage as a unique and powerful engine of regeneration, sustainable development and economic growth for the whole city.
ROCK aims to support the transformation of historic city centres afflicted by physical decay, social conflicts and poor life quality into Creative and Sustainable Districts through the shared generation of new sustainable environmental, social, and economic processes.

Output

One of the main outputs of the ROCK project was the creation of the Rock Atlas, a tool that collects the results of an interactive mapping of the urban context, the actions carried out within the project and the connection with the model practices implemented in the network of cities participating in the project.
The project also produced 10 Tools for Heritage-led Regeneration, tested as prototypes during the demo activities in Replicators and assumed as best practices in the cities involved; they aim to facilitate the development of core activities with different purposes: networking and mentoring, cultural and creative support, safety, and environmental control monitoring.

Piazza Rossini: urban culture-led sustainable regeneration project, Bologna, Italy
[Municipality of Bologna]

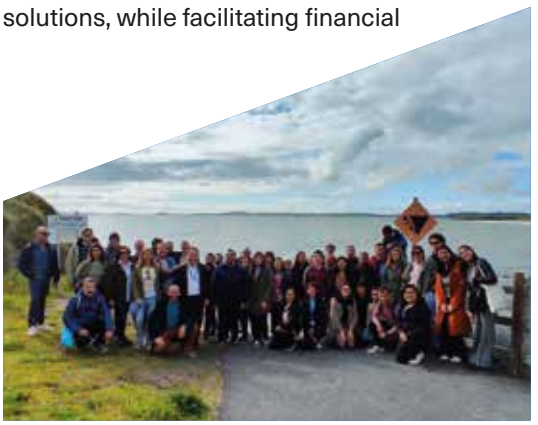
rockproject.eu

SCORE

Smart Control of the Climate Resilience in European Coastal Cities

Project Leader: Institute of Technology Sligo, Ireland
Time Duration: 2021 - 2025
Countries Involved: Belgium, France, Greece, Ireland, Italy, Poland, Portugal, Slovakia, Slovenia, Spain, The Netherlands, Turkey
Keywords: *Data Collection, Monitoring of Climate Impacts, Protection, Research & Innovation, Risk Management*

Description
The intensification of extreme weather events, coastal erosion and sea-level rise are major challenges to be urgently addressed by European coastal cities. To tackle these challenges, SCORE outlines a comprehensive strategy developed via a network of 10 coastal city "living labs" that will involve citizens, scientists, policymakers and other stakeholders in providing prototype coastal city early-warning systems. The "living labs" address water- and climate-related hazards to enhance coastal city climate resilience through an ecosystem-based approach, smart technologies and hybrid nature-based solutions, while facilitating financial sustainability. SCORE develops and delivers a new generation of tools and methodologies, as well as validated ecosystem-based approaches, to enhance citizen engagement, improve climate and erosion monitoring and projections, facilitate knowledge sharing and enable exploration of different mitigation actions and risks. Through its Coastal City Living Labs and smart technologies, the project will not only prove the technical feasibility of ecosystem-based approaches in real life settings, but also demonstrate the socio-economic viability, thus accelerating their systematic adoption.



score-eu-project.eu

Output
The SCORE project has 11 work packages, 49 tasks and 76 deliverables. The work carried out in these tasks and deliverables will be made available as public reports or scientific publications, on the SCORE website. The focus areas in the SCORE project are: Mapping the baseline exposure and risk of extreme climate impacts on coastal cities; Coastal City Living Labs (CCLL) Design, Implementation, and Evaluation; Regional and Local Projections, Analyses, Modelling and Uncertainties; CCLL co-warning and co-monitoring; Pre/post-EBA Interventions Evidence Collection and Knowledge Marketplace; Strategies to increase the financial resilience of coastal cities; Socio-economic assessment of adaptation strategies and policy recommendations; Development of integrated early warning support and spatial digital twin solution prototypes; Dissemination, communication, exploitation; Coordination and management; Ethics requirements.
The project also produces open access scientific publications.

SCORE Consortium at Sligo Beach, Ireland
[SCORE Consortium (photo: Arghadyuti Banerjee)]

SHELTER

Sustainable Historic Environments Holistic Reconstruction through Technological Enhancement and Community-based Resilience

Project Leader: Fundacion Tecnalia Research & Innovation
Time Duration: 2019 – 2023
Countries Involved: Austria, Belgium, Croatia, Czech Republic, France, Italy, Spain, The Netherlands, Turkey, United Kingdom
Keywords: *Dissemination, Monitoring of Climate Impacts, Networking, Prevention, Protection, Research & Innovation, Risk Management*

Description

Over the last decades, as a consequence of the effects of climate change, cultural heritage has been impacted by an increasing number of climate-related hazards, posing new challenges to conservators and heritage managers. SHELTER aims to develop a data driven and community-based knowledge framework that will bring together the scientific community and heritage managers to increase resilience, reduce vulnerability and promote better and safer reconstruction in historic areas. With a deep understanding of the hazard, the exposure and the vulnerability of the historical area, the local dynamics and the provision of innovative governance and community-based models, the project aims at providing practical methodologies, tools and strategies to enhance resilience and secure sustainable reconstruction. Due to the information complexity and the diverse data sources, the SHELTER framework has been implemented in a multiscale and multisource data driven platform, providing the necessary information for planning and adaptive governance. All the project developments have been validated in five open labs, representative of Europe's main climatic and environmental challenges and different heritage typologies.

shelter-project.com

Output

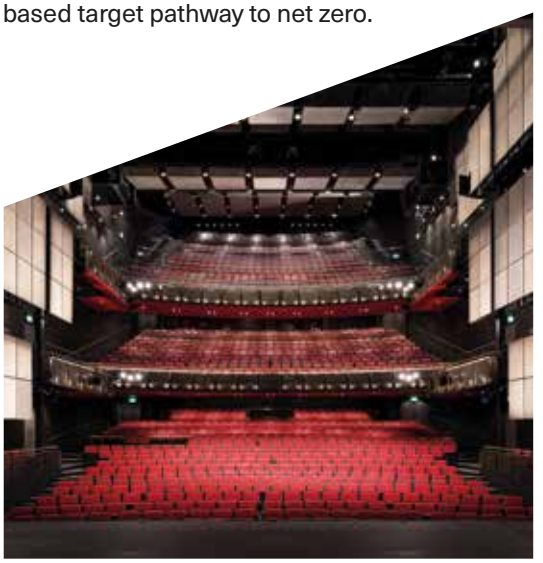
The main output and exploitable result is the SHELTER Operative Knowledge Framework. A conservation-friendly, data-driven and community-based methodology to generate resilience and improve the reconstruction of historic areas to face climate change and hazard events. Its integrated and transdisciplinary approach and the provision of tools and methods for replication (SHELTER platform, step-by-step implementation guide) guarantee its high replication potential. The Operative Knowledge Framework includes a cluster of results that could be exploited independently: SHELTER Information Models and Databases (Data Lake, Multiscale data model, Best/next observatory); SHELTER services (Systemic cross-scale resilience assessment and monitoring, Resilience ID generation incremental strategy); SHELTER tools (Data Driven Platform, Resilience Dashboard, Strategic resilience DSS, and SHELTER IMMERSITE).

Church and archaeological area of Santa Croce, Ravenna, Italy
[Ravenna Open Lab (photo: Eleonora Melandri)]

Spotlight Programme: The Environmental Programme to National Portfolio Organisations 2018 – 2022

Project Leader: Julie's Bicycle
Time Duration: 2018 – 2022
Countries Involved: United Kingdom
Keyword: *Green Energy*

Description
A small proportion of Arts Council England National Portfolio Organisations are responsible for half the portfolio's total carbon emissions. The Spotlight Programme puts a spotlight on reducing these organisations' environmental impacts. The programme works closely with Band 3 NPOs to achieve measurable reductions through the development of good environmental management practices and setting achievable, yet ambitious, Environmental Impact Reduction Objectives (EIROs). Spotlight is the only cluster of extensive infrastructure cultural organisations working together on a science-based target pathway to net zero.



Sadler's Wells theatre, London, England
[Sadler's Wells]

juliesbicycle.com/creative-climate-justice

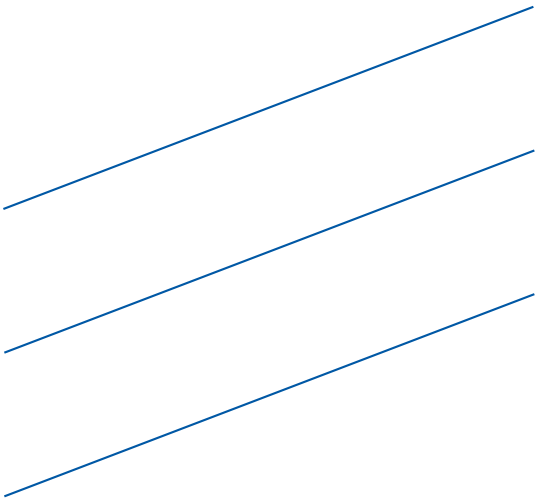
Output
The programme focuses on energy management with building-based arts organisations. It has the following priorities: improvements to environmental literacy, strategy, and expertise, to agree achievable, yet ambitious, Environmental Impact Reduction Objectives (EIROs) and creating governance frameworks that support their attainment and benefit the longer-term resilience of cultural institutions; supporting energy management strategies and operational systems to embed new technology and behaviours with a focus on driving down impacts and costs; creating opportunities for organisations to share best practices, knowledge and experience is a key part of the programme, which will enable organisations individually – and the sector as a whole – to achieve further environmental reductions.

STORM

Project Leader: Engineering Ingegneria Informatica
Time Duration: 2016 – 2019
Countries Involved: Greece, Italy, Portugal, Turkey, United Kingdom
Keywords: *Built Environment, Data Collection, Digital Transformation, Monitoring of Climate Impacts, Prevention, Protection, Research & Innovation, Risk Management, Technologies*

Description
STORM investigates models and non-invasive methods of survey and diagnosis to predict environmental changes that could damage cultural heritage sites. The project focuses on three areas: Prevention, Intervention & Policies, and Planning & Processes. The project investigates how various vulnerable materials, structures and buildings are affected by different extreme risks associated with climatic conditions, providing adaptation and mitigation strategies through systems and technologies. These investigations were tested in case studies in five countries (Italy, United Kingdom, Portugal, Greece and Turkey).

Output
The main goal of the STORM project is to create a cooperation platform for collaboratively collecting knowledge, processes and methodologies on effective safeguarding and managing environmental and anthropogenic risks. It provides all European cultural heritage stakeholders facing climate change and natural hazards with critical decision-making tools.



storm-project.eu

STRENCH

Strengthening Resilience of Cultural Heritage at Risk in a Changing Environment through Proactive Transnational Cooperation

Project Leader: Institute of Atmospheric Sciences and Climate – National Research Council (ISAC – CNR) , Italy
Time Duration: 2020 – 2022
Countries Involved: Austria, Croatia, Czech Republic, Germany, Hungary, Italy, Slovenia
Keywords: *Built Heritage, Monitoring of Climate Impacts, Risk Management*

Description
STRENCH is an Interreg CENTRAL EUROPE project that aims to strengthen the resilience of cultural heritage at risk in a changing environment through proactive transnational cooperation. It involves nine partners of seven Central European countries. STRENCH proactively targets the needs and requirements of stakeholders and policymakers responsible for disaster mitigation and the safeguarding of cultural heritage assets, fostering the active involvement of citizens and local communities in the decision-making process.

Output
STRENCH outcomes aim at contributing to and capitalising on EU-funded projects results to improve capacities of the public and private sectors to mitigate the impacts of climate change and natural hazards on cultural heritage sites, structures, and buildings at risk. It was specifically tailored and robustly implemented to propose ready-to-use solutions (WebGIS tools, hazard maps, methodology for vulnerability ranking, strategies for disaster risk reduction) for assessing climate change effects in order to define strategies for the protection of cultural heritage at risk, assisting local stakeholders in improving their know-how on the process of definition of priorities of intervention and strategies (preparedness/emergency/recovery).

Wachau terraces, Austria
[Anna Kaiser (photo: Anna Kaiser)]

interreg-central.eu/Content.Node/STRENCH.html

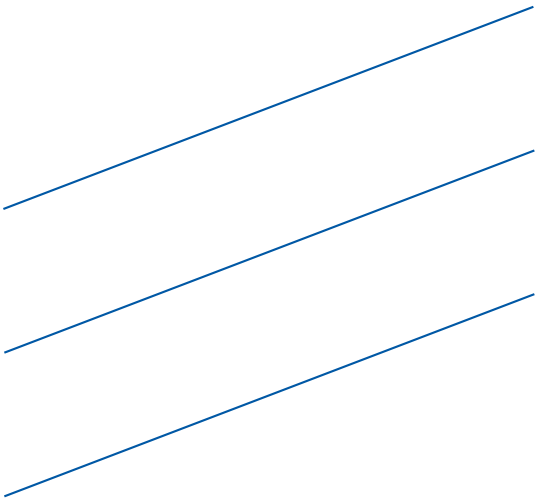
TASK 59

Renovating Historic Buildings Towards Zero Energy

Project Leader: International Energy Agency (IEA)
Time Duration: 2017 – 2021
Countries Involved: Austria, Belgium, Denmark, France, Germany, Ireland, Italy, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States of America
Keywords: *Preservation, Protection, Retrofitting*

Description
The project assumes that historic buildings make up a considerable part of the building stock (one-fourth for Europe). They are the trademark of numerous cities, and they will only survive if maintained as living spaces. The objectives of the project are to: develop a solid knowledge base on how to save energy in the renovation of historic and protected buildings in a cost-efficient way; identify the energy-saving potential of protected and historic buildings according to typologies of building studied; identify and assess replicable procedures on how experts can work together with integrated design to maintain the heritage value of the building and at the same time make it energy efficient; identify and further develop tools which support this procedure and its single steps; identify and assess conservation-compatible retrofit solutions from a "whole building perspective;" specifically identify the potential for the use of solar energy and promote best practice solutions; transfer knowledge.

Output
The project developed HiBERatlas – Historic Building Energy Retrofit Atlas, an online platform to disseminate good-practice examples of renovations of historic buildings which have achieved substantial energy reductions and carbon emission savings while safeguarding the cultural significance of the buildings. So far, it contains nearly 70 buildings and has been designed for continued growth. The Touring Exhibition brings the HiBERatlas close to a wide audience and can be booked for events. Furthermore, the Handbook *Planning energy retrofits of historic buildings* outlines how to implement the *EN 16883 Conservation of cultural heritage – Guidelines for improving the energy performance of historic buildings*.



task59.iea-shc.org

TECTONIC

Project Leader: Università della Calabria (UNICAL)
Time Duration: 2020 – ongoing
Countries Involved: Argentina, Greece, Italy
Keywords: *Protection, Research & Innovation, Technologies*

Description
Documentation and conservation of underwater cultural heritage are crucial to preserving humankind's history and traditions, safeguarding tangible testimonies of past human life while ensuring its accessibility to present and future generations. However, operating on the underwater cultural heritage is much more difficult than subaerial cultural heritage, for many reasons. The preservation, conservation or restoration of underwater archaeological sites requires the adoption of sustainable and affordable solutions aiming primarily at preserving them *in situ* as well as increasing the knowledge around them. This creates several research challenges that are intrinsically interdisciplinary because they involve strict collaboration among various experts from different sectors like archaeology, geology, biology, marine science, engineering, robotics, computer science and many other disciplines.

The main aim of the project is to promote an intersectoral collaboration between academic and non-academic professionals working in these different topics and support the exchange of skills and expertise between them to implement, improve and assess innovative materials, techniques, tools, and methodologies for underwater cultural heritage. All exchanges are supported by specific training programmes and in-lab and on-field activities. They are devoted to stimulating new ideas that would lead to the development of new marketable products by capitalising on the research results that will be achieved in the project, creating a link between business, research, and higher education.

Output
The outputs of the project are the following: the development of decision support tools for underwater cultural heritage risk assessment in a changing environment; the implementation of studies, protocols and suitable procedures for preservation/conservation activities; the development of open and low-cost robotic solutions for the inspection, documentation, and monitoring of underwater cultural heritage.

tectonicproject.eu

URBAN GARDENING

Intangible Cultural Heritage in Bamberg

Project Leader: City of Bamberg
Time Duration: 2012 – ongoing
Countries Involved: Germany
Keywords: *Intangible Heritage, Urban Gardening*

Description

Despite the great importance of urban gardening for Bamberg, commercial farming has declined sharply in recent decades. Consequently, several gardening fields have become fallow. Of the more than 500 horticultural businesses that once existed, about 30 were left: competitive pressure, climate change, and lack of follow-up are just some of the reasons behind the decline. In response to this, the Urban Gardening project connects aspects of city planning, heritage protection, tourism, horticulture and sustainable land use approach. The project aims at keeping Bamberg's gardening alive as an intangible cultural heritage that can also help to mitigate the adverse effects of climate change.

Output

Within the project, various initiatives have been developed to raise the awareness of the local community and tourists of the value of urban gardening as an intangible heritage. Among these, the following initiatives are noteworthy: the creation of a Circular route through the Market Gardeners' District; the creation of The Gardeners' and Vintners' Museum; the formation of the Association of Bamberg Gardeners; the establishment of the Bamberg's Heritage Garden.

Bamberg Market Gardeners
[Bamberg Market Gardeners Interest Group (Jürgen Schraudner)]

welterbe.bamberg.de/en/projects/urban-gardening

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