Fondazione
Scuola
Beni Attività Culturali

Strumenti per l'innovazione
e la sperimentazione

Culture/Cultural Heritage and Climate Change Knowledge Base

A collection of data and documents on Culture/Cultural Heritage and Climate Change in the urban context

Report

This document is the descriptive report of the knowledge base created for the implementation of the project realised by the Fondazione Scuola dei beni e delle attività culturali in collaboration with the Ministry of Culture, participating in the Urban Agenda Action 9 Partnership.

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\\\\ Foreword

The present document accompanies the publication of the "Culture/Cultural Heritage and Climate Change Knowledge Base" on the FSBAC - Fondazione Scuola per i beni e le attività culturali's website.

The Fondazione, as regulated by the Framework Agreement stipulated with the Italian Ministry of Culture, has supported during 2021 the Italian Ministry of Culture for the implementation of the Action 9 "Observatory on Culture/Cultural Heritage and climate change in the urban framework" as planned in the Final Action Plan of the Partnership on Culture/Cultural Heritage of the Urban Agenda for the EU.

Action 9 aims at bringing together stakeholders to analyse needs, risks and opportunities for culture and cultural heritage in the framework of climate change challenges and in the specific context provided by the European Green Deal. Moreover, it aims to create the background for a problem-solving-oriented European multi-stakeholder Observatory on Culture/Cultural Heritage and climate change in the urban framework.

Among the activities planned to achieve Action 9 aims, the Action Plan includes the mapping of relevant updated knowledge; the design of an online tool to collect and search the Knowledge Base falls within this goal. The Fondazione, together with the Ministry of Culture and a dedicated experts' team, designed the "Culture/Cultural Heritage Knowledge Base" to collect Policies, Programmes, Projects and Actors concerning culture/cultural heritage, climate change, and the urban context, which is now published online and available for consultation by the public. It is devised to be implementable, and it aims at functioning as a dissemination space for players in the sector, as it records any relevant document the community will indicate.

The first part of this report provides the definition of the context from which the design of the knowledge base was born ("The Paris Agreement and the Urban Agenda"; "Mapping the context"). The central part of the report focuses on the description of the data collection and the design of the online tool ("The Data Collection"), while the last part is dedicated to the discussion of some relevant issues raised during the collection of data and the interviews made with key players in the view of building the network ("Issues emerged in the interviews with key players*").*

Introduction (by Paolo Vitti)

This report is a valuable tool for identifying some of the current approaches regarding culture/cultural heritage and climate change in the European urban context. For the first time, three topics -- the city, culture, and climate change -- are discussed in close relationship with one another.

The climate crisis is urging us to action on culture and cultural heritage, not only to protect them from the disruptive negative effects caused by the changed environmental conditions, but also because of the prominent role culture and cultural heritage can assume in the adaptation and mitigation processes.

The city, this unique manmade artefact where most European citizens live, is the result of the creativity and ingenuity of human beings and, as such, is a cultural expression. Most of our future climate actions will have the city as their main focus. Societal challenges, liveability, innovation, and growth, which are at the heart of the Urban Agenda for the EU, will need targeted actions. For each of them culture and cultural heritage can have a prominent role. Notably, the actions envisaged in the *New Green Deal* launched by the EU Commission can benefit from culture and cultural heritage, as discussed in the *European Cultural Heritage Green Paper*, published in 2021 by Europa Nostra and ICOMOS.

With the increase of urban population in the next few years, it will be necessary to address not only architecture, infrastructure, and energy needs, but also to intervene on the behaviour of the inhabitants. It is not only a matter of policymaking, but also of understanding how the community can lead the adaptation and mitigation processes. From this point of view, sustainable growth becomes largely a cultural matter and lessons from the past must be given a prominent role.

Analysing the past, we learn that cities reflected social and cultural habits forged on sustainability and a thoughtful use of resources. Not only was architecture inspired by a healthy building culture[1], it reflected the needs of the community, while being at the same time resilient - that is, able to adapt to societal changes and new needs. A key to earlier urban cultures was the local dimension, meaning that people participated in all the processes in an active and conscious way. In the past, innovations were developed within

[1] A healthy building culture expresses the «ability to produce artifacts of long-term human and spiritual value, or to maintain building knowledge that has such value» (Davis 2006, p. 13).

the community, where professionals from different disciplines worked together to adapt the evolving society to emerging new needs or ways of life.

Today, innovation is principally considered a technical matter occurring outside of the community, its main purpose being to create new markets. The idea and aim of work itself have changed. In this context, it is becoming evident that we need to pass from global to local. In terms of the role of the community, this means that people gain back their capacity to control and understand the processes, are connected to a production and consumption chain that is discernible, and adaptations or innovations can be easily made as needed. There are numerous examples of communities moving towards this cultural model and against the current global dimension.

The action that climate change requires from us is closely connected to the capacity of communities to change their mindsets and attitudes, and its success depends on acceptability and willingness to change. Against this general principle, we must acknowledge that a uniform approach throughout the Europe is not possible or realistic. One of the main outcomes of the analysis is that the projects and actions that were mapped mirror the cultural diversity of Europe, reflecting the attitudes and cultural dimensions of the different communities. These differences are not only observable within the political boundaries of the EU States, but are distinguishable at the Regional and local levels as well. They show that the various communities are reacting in different ways, some in a more steady and proactive manner, others with less enthusiasm. It is particularly enlightening that awareness is strong within small and vulnerable economies and livelihoods, where climate change can have more disruptive effects.

Special notice must be taken of the role of the younger generations. Those in their teens and twenties are showing an increasing awareness of the threats and the need to change. We must support them as prominent agents for climate action as they and their children will have to develop habits, values and behaviours in line with the mitigation goals. In some countries, young generations are already changing their habits; for instance, by choosing to buy only second-hand clothes or selecting products based on principles of traceability and use of local and natural products. One of the most inspiring projects, led by a group of young architects, is De Ceuvel, a sustainable workspace in an abandoned shipyard in Amsterdam. Although the project openly refuses any possible historical reference, it reveals a community-led intervention where the concepts of reuse, recycle,

and reduce are at the heart of a small and thriving community.

The positive conclusion of this study is that a wide discussion is going on and that there is an increasing number of messages and initiatives that are not aligned with the past consumeristic approach but are trying to redefine our ways of life.

«I think it is clear to everyone that the time of denial, the time of delays, the time of resistance to changing a lifestyle that is proving unsustainable for the planet, are behind us»[2]. It is time to break out of our comfort zone and accept that reduction of energy consumption, circularity, and other ecological goals cannot be achieved without changing our cultural attitudes and, in the process, leaving none behind, including the less-developed countries outside of Europe.

[2] David Sassoli, Opening speech by the President of the European Parliament, David Sassoli, during the Speakers' 7th Summit of the Parliamentary Assembly of the Union for the Mediterranean, 3 December 2021.

\\\\The Paris Agreement and the Urban Agenda

The Paris Agreement

Climate change is a global challenge influencing our lives, and its impact on cultural heritage is getting more evident. If we look specifically at the urban setting, climate change impacts not only the urban landscape and built heritage but also intangible heritage. Therefore, in order to structure the research on the impacts of climate change on culture/cultural heritage in the urban context, it is essential to reconstruct the context from which the discussion began and indicate the research's time and territorial boundaries (see paragraph "Time and territorial boundaries").

The choice of the starting point could only be the date of the signing of the Paris Agreement (12 December 2015) that marked a turning point in international climate discussions. Although the Agreement reflects different compromises needed to reach a consensus among 195 countries[3], it is an important milestone that began to create the ground for a multilateral response to the climate challenge[4]. The Paris Agreement completed the negotiation process originated in 2011 with COP17 in Durban. As French President François Hollande pointed out on 12 December 2015, «In Paris, there have been many revolutions over the centuries. Today, it is the most beautiful and the most peaceful revolution that has just been accomplished — a revolution for climate change»[5].

Known as COP21 (The 21st Conference of the Parties to the UNFCCC[6]), the Paris Agreement was one of the largest gatherings of world leaders ever seen and the first-ever universal, legally binding global climate change agreement. The EU formally ratified the agreement on 5 October 2016, thus enabling its entry into force on 4 November 2016[7].

The parties to the Agreement have declared a range of actions to be implemented in order to reach their goal (Fig. 1). One of the main ones is a significant reduction in

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[3] *As it happened: 195 countries agree Paris climate deal*, Climate Home News, 12 December 2015. <https://www.climatechangenews.com/2015/12/12/195-countries-agree-paris-climate-deal/>

[4] For more information, see: https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement, https://www.consilium.europa.eu/en/policies/climate-change/paris-agreement/, https://ec.europa.eu/clima/eu-action/international-action-climate-change/climate-negotiations/paris-agreement_it

[5] Ritter, Corbet, Seth 2015.

[6] The acronym UNFCCC stands for Nations Framework Convention on Climate Change.

[7] As pointed out by UN Climate Change News «The Paris Agreement entered into force [...] thirty days after the date on which at least 55 Parties to the Convention accounting in total for at least an estimated 55% of the total global greenhouse gas emissions have deposited their instruments of ratification, acceptance, approval or accession with the Depositary» (Paris Agreement – Status or Ratification 2016). For more information, see: <https://unfccc.int/process/the-paris-agreement/status-of-ratification>

greenhouse gas emissions. The Paris Agreement sets out a global framework to intervene against climate change by limiting global warming to well below 2°C and pursuing efforts to limit it to 1.5°C[8]. It also aims to strengthen countries' ability to deal with the impacts of climate change and support them in their efforts. Another goal consists in creating socio-economic opportunities for addressing climate change: it provides an economic framework for action in the years ahead.

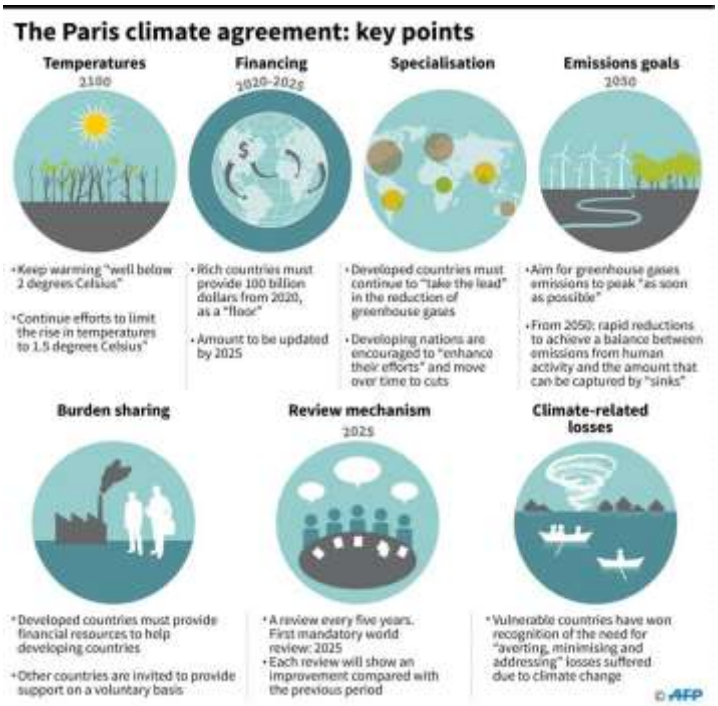

Fig. 1. Key points of the Paris Agreement which is to be reviewed every five years. Graphic: © AFP

Moreover, it reaffirms the leading role of developed and prosperous countries in mobilizing finance to support climate action in developing countries and encourages other countries to provide such support on a voluntary basis, suggesting a different course of action for developing and developed countries. Finally, one of the Agreement's key provisions is creating a review mechanism for the commitments of the various countries: it will take place every five years to gradually increase common ambition.

The European Union is a world reference point in managing these delicate global issues. The commitment of the individual States is the basis on which the entire Agreement is based. For Italy, the Paris Agreement was decisive, implying a series of regulations and intense mobilisations to achieve the set objectives (for example, goals relating to climate change are pursued in the recently approved Recovery and Resilience Plan).

Speaking of the Paris Agreement without mentioning the Katowice Climate Package[9] draws only a partial picture of the issue. Adopted at the United Nations Climate Change

[8] Paris Agreement 2015.

[9] For more information, see: <https://unfccc.int/process-and-meetings/the-paris-agreement/katowice-climate-package>

Conference (COP24) in December 2018, the Package contains common and detailed rules, procedures, and guidelines that make the Paris Agreement operational.

The 2015 Paris Agreement still remains the indispensable multilateral policy framework for tackling the causes and effects of climate change and represents a global accord on combating climate change and accelerating and intensifying climate action. For this reason, it provided an essential reference for the construction of our research. As a matter of fact, our research framework derives directly from climate action policy, with particular respect to the structure of the Paris Agreement, adapted to the culture and cultural heritage domain and the developments introduced by the European Green Deal.

The Paris Agreement introduces some key concepts that will be revised and applied as categories in the 2019 ICOMOS report "The Future of Our Pasts: Engaging Cultural Heritage in Climate Action", which condensed the contents of the Paris Agreement into four main categories. Our research adopted these four categories as the main framework and guidelines for classifying climate change-related contents[10] (see paragraph "Research Object Classification: Categories and Keywords" for a detailed description):

- High Ambition (a term taken from Paris Agreement, Arts. 9, 10, 11, 12);
- Mitigation (a term taken from Paris Agreement: Greenhouses gas (GHG) Mitigation, Arts. 2, 4, 5);
- Adaptation (a term taken from Paris Agreement, Art. 7);
- Loss & Damage (a term taken from Paris Agreement, Art. 8).

It is worth emphasizing the importance of the presence of Loss & Damage in the Paris Agreement as a separate pillar. It recognised for the first time that it is impossible to adapt to all effects of climate change: even in the case of an optimal adaptation, severe damage may still occur[11]. As the document states, Loss & Damage can stem from extreme weather events or slow-onset events such as the loss of land to sea-level rise for low-lying islands. These are very important statements for the cultural heritage sector, especially in an urban context. Previous climate agreements, such as the Warsaw Mechanism (established two years earlier during COP19), categorize Loss & Damage as a subset of adaptation[12]. However, as pointed out by Gwynne Taraska, the push to address Loss & Damage as a distinct issue in the Paris Agreement came from the Alliance of Small Island States and the Least Developed Countries, whose economies are most vulnerable to the adverse effects of climate change[13]. The Agreement calls for «averting, minimizing, and

[10] ICOMOS Climate Change e Cultural Heritage Working Group., The Future of Our Pasts: Engaging Cultural Heritage in Climate Action, ICOMOS, Paris 2019. [Hereinafter, ICOMOS 2019].

[11] Mogelgaard, McGray 2015.

[12] It acknowledges that "loss and damage associated with the adverse effects of climate change includes, and in some cases involves more than, that which can be reduced by adaptation". For more information, see: <https://unfccc.int/resource/docs/2013/cop19/eng/10a01.pdf>.

[13] Taraska 2015a; Taraska 2015b; Taraska 2013.

addressing loss and damage» but specifies that it cannot be used as the basis for liability or compensation[14].

The Urban Agenda for the EU

The Urban Agenda for the EU is an intergovernmental initiative launched in May 2016 by the Pact of Amsterdam. It introduces a new multi-level working method promoting cooperation between urban authorities, member States and stakeholders, with the European Commission, in order to stimulate growth, liveability, and innovation in the cities of Europe and to identify and successfully tackle societal challenges[15].

As the Preamble of the Pact of Amsterdam states, the European Union is one of the most urbanized areas in the world. Today, more than 70% of Europe's citizens lives in urban areas. The UN projects that by 2050 this percentage will reach 80%[16]. Precisely for this reason, the development of urban areas will significantly impact the future sustainable development (economic, environmental, and social) of the European Union. Furthermore, urban areas can be engines of the economy that boost growth. Considering the above, urban areas play a crucial role in pursuing the EU 2020 objectives and in solving many of its most pressing challenges[17].

In order to realise the full potential of the European Union and fulfil its strategic objectives, the Urban Agenda for the EU strives to involve urban authorities in achieving *Better Regulation* (improving European legislation), *Better Funding* (achieving better access to and use of European funds), and *Better Knowledge* (enhancing the sharing of knowledge and collaboration between cities) by setting up voluntary Partnerships between the Commission, EU organizations, national governments, city authorities and other stakeholders such as non-governmental organizations.

In the first phase, twelve partnerships were launched on the following issues:

1. Inclusion of migrants and refugees;
2. Air quality;
3. Urban poverty;

[14] See the Art. 8 of Paris Agreement (Paris Agreement 2015). Concerning the paragraph about liability and compensation in the Paris Agreement text, developed nations were concerned that the introduction of the Loss & Damage pillar could lead to compensation for those affected by the impacts of the pollution for which the richer nations had been largely responsible. Finally, developed countries agreed to include Loss & Damage in the agreement, but only with an added clause that the specific article which relates to loss and damage "does not involve or provide a basis for any liability or compensation".

[15] European Commission, Urban Agenda for the UE: Pact of Amsterdam, 30 May 2016. [Hereinafter, Urban Agenda for the EU 2016].

[16] Urban Agenda for the EU 2016, p. 3.

[17] Urban Agenda for the EU 2016, p. 3.

4. Housing construction;
5. Circular economy;
6. Jobs and skills in the local economy;
7. Adaptation to climate change;
8. Energy transition;
9. Sustainable use of land;
10. Urban mobility;
11. Digital transition;
12. Innovative and responsible public procurement.

Starting from 2018, two further partnerships have been activated:

13. Safety in public spaces;
14. Culture and Cultural Heritage.

The addition of the latest Partnership attests that the European Union recognises culture and cultural heritage as important resources for urban development with all its social, ecological, and economic dimensions.

The Pact of Amsterdam states that Partnerships are the key delivery mechanism within the Urban Agenda for the EU and «to ensure focus and real impact on the ground, Partnerships should have a bottom-up approach analysing, *inter alia*, concrete cases in urban areas which exemplify bottlenecks and potentials»[18]. Each Partnership is supposed to formulate an Action Plan with concrete proposals *for Better Regulation, Better Funding* and *Better Knowledge*, related to the theme of the Partnership, which can be regarded as nonbinding contributions to the design of the future and the revision of existing EU legislation, instruments and initiatives.

The Partnership on Culture/Cultural Heritage

Against this background, the Partnership on Culture/Cultural Heritage aims to identify and promote actions that improve the legislation, the financial capacity, and the knowledge transfer in the field of culture and cultural heritage at the EU level[19]. The key concept behind the Partnership's activities is that a conscious, effective, integrated management of urban cultural heritage and urban cultural identities can help to improve urban sustainable growth policies in larger metropolitan cities, but also in medium and small-sized towns in Europe[20].

[18] Urban Agenda for the EU 2016, IV, 18, p. 10.

[19] Final Action Plan 2018, p. 6; Cities pushing the agenda for cultural inclusion 2021.

[20] Final Action Plan 2018, p. 5.

The Partnership on Culture/Cultural Heritage is coordinated by Italy (Italian Agency for the Territorial Cohesion, cooperating with the Ministry of Culture) and Germany (Federal Ministry of the Interior, Building and Community) and has a broad membership of cities, regions, member States and stakeholders, with the participation of various offices of the European Commission.

In line with the guidance provided by the Pact of Amsterdam, the Partnership on Culture/Cultural Heritage produced The Final Action Plan focussing on *Better Regulation*, *Better Funding* and *Better Knowledge* when addressing culture and cultural heritage (tangible and intangible) in urban development policies. The Pact of Amsterdam states that the Action Plan «can be regarded as non-binding»[21]. Therefore, the Actions presented in this Action Plan are not compulsory.

The Partnership identified 11 necessary Actions in order to develop an Action Plan to better support culture and cultural heritage as means to foster sustainable urban development processes.

URBAN AGENDA FOR THE EU PARTNERSHIP ON CULTURE / CULTURAL HERITAGE FINAL ACTION PLAN	
BETTER REGULATION	
ACTION N° 01	Regulating phenomena of sharing economy
ACTION N° 02	Street Invasion, Atomisation and Cultural Reactivation
ACTION N° 03	Cultural Hubs for Innovation, Modernisation and Enhancement" (CHIME)
ACTION N° 04	Collaborative Management to adapt and reuse spaces and buildings for cultural and social innovative development
BETTER FUNDING	
ACTION N° 05	Raise awareness for public libraries and their new tasks on a European and National Level
ACTION N° 06	Strategic Plan for the Culture Enhancement in Urban Framework
ACTION N° 07	Data collection and smart use applied to the management of tourist flows
BETTER KNOWLEDGE	
ACTION N° 08	Guiding Principles for Resilience and Integrated Approaches in Risk and

[21] Final Action Plan 2018, ii.

	Heritage Management in European Cities
ACTION N° 09	Observatory on Culture/Cultural Heritage and climate change in the urban framework
ACTION N° 10	Integrated approaches to Dissonant Heritage
ACTION N° 11	Local cultural services fostering social inclusion: Identification of cities' research needs and peer learning

Action 9

The "Culture/Cultural Heritage and Climate Change Knowledge Base" presented in the report is one of the outputs of the project regulated by the Framework Agreement stipulated by the Italian Ministry of Culture and the Fondazione Scuola dei beni e delle attività culturali. This project aims at the implementation of Action 9 of the Final Action Plan of the Partnership on Culture/Cultural Heritage of the Urban Agenda for the EU. Falling within the "Better knowledge" domain, it assesses the feasibility of setting up an Observatory on Culture/Cultural Heritage and climate change in the urban framework[22].

The Action leader is the Italian Ministry of Culture, working in cooperation with the Fondazione Scuola dei beni e delle attività culturali and supported by international experts (Andrew Potts, ICOMOS, and Paolo Vitti, University of Notre Dame). Formal Action partners are the city of Bordeaux, Flanders Heritage, Silesia Region, Cyprus Ministry of the Interior, URBACT, with the support of JRC, ICLEI, Italian Agency for Territorial Cohesion, German Ministry of Interior.

Action 9 sets out from considering climate change as a global challenge increasingly affecting every aspect of our lives, including culture and cultural heritage. In urban settings, climate change already has an impact not only on urban landscapes and built heritage but also on all kinds of tangible and intangible heritage. However, the implementation of climate adaptation plans, including culture and cultural heritage in local planning, is still very fragmented[23].

Although since 2018, European institutions have started talking about an adaptation of cultural heritage to climate change and about the cultural dimension of sustainable development, there is still little evidence that the current global, European, and national policy frameworks consider culture and cultural heritage as an enabler and a driver of sustainable development.

[22] Final Action Plan 2018.

[23] See the website of Climate Heritage Network: http://climateheritage.org/.

Action 9 falls within the context of the intersection between the three elements, rarely found together in projects and policies, namely culture/cultural heritage, climate change, and the urban context (Fig. 2)

Fig. 2. Graphic representing the intersection between three main elements of Action 9. © Urban Agenda Project

Since the European Green Deal[24] fosters a "green" reconversion of urban areas with no mention on how to deal with urban cultural heritage protection, Action 9 proposes to act preventing risks of loss of cultural heritage values in the framework of the renovation wave and "greenification" policies[25], trying - at the same time - to take advantage of the potential enshrined in cultural heritage to combat climate change. The pilot action starts from the assumption that cultural heritage, culture, and the arts offer enormous, still untapped potential to strengthen resilience, stimulate social awareness, encourage participation, drive climate action, and support the transition towards sustainable development.

Action 9 is aimed at:

- Bringing together stakeholders to analyse needs, risks and opportunities for culture and cultural heritage in the framework of climate change challenges and in the
- Creating the background for a problem-solving-oriented European multi-level, multi-stakeholder Observatory on Culture/Cultural Heritage and climate change in the

The main principles orienting the Action are creating synergies, avoiding duplication of efforts, capitalising on lessons learnt, on experiences on the ground and on already done work.

[24] European Commission, The European Green Deal, COM (2019) 640, 11 December 2019. [Hereinafter, European Green Deal 2019]

[25] Final Action Plan 2018.

Action 9 is being implemented through four groups of activities:

1. Mapping policies and collecting knowledge (getting a picture of the policy framework at the international, European, and national level and of the regulatory and scientific context, understanding interconnections and main
2. Mapping actors, projects and building the network.
3. Defining the scope, main purposes, and functions of a European Observatory on culture and cultural heritage in relation to climate change and the range of its activities
4. Investigating structure and legal body

In the first phase of the research, the Action has designed and built a user-friendly online database to collect Policies, Programmes, Projects, and Actors concerning culture/cultural heritage, climate change, and the urban context. It functions as a place for dissemination and exchange and can be consulted on the following link: <https://www.fondazionescuolapatrimonio.it/innovazione-e-sperimentazione/the-culture-cultural-heritage-and-climate-change-knowledge-base/>

\\\\ Mapping the context

Definition of the research context

The construction and the implementation of the "Culture/Cultural Heritage and Climate Change Knowledge Base" presented in this report are rooted in the activities of Action 9 of the Partnership on Culture/Cultural Heritage of the Urban Agenda, as described in the previous chapter ("The Paris Agreement and the Urban Agenda").

Action 9, in fact, is aimed at bringing together stakeholders to analyse needs, risks, and opportunities for culture/cultural heritage in the framework of climate change challenges, and on the other hand on creating the background for a European Observatory on Culture/Cultural Heritage in the urban context. To meet these aims, Action 9 has been involved with:

- setting up a deep dialogue with many actors in the field, discussing issues related to culture/cultural heritage and climate change and the role of the possible Observatory to be established;
- the creation of a database collecting knowledge on the topic, as a background to the Observatory;
- the identification of scope, purpose, and function of the possible EU Observatory (through interviews with key players);
- carrying out a survey on the possible legal/non-legal forms that the Observatory could take.

In this context, the database was set up to give a background for the potential creation of the Observatory, singling out areas of research and experimental projects that have not been fully covered yet[26].

As it will be described later (paragraph "Three examples of existing databases on the topic"), many are the existing platforms and databases collecting information on climate change, cities and cultural heritage. Still, none of them focuses specifically on the intersection of the above mentioned three different fields: culture/cultural heritage, climate change and urban context, as Action 9 does.

"Climate change" is the global challenge that increasingly impacts and influences every aspect of our lives. As stated in the IPCC (Intergovernmental Panel on Climate Change) report and then stressed in the Paris Agreement, humans have already warmed the

[26] Paolo Vitti and Andrew Potts contributed to these activities and guided the construction and implementation of the database, providing expertise on the global framework in which the Observatory should be positioned (on policy scenario, regulatory framework, key actors, applied initiatives, communities of practices).

planet by 1°C since the pre-industrial era, thus already causing environmental disasters (extreme weather events, sea-level rise, heavy rainfall, heatwaves, land degradation, etc.) which had consequences on the social dimension: yet any additional temperature increment might be crucial; therefore, the global warming limit has been set to 1.5°C[27].

In this context, a worldwide debate has been carried on on the effects of such a situation on cultural heritage, and Action 9 participates in this debate. To face the ongoing discussion on this topic, the first fundamental theme to be addressed is the meaning of Culture/Cultural Heritage in this context.

Action 9 acknowledges – as the European Cultural Heritage Green Paper does[28] - the twofold nature of culture/cultural heritage: on the one side culture/cultural heritage is the asset threatened by climate change and, on the other side, culture/cultural heritage is the asset that can promote and foster climate action, helping in spreading the knowledge related to climate change and in fighting the climate crisis.

"Culture/cultural heritage" is indeed considered in a very broad sense: it includes physical/tangible heritage (e.g., buildings and objects), as well as intangible cultural heritage (e.g., traditions, traditional knowledge and practices), cultural practices and activities (e.g., theatre performances, music festivals, exhibitions); moreover, according to the Partnership, «Culture and cultural heritage can be an important driver for strengthening the social, ecological and economic assets of EU cities»[29].

In our research, culture/cultural heritage is considered under these aspects and as the common culture of society, the shared understanding of things that generates the behaviours that need to be changed in order to fight the climate crisis. Therefore, the relationship between climate change and cultural heritage is not unidirectional, as it implies at least both the impacts of the climate change effects on cultural heritage and what culture can activate in the fight against climate change.

The third element which defines the research field is "**the urban context"**, analysing the relationship between culture/cultural heritage and climate change in cities. As mentioned before, the focus on urban context comes directly from the Pact of Amsterdam that, highlighting how in Europe 73% of the population lives in urban areas (contrary to the 50% at the global level), has launched the new Urban Agenda for the EU (2016), that

[27] IPCC Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, 2014. Geneva, Switzerland. [Hereinafter, IPCC Climate Change 2014]: 'Global Warming of 1.5°C. An IPCC Special Report' on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty (Masson-Delmotte *et al.* 2018).

[28] Potts 2021.

[29] Final Action Plan 2018, p.94.

«strives to establish a more effective integrated and coordinated approach to EU policies and legislation with a potential impact on urban areas»[30].

Building and implementing the knowledge base, the attention has been, therefore, focused on these three aspects (Fig. 2), and all items that have been catalogued fall within the intersection between them (see paragraph "Identification of Mapped Objects" for the description of the catalogued items).

Literary sources: main tendencies in the field

Following the definition of the research field and a brief conceptual outline on the meaning of the terms of culture/cultural heritage, climate change and urban zone, a review of the existing literature on the topic was made. In view of the future publication of a comprehensive review of the literature on the subject and in consideration of the purpose of this report, only the first points of the 'systematic literature review method'[31] have been introduced into the research so far (Fig. 3).

Fig. 3. Graphic representation of 'systematic literature review method' (Petticrew and Roberts 2006).

The research questions that guide our bibliographic research arise directly from the Final Action Plan and, in particular, from the objectives' analysis of Action 9: *Are there any studies and analysis on the subject at the intersection of our three elements? What exactly do they concern? How do they address climate change through culture/heritage culture in the urban context? Can any geographic areas be identified that present specific*

[30] Urban Agenda for the EU2016

[31] Petticrew and Roberts 2006.

trends or disciplinary approaches? How are publications distributed in chronological terms? Is it possible to identify gaps and future research needs? All these questions serve to outline the current state-of-the-art on the subject, helpful in analysing the feasibility of setting up an "Observatory on Culture/Cultural Heritage and climate change in the urban framework" and selecting studies or publications from which to draw the categories and keywords for the construction of the knowledge base.

To answer these questions, it was essential to define three concepts related to our research context (see paragraph "Definition of the research context"). The starting definitions were already provided to us by the Final Action Plans of the Partnership on Culture/Cultural Heritage[32]. As mentioned in the previous paragraph, for the definition of "culture/cultural heritage" a very inclusive interpretation of the term was adopted, including tangible and intangible aspects[33]. As for the intersection between cultural heritage and urban context, the research takes a cue from the ICOMOS Washington Charter[34] and from the UNESCO Recommendations[35]. To select relevant literature, the research was conducted searching for the three keywords in titles, keywords and abstracts.

The bibliographic research has shown that the coexistence of all these three elements cannot be taken for granted. For example, numerous publications deal with the impact of climate change on historic buildings without considering the urban context or deal with urban issues and climate crises with no mention of culture/cultural heritage. Since March 2021, around 220 titles have been collected (papers, books, reports, conference papers, magazine articles, radio and video interviews, and web pages) produced in the last 20 years, between 2001 and 2021. All the documents have been filed and – whenever possible – uploaded using Zotero, a tool that help organizing the bibliography according to different issues (date, author, type of document, keywords, etc.). The collection can be

[32] Final Action Plan 2018.

[33] Longworth 2014: «Cultural patrimony manifests in two ways: there is tangible heritage, such as monuments, museums, historic cities, archaeological sites and cultural landscapes; and there is intangible heritage or cultural expressions, such as traditional knowledge, practices, skills and crafts».

[34] ICOMOS, Charter for the Conservation of Historic Towns and Urban Areas (Washington Charter 1987), October 1987 [Hereinafter, ICOMOS 1987]: «All urban communities, whether they have developed gradually over time or have been created deliberately, are an expression of the diversity of societies throughout history. This charter concerns historic urban areas, large and small, including cities, towns and historic centres or quarters, together with their natural and man-made environments. Beyond their role as historical documents, these areas embody the values of traditional urban cultures».

[35] UNESCO, Recommendation on the Historic Urban Landscape, 2011 [Hereinafter, UNESCO 2011]: «The historic urban landscape is the urban area understood as the result of a historic layering of cultural and natural values and attributes, extending beyond the notion of "historic centre" or "ensemble" to include the broader urban context and its geographical setting. This wider context includes notably the site's topography, geomorphology, hydrology and natural features, its built environment, both historic and contemporary, its infrastructures above and below ground, its open spaces and gardens, its land use patterns and spatial organization, perceptions and visual relationships, as well as all other elements of the urban structure. It also includes social and cultural practices and values, economic processes and the intangible dimensions of heritage as related to diversity and identity».

consulted online through the Zotero web open access platform[36]. The results we gathered from 220 publications were almost all written in English (202 out of 220), and the research was addressed by different disciplinary sectors, including anthropology, social science, humanities, law, museology, physical science, chemistry, monument restoration, psychology, education, urban planning, archaeology excavations, contemporary arts, etc. The bibliographic research has also shown that scholarly interest has increased over time. As presented in Fig. 4, interest in the subject grew over the past five years: 117 out of the 220 publications have been published over the past three years. It is important to add that the research focuses on open access formats. What matters for our project is that among 222 publications, only 63 present the combination of three key elements for our research (moreover, not always immediately identifiable).

These 63 items represent the 29% of all considered documents (Fig. 5). Among the publications that present the combination of all three elements, we find above all articles written as a sort of final report of major international projects such as "Climate for Culture"[37] or "CLICK- Circular models Leveraging Investments in Cultural heritage adaptive reuse"[38]. Other publications that include all three elements fall into the category of studies on the historical urban environment's vulnerability and resilience, aiming at prevention, monitoring, risk assessment, cultural heritage conservation and the search for adaptation solutions such as some publications by Cristina Sabbioni, Alessandra Bonazza, May Cassar and others[39]. Studies at the intersection of cultural heritage and climate change date back to the Nineties[40], and -as pointed out by Scott Allan Orr[41] - there has been increasingly more considerable scholarly interest in this field: a recent article by Scott Alan Orr, Jenny Richards and Sandra Fatorić presents a systematic literature review on climate change and cultural heritage considering 165 publications assessed in the field since 2015 and up to 2020. These few considerations give an idea of the imbalance between the importance given to our three elements in the scientific world. It is important to clarify that the urban dimension is the most frequently missing element in connection with the two other aspects.

[36] <https://www.zotero.org/groups/4398095/urban_agenda_2030/library>

[37] Leissner *et al*. 2018.

[38] Acri, Dobričić, Debevec 2021.

[39] Bonazza 2020; Bonazza 2018; Cassar 2005; Della Torre 2010; Lelieveld *et al*. 2012; Lefèvre, Sabbioni 2018; Lefèvre 2018; Russo Tagliente, Della Giovampaola 2020; Sabbioni, Cassar, Brimblecombe 2009; Sabbioni, Lefèvre 2018; Sabbioni 2020; Sabbioni *et al*. 2020, Vitti 2019;

[40] Rowland 1992; Rowland 1999. The studies of M.J. Roland are not considered in the present research as they concern the Australian context.

[41] Orr, Richards, Fatorić 2021.

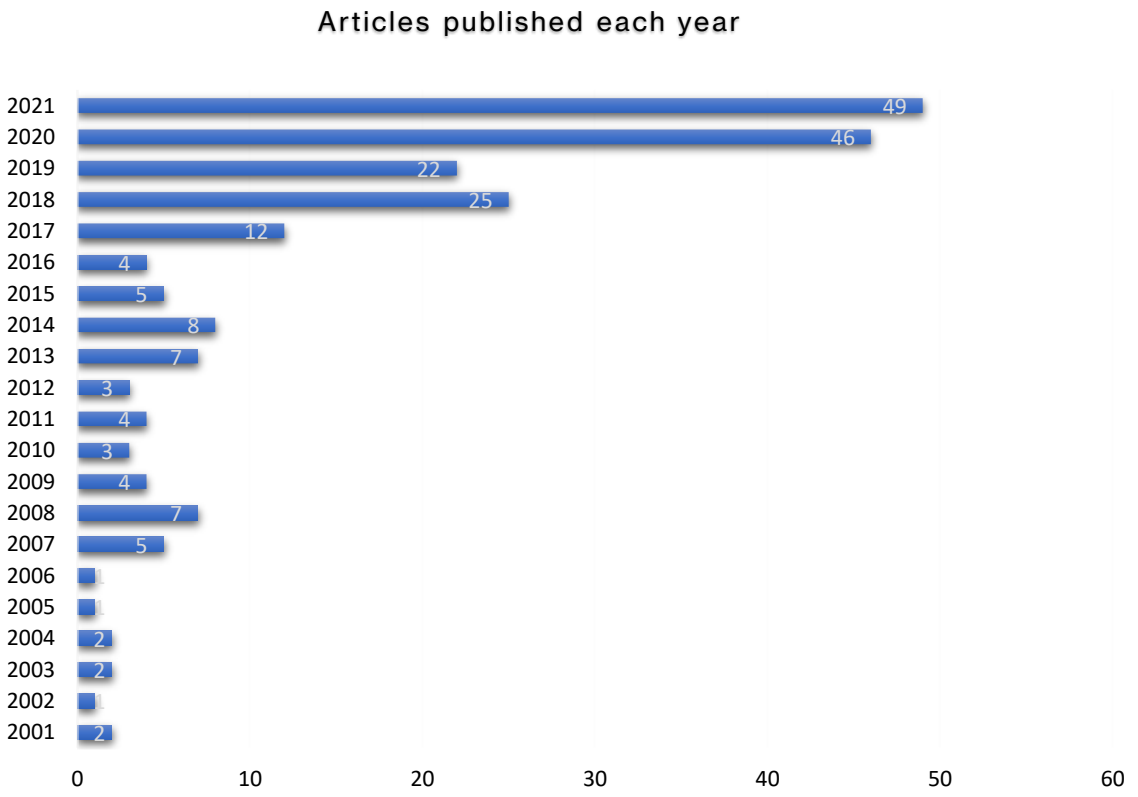

Fig. 4. Articles published each year

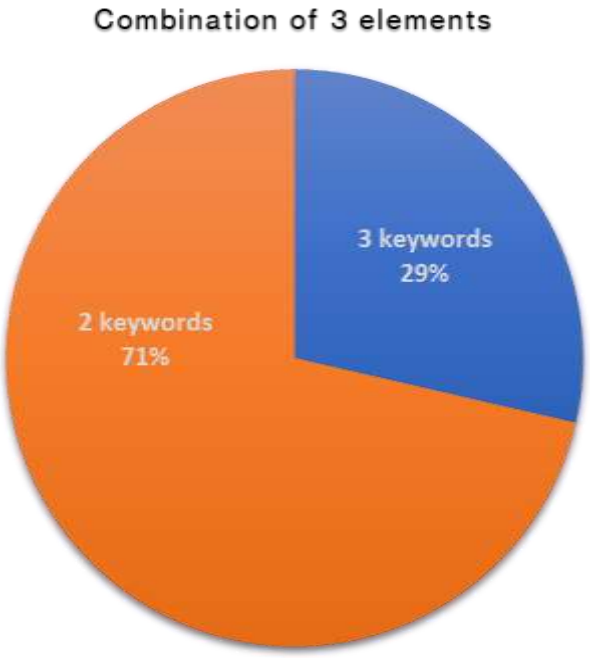

Fig. 5. Combination of three elements

Wanting to answer the question posed in the Introduction of the ICOMOS Report "The Future of Our Pasts", «if one were to draw a box labelled 'Places where climate change and cultural heritage interact' - what would be in it?»[42], our first answer would undoubtedly be the city. Although cities are exposed to the same climate conditions as their surroundings, such as suburbs or rural areas, many scholars underline that low soil permeability, high concentration of productive activities, gentrification, higher population densities, rapid urbanization, smog, overcrowding, etc., are some of the drivers which can amplify the adverse effects of climate events on the urban environment and cause even more significant impact than in the rural context[43]. The big problem of urban areas is the 'urban heat island': cities are well known to be hotter than rural areas that surround them[44] and, as pointed out by many scholars, the frequency of heat waves (HWs) is likely to increase over most land areas in the next years[45]. According to the IPCC 2014 Climate Report, average global temperatures are estimated to increase between 0.3°C and 0.7°C before 2035 and by 2°C before 2100[46]. Recent UN environment programme projections are even more alarming because they indicate that global warming could rise 3.2°C by 2100, higher than the limit of 2°C set by the Paris Agreement[47]. As Dr Daniele Violetti pointed out during the UNFCCC informal hearing in front of the Commission for Public Education and Cultural Heritage of the Senate of the Italian Republic, the latest data confirm that 2020 concludes the earth's warmest 10-year period[48]. In the scientific field, it is well known that rising temperatures are the leading climate hazard for urban areas. The global warming consequences (such as sea-level rise, an increasing frequency and intensity of natural hazards such as storms, heat waves and other extreme events) put the cities, especially the coastal ones, at high risk[49].

Some of the world's greatest cities could be underwater by the end of the 21st century if action to protect them is not taken quickly. The IPCC forecasts that by the end of this century, sea levels could be as much as 1.1 meters higher than they are today, and severe flooding events will become a regular occurrence in low-lying cities[50]. In addition, the increased frequency of high precipitation in some regions will trigger floods and

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[42] ICOMOS 2019, p. 5.

[43] IPCC Climate Change 2014; Quesada-Ganuza *et al.* 2021, p. 3; Pinto 2014.

[44] Li, Bou-Zeid 2013, p. 2051.

[45] Kotharkar, Ghosh 2021; Solomon *et al.* 2007.

[46] IPCC, Climate Change 2014.

[47] UN environment program, Emissions Gap Report 2019. Global progress report on climate action, 2019 <https://www.unep.org/interactive/emissions-gap-report/2019/> [Hereinafter, Emissions Gap Report 2019].

[48] Audizione del Direttore della Divisione Mezzi di attuazione del Programma UNFCCC - United Nations Framework Convention on Climate Change, Daniele Violetti sull'affare assegnato n. 808 (impatto dei cambiamenti climatici sui beni culturali e sul paesaggio) 27 luglio 2021 <https://webtv.senato.it/webtv_comm?video_evento=224501>.

[49] Quesada-Ganuza *et al.* 2021.

[50] IPCC, Climate Change 2014.

landslides[51]. As the specialists hypothesize, a 'chain situation' could significantly affect urban areas. First, precipitations and floods may increase the number and intensity of powerful hurricanes. Consequently, sea-level rise, coupled with coastal storms, could increase the storm surge and river flooding impacts. Finally, higher temperatures may cause glacial lake outbursts that may flood many historic settlements located downstream[52]. If these trends continue, many disaster scenarios will continue to unfold, causing unprecedented and irreversible damage to urban heritage. As underscored by the ICCROM International Centre for the Study of the Preservation and Restoration of Cultural Property previsions, the consequence will be «an existential threat to several major cities across the globe». Due to high-intensity rainfall, increased instances of urban flooding have been reported in recent decades in nearly every part of the world and have significantly impacted historic cities like Venice in Italy"[53]. According to the UNESCO recommendation on Historic Urban Landscapes (HUL), urban conservation policies urgently require «the definition and implementation of a new generation of public policies identifying and protecting the historic layering and balance of cultural and natural values in urban environment"[54]. Even though HUL was published ten years ago, the recommendation is still valid and is a sort of 'unfinished business' of urban and cultural policies.

However, despite the high level of scholarly interest in climate change risks on socioeconomic, urban, and natural eco-systems, studies that assess climate change impacts on urban cultural heritage and that contribute to a holistic understanding of culture and climate change in the urban context present noticeable gaps in knowledge[55]. More recently, the subject and the literature have been reviewed by Quesada-Ganuza *et al.*[56] on the occasion of their studies on the methodologies on vulnerability and risk assessment for cultural heritage in a changing climate, aiming to bring risk assessment methodologies closer to urban planners. In their article entitled "Do we know how urban heritage is being endangered by climate change?", the scholars pointed out that «cities are complex systems formed by several layers[57]. Within them, cultural heritage represents an essential layer, with historic urban areas or centres assuming special importance, due to their relevance as the main source of cultural capital[58], and characteristic sense of place»[59]. The article represents an important analysis and synthesis of a wide range of

[51] ICCROM, Building the Climate Resilience of Urban Heritage, <https://www.iccrom.org/news/building-climate-resilience-urban-heritage>, 8 January 2020. [Hereinafter, ICCROM 2020].
[52] Quesada-Ganuza *et al.* 2021.
[53] ICCROM 2020.
[54] UNESCO 2011.
[55] Quesada-Ganuza *et al.* 2021, p. 1.
[56] Quesada-Ganuza *et al.* 2021.
[57] Kong, Karimi 2019.
[58] Long, Smith 2010.
[59] Brabec, Chilton 2015; Longworth 2014.

research on climate change risk assessment for historic urban areas and urban cultural heritage resilience. Still, it does not include broader challenges and opportunities at the intersection of culture/cultural heritage and climate change, such as adaptation solutions and the role of culture/cultural heritage in enabling Climate Action[60]. As Scott Alan Orr, Jenny Richards and Sandra Fatorić state, «these topics are increasingly gaining traction in the heritage sector»[61] (for example, activities of Climate Heritage Networks that brings together over 200 actors in a «voluntary, mutual support network of arts, culture and heritage organizations» within their Call for Climate Heritage Mobilization).

As one of the more relevant contributions that holistically deal with Climate Action, the special issue of *Museum Management and Curatorship* is worth mentioning, as it focuses on museums and Climate Action. As the authors state in the introduction, «the voices that come together bring perspectives from large museums and small – and from agencies that work alongside museums – as they confront the many challenges inherent in new, more activist roles. Despite varied backgrounds and specializations, contributors express the common conviction that museums have important roles to play in this crisis [...]»[62]. During our research, we also came across publications that have addressed urban climate action from the perspective of the creative industries and contemporary arts[63]. However, we have not found yet publications that leveraged culture to change the behavioural patterns of people in the urban environment. We have not come across any publications on the narration of awareness-raising experiences or on creating a community of practice.

Nevertheless, we would like to bring to the readers' attention the literature on this subject in the museology field[64]. According to the authors of the article "Toward an Ecology of Cultural Heritage", cultural heritage is pivotal in the process of developing a sustainable relationship between people and their environment, strengthening the sense of belonging and the sense of place[65]. This interpretation of the issue is close to the SDGs Goals' understanding of cultural heritage; the issue of cultural heritage seen as an essential resource for sustainable urban development is also modestly present among the studied publications[66]. Among the most interesting texts, noteworthy are Henry McGhie's guides that propose a 'human rights-based approach' applied to museums, a «planning method to help people attain their basic rights through museums»[67]. According to him, climate action has focused too often on changing people behaviour, but it should be about

[60] Potts 2020.

[61] Orr, Richards, Fatorić 2021, p. 435.

[62] Newell 2020; Davis 2020.

[63] Abrahams, Gellatly, Johnson 2016; Obrist, Stasinopoulos 2021; Scotini 2019.

[64] McGhie 2020a; McGhie 2019; Rota 2019.

[65] Brabec, Chilton 2015.

[66] Stanojev, Gustafsson 2021; Shirvani Dastgerdi *et al.* 2020.

[67] McGhie 2020b.

creating an enabling environment and looking for a rights-based approach. As he makes it evident in his texts, «climate change, and climate action, are closely linked to many human rights. Museums can help people understand and claim these rights»[68]. The right, in this sense, embodies the right to participate, access and contribute to cultural life, which goes far beyond the idea of cultural heritage preservation.

Last but not least, in recent time (and, in particular, in the last three years), an increasing number of reports and the work plans of such heritage institutions and associations as UNESCO, Europa Nostra and ICOMOS can be reported[69]. These reports, characterized by a very practical and operational approach, have become a point of reference for the structuring of the subsequent phases of our project. Regarding heritage management and policy, they are addressed not only to the scientific and academic domain but also to local authorities, heritage practitioners and ordinary people.

The 2019 ICOMOS report "The Future of Our Pasts" and the Europa Nostra-ICOMOS report "European Cultural Heritage Green Paper"[70] provided us with tools for choosing the 30 keywords that guided the structuring of the mapping and of the subsequent database (Paragraph "Research Object Classification: Categories and Keywords"). "The Future of Our Pasts" is not a scholarly research documents of professional guide, but rather a tentative «roadmap for heritage organizations to engage on climate change issues that support the creation of a new doctrinal heritage text on climate change and cultural heritage»[71]. Moreover, it tries to reach out to the scientific community on research gaps and opportunities. On the other hand, the Green Paper is a concrete response to the European Green Deal. It proposes to consider and encompass culture and cultural heritage in the action against climate change, also raising awareness to mobilize the cultural heritage community for effective climate action. Since the Green Deal states, «all EU actions and policies will have to contribute to the European Green Deal objectives»[72], the Green Paper leverages the idea that cultural heritage must be considered.

To summarize, the bibliographical research demonstrates that scholarly and professional interest in the topic has recently increased and has continued to engage scholars from a broad disciplines' range. Furthermore, it is interesting to note that the authors rarely cite research from other disciplines in multidisciplinary publications. This relatively low citation rate of papers might be due to the wide range of academic fields and publication sources that deal with the subject, but it somehow seems to indicate a lack of dialogue. As regards the typology of cultural heritage in urban context, the vast majority of scholars

[68] McGhie 2021.

[69] UNESCO has recently published several reports (UNESCO 2007) and policy documents addressing the impacts of climate change on World Heritage Sites (UNESCO 2008; UNESCO 2021). Moreover, it is worth mentioning: ICOMOS 2019.

[70] ICOMOS 2019.

[71] ICOMOS 2019.

[72] European Green Deal 2019.

limit the cases to "built heritage". Moreover, the climate change impacts on intangible heritage have rarely been the research's unique focus. Finally, an interesting observation is that Nordic countries have introduced a new conceptual framework in the last two years, i.e., 'adaptive release'[73]. The adaptive release «reflects a decision to accommodate the dynamic transformation of a heritage asset and its associated values and significance, with reference to wider settings»[74]. In this context, they propose three new topics to discuss – «the inevitability of loss; the politics of loss; and the potential in loss»[75]. These themes may have significant implications not only for the future of cultural heritage preservation, conservation[76] but also in mapping out future research directions for heritage studies and cultural heritage management[77].

Three examples of existing databases on the topic

The first step for the creation of the "Culture/Cultural Heritage and Climate Change Knowledge Base" was the analysis of the existing online databases and platforms on the same topics in order to pinpoint all the functional features and to avoid replicating already existing tools. As a result, many online platforms, databases and websites collecting projects, policies and best practices related to climate change, cultural heritage and cities have been identified on the web: even if none of them deals with the three elements together (culture/cultural heritage, climate change, urban context), they all have interesting features that have been analysed to plan the construction of the new database.

Here is a list of the platforms that we have analysed[78]:

- UNESCO Designated Sites: A Climate Change Observatory https://en.unesco.org/events/unesco-designated-sites-climate-change-observatory
- Climate-ADAPT: Sharing Adaptation Information Across Europe https://climate-adapt.eea.europa.eu/
- The Database of Signatories to the Covenant of Mayors on Climate and Energy - Europe https://www.covenantofmayors.eu/plans-and-actions/action-plans.html
- EU Task Force for Climate Neutral and Resilient Historic Urban District

[73] DeSilvey *et al.* 2021; DeSilvey, Harrison 2020; DeSilvey 2014; Harvey, Perry 2015.

[74] DeSilvey *et al.* 2021.

[75] Simonet, Fatorić 2016.

[76] Venture *et al.* 2021; DeSilvey *et al.* 2021.

[77] DeSilvey, Harrison 2020, p. 5.

[78] All the platform/databases listed below have been also used to collect information on the topic, in order to create the background and to implement the new database.

https://savingculturalheritage.eu/events?c=search&uid=TYPYF6Dh

- The CDP cities and regions data
  https://data.cdp.net
- Clic Platform – Knowledge and Information Hub
  https://clicplatform.eu/
- Agenda 21
  https://obs.agenda21culture.net/en/home-grid
- CITY2CITY
  https://www.ovpm.org/collaborative-space/city2city/
- European Interoperable Database (ResCult Project)
  https://www.rescult-project.eu/european-interoperable-database/
- Heritage Research Hub
  https://www.heritageresearch-hub.eu/

Among the above-mentioned examples, "Climate Adapt", "The Database of Signatories to the Covenant of Mayors" and "Heritage Research Hub" have been considered of particular relevance for our task. In fact, each of them has some features that have been taken into account for the construction of our knowledge base, in terms of structure and usability, of the graphic design of the tool, of collected content.

Climate -ADAPT

The European Climate Adaptation Platform "Climate-ADAPT" is the result of a partnership between the European Commission and the European Environment Agency (EEA) and is maintained by the EEA with the support of the European Topic Centre on Climate Change Impacts, Vulnerability and Adaptation (ETC/CCA).

Climate-ADAPT aims to support Europe in adapting to climate change, helping users to access and share data and information on: expected climate change in Europe; current and future vulnerability of regions and sectors; EU, national and transnational adaptation strategies and actions; adaptation case studies and potential adaptation options; tools that support adaptation planning[79].

Climate-ADAPT provides a lot of information about EU Policy (EU Adaptation Policy in different sectors: Agriculture, Biodiversity, Coastal areas, Forestry, Water management, Marine and fisheries, Ecosystem-based Approaches, Disaster Risk Reduction, Buildings, Energy, Transport, Health, Urban; EU Regional Policy), and networks and gives access to the European Climate and Health Observatory. At the same time, it also provides other kind of information on the topic such as data indicators, projects, tools, practices.

[79] Description taken from the platform web site <https://climate-adapt.eea.europa.eu/>.

The platform includes a database containing rich information on the aforementioned topics, organised in these categories: adaptation options; case studies; guidance; indicators; information portals; videos; organisations; publications and reports; research and knowledge projects; tools.

Usability: the database is easy to search; it is possible to do free text searches or, within each category, to use filters to refine the research.

Graphic design: search results are presented in an extremely clear form. For each query a list of records is produced and, for each record, a form where all the most important elements are highlighted (e.g., description, leader, partner, etc.); keywords connected to that record can be visualised on the same form.

Content: the tool is not focused on cultural heritage nor on urban context. It contains information about cultural heritage and the urban context, but they are spread all over the database and filters have to be applied to see the connection between climate change and cultural heritage.

Covenant of Mayors

The Covenant of Mayors is the world's largest movement for local climate and energy actions. It was launched in 2008 in Europe with the ambition to gather local governments voluntarily committed to achieving and exceeding the EU climate and energy targets. Not only did the initiative introduce a first-of-its-kind bottom-up approach to energy and climate action, but its success quickly went beyond expectations: the initiative now gathers 9.000+ local and regional authorities across 57 countries drawing on the strengths of a worldwide multi-stakeholder movement and the technical and methodological support offered by dedicated offices. Signatory cities pledge action to support the implementation of the EU 55% greenhouse gas-reduction target by 2030 and the adoption of a joint approach to tackling mitigation and adaptation to climate change. In order to translate their political commitment into practical measures and projects, Covenant signatories commit to submitting, within two years following the date of the local council decision, a Sustainable Energy and Climate Action Plan (SECAP) outlining the key actions they plan to undertake[80].

The website contains several information about the Covenant, about the ways to join the Covenant and about news and events on the topic. Furthermore, a section of the website is structured as a database collecting action plans, progress made by each city and good practices.

[80] Description taken from the initiative website: < https://www.covenantofmayors.eu/en/>.

Usability: the database is structured in three independent sheets (Action plans, Progresses and Good Practices). The tool is easy to use and, within each sheet, it gives the possibility to search the database by countries and/or dates.

Graphic design: the design is clear and allows the user to get a lot of information. For each selected country, it provides the list of cities whose action plan has been collected in the database and then, for each city it shows a box containing information about the city, a short description of the Action Plan and of the Strategy, and the links to the original documents.

Content: the tool provides a focus on urban context and especially on policies linked to Climate Adaptation in cities. It is useful to quickly retrieving cities' Action Plans and Strategies, but it does not show whether cultural heritage is considered in the same Action Plans.

Heritage Research Hub

"Heritage Research Hub" is one of the few platforms specifically devoted to cultural heritage and intended for the cultural heritage community.

It has been created and is managed by the Joint Programming Initiative on Cultural Heritage (JPI CH) and it has the following aims: to provide information about JPI CH and its initiatives; to create an online space where everyone who works in or with cultural heritage-related research can share and search for different contents, including events, funding and training opportunities or open vacancies; to inform about the cultural heritage research general framework by introducing the heritage research policies, the various stakeholders involved, or research projects; to collect and display online resources on and for heritage research.

The Heritage Research Hub Portal also allows users to create and share various type of contents (news, events, documents, funding or training opportunities and open vacancies), contributing to making the hub an ever-growing place[81].

Usability: it looks more like a website collecting information than as a searchable database. From the home page, it is possible to reach information about the Research Hub, as well as make queries on funding, institutions, projects, strategies and policies but these topics are not interconnected. Once the user gets into each page, the system allows him to search the database easily, applying several filters for each category.

Graphic design: the result of the selection by filters is extremely clear, showing an isolated box for each result (identified by the title) whether they are projects, institutions

[81] Information taken from the platform web site: <https://www.heritageresearch-hub.eu/>.

or policies. Each box can be selected taking users into another page showing all the relevant information about the project.

Content: this platform is focused on cultural heritage and all the items it collects are linked to cultural heritage. However, there is not a focus on the connection between cultural heritage and climate change, neither between cultural heritage and urban context.

Time and territorial boundaries of the research

As regards to the time boundaries, the database collects items produced since 2015 until the very present. The year 2015 was chosen because it is the year of the launch of the Paris Agreement that marked a turning point in international climate discussions (see paragraph "The Paris Agreement"). Moreover, as highlighted by Andrew Potts in his consultancy report, "the Paris Agreement remains the indispensable multilateral policy framework for tackling climate change, the causes and effects of climate change, and it represents a global consensus on how to combat climate change and to accelerate and intensify climate action"[82]. However, even if this time limit was set, some policies and programmes prior to 2015 have been collected since they have been considered of the utmost importance. For the projects collected, instead, this limit is much stricter: projects prior to 2015 have been taken into consideration only when they have been concluded after this date or they are still ongoing.

As for the territorial boundaries instead, since the project of the knowledge base was born within the Urban Agenda for the EU, the focus has been set on the European Union: projects, policies and programmes outside the European Union were not taken into consideration apart from those cases in which they included non-European Countries together with European Countries. United Kingdom instead - not a member of the European Union today - was taken into consideration because it has been a great player in the culture/cultural heritage and climate change context in the last decade and because it has been part of the European Union until the beginning of 2020.

[82] Potts 2021b, p. 4.

\\\\The Data Collection

As mentioned in paragraph "Definition of the research context", Action 9 of the Partnership on Culture/Cultural Heritage has been involved, among other activities, in the creation of a database collecting knowledge on topics at the intersection between culture/cultural heritage, climate change and the urban context. In particular, the construction of the knowledge base matches with *Activity 1 - Mapping policies and collecting knowledge* and *Activity 2 - "Mapping actors and building the network"* of the Action Plan (see paragraph "The Action 9" for a detailed description of all the activities of Action 9).

Activity 1 provides to identify and collect:

1. Policies addressing hazards, threats and vulnerabilities of tangible and intangible cultural heritage in relation to climate change and natural disasters.
2. Policy areas potentially benefitting from contributions by arts and culture and cultural heritage in order to successfully address transformative policies, climate change and climate adaptation.
3. Regulations at the EU and national levels, including the energy efficiency of historical buildings and climate adaptation of the built heritage.
4. Collecting outcomes of main EU and other projects and studies addressing climate change and arts/culture/heritage challenges
5. Existing recommendations and guidelines at the EU and national level and good practice instances
6. Main citizen science projects, as well as community of practice initiatives, aimed at monitoring and managing climate change impacts on urban cultural heritage.
7. Main art initiatives in the field of climate change, aimed at raising awareness, inspiring behavioural engagement and societal change, inducing reflections, developing visions and the imaginary for possible futures.

Activity 2 aims at identifying, in view of potentially establishing a network:

1. Main actors in the field at the global, European and national levels;
2. Main competence centres, ongoing studies and projects addressing culture/cultural heritage and climate change.

Moreover, the Action Plan stresses that «the mapping should be multi-disciplinary, have rich systemic interactions in the policy and regulatory framework and address areas where culture and cultural heritage are not yet properly considered»[83].

[83] Final Action Plan 2018.

These considerations guided data collection and the construction of the knowledge base. The scenario to be mapped is very complex and diverse, including a wide range of different items to be collected and analysed: we chose to reduce the indications derived from the Action Plan in 4 categories which are Policies, Programmes, Projects and Actors dealing with culture/cultural heritage, climate change and the urban context. All collected items were classified in these four categories.

In this framework, it is worth noticing that "urban context" refers not only to cities (big cities, metropolises), but also to villages and to villages on the coast, our selection for the database however does not include any entry relating exclusively with natural surrounding: for example projects dealing only with coastal natural heritage (i.e., cliffs and reefs) have not been considered in the database, but projects dealing with coastal cultural heritage (i.e., small cities and villages on the coast) have (e.g., CHERISH Project - Climate, Heritage *and Environments of Reefs, Islands, and Headlands; Adapt Northern Heritage Project).*

Moreover, some projects and policies dealing with climate change and the urban context have been catalogued in the database even if they do not refer specifically to cultural heritage: projects and policies dealing with cities indirectly but necessarily regard also cultural assets that belong to them (e.g., SEM Project - Smart Energy Master; the Territorial Agenda of the European Union 2020 -Towards an Inclusive, Smart and Sustainable Europe of Diverse Regions). Likewise, some policies not directly dealing with culture (e.g., the UNFCCC) have been included in the knowledge base, as they are extremely influential documents in the context of climate change and have effects on the culture/cultural heritage domain.

Finally, building the knowledge base, a particular attention was given to cities' Climate Adaptation Plans and to their interest in culture/cultural heritage, since the inclusion of culture/cultural heritage in Climate Adaptation Plans cannot be given for granted, as suggested by the Final Action Plan.

The data collection started from the study of the already existing database (see paragraph "Three examples of existing databases on the topic") and publications and from the analysis of projects and institutions working in the field. The research field is very active, and new projects, conferences, actors or activities emerge every day: it should be stressed that, for this reason, the data collected in the database directly reflect the moment in which the database is published (January 2022). However, the tool is configured with an implementable solution, therefore new data can be added in the future.

Identification of mapped objects

Policies

Following the indications given by the Action Plan, the first class we have identified is "Policies". Into this class fall any set of ideas, indications, or actions officially agreed at the national, regional, EU or global level addressing threats and vulnerabilities of tangible and intangible heritage in relation to climate change and natural disaster, or addressing any contribution by art and culture against climate change[84]. In this context, policies are considered strategic directions provided by governing bodies, public sector organizations and groups[85].

In this class fall policies, resolutions, declarations, directives, conventions and pacts produced by public government bodies[86], but also guidelines, recommendations, agendas, charts, manifestos.

These documents are strategic indications provided by different kinds of institutions that could and should be followed by other actors operating in the field. Not only documents released by public or governing bodies such as the EU Commission or the Ministries are included, but also by private bodies such as associations or private museums (e.g., the "Charter for the responsible retrofitting of historic buildings" by CREBA - Centre pour la Réhabilitation du Bâti Ancien).

For the same reason, also reports published by research institutions have been collected (e.g., "Climate change risk assessment" by Historic Environment Scotland[87]; "The Future of Our Pasts" by ICOMOS[88]; the Report "The Role of Culture in Climate Resilient Development" by the Climate Heritage Network[89]), as well as Green Books or White Books released by cultural institutions (e.g., the "Theatre Green Book", a three volumes book

[84] This class collects the items listed in the Activity 1 (1a,1b,1e) of the Action Plan.

[85] At the first stage of the research, alongside the class "policies", also the class "regulations" had been identified. This class should have collected «Rules (legally or not legally binding) deriving from legislations and stipulations at a higher level, applied at a national/regional/municipal level, typically drafted by subject-matter experts and influenced by policies undertaken at a European level» (corresponding to Activity 1c). However, during the development of the research, we have decided not to include this class in the database due to the impossibility to retrieve rules referring specifically to the three elements at the base of the research context (culture/cultural heritage, climate change, urban context). We have identified several regulations for the mitigation of climate change impacts in the urban context, but only very few of them deal directly with cultural heritage (regulations about energy efficiency or retrofitting in buildings in the historical centres). The majority of them were local plans and regulations aimed at containing CO2 emission, but they did not concern cultural heritage nor historical buildings. Regulations found during the research have been however stored and are available for other projects or for the prosecution of this one.

[86] In this case, it was not considered useful to strictly limit the research to European documents, because resolutions by United Nations or other international organizations are relevant also for the European Union.

[87] Historic Environment Scotland 2018.

[88] ICOMOS 2019.

[89] Potts 2021c.

released by the Association of British Theatre Technicians & Theatre's Trust setting standards for making theatres and theatre productions sustainable).

Finally, the Policies' class includes also Local/Regional/National Adaptation or Strategy Plans. The Action Plan, in fact, has given great attention to European cities and their climate adaptation plans, highlighting the concrete risk that «cultural heritage values might get lost in the 'greenefication process'» and assuming that «a main focus will be on the challenges of the implementation in the local planning context, of integrated climate adaptation plans respectful of cultural heritage, tangible and intangible»[90]. Looking for Adaptation Plans, the research started analysing cities involved in projects on the topic (e.g., cities involved in the Pocityf project), or cities taking part to conferences on the topic (conferences like "Celebrating the 10th Anniversary of the 2011 UNESCO Historic Urban Landscape Recommendation" or the "Kick-off Session: EU Task Force for Climate Neutral and Resilient Historic Urban Districts"). Starting from this point, we then traced the city to the nation, trying to frame at a national level what had been identified at a local level.

Given the variety of documents collected under this class, queries in this section of the database can be made both by applying the "type of document" or the "institution" filter, where the first represents the typology of document (e.g., Agreement, Convention, Declaration, Green Book, Adaptation Plan, ...) and the second the entity which released the document.

Programmes

Within the "Programmes" class fall all financial instruments supporting researches and projects on cultural heritage and climate change in the urban context.

Most of the programmes in this context have been released by the European Commission. Its activity, in fact, has been decisive in the last decade in bringing attention to climate change and in driving research towards projects targeting the effects of climate change. Moreover, a major impulse has been registered since 2015 (year of the Paris Agreement) thanks to programmes such as Horizon, Interreg and URBACT. However, it should be stressed that these programmes are often very wide in scope and domain and it is not always easy to understand how and where they refer to culture/cultural heritage[91].

Still, we have collected not only EU programmes, but also funding programmes provided by other public or private institutions, like Julie's Bicycle, a no-profit association that

[90] Final Action Plan 2018, p. 96. On the contrary, A. Potts has stated that, in his opinion, more often there are synergies between heritage safeguarding and climate action, rather that tensions (Potts 2021b).

[91] This aspect has also been stressed by some of the people interviewed during the project, within the Action 9's activities.

confers the Creative Green Awards to recognise and honour the achievements of the creative community taking action against climate change.

To collect programmes, we started from those that financed research projects in cultural heritage and climate change in the past. Many of the funding programmes identified as the original sources of this programming are still open or have been replicated for a new cycle.

Projects

The third identified class is "Projects" and it collects projects and experiences aiming at monitoring and managing climate change impacts on urban cultural heritage, as well as art initiatives in the field of climate change stimulating reflections on possible futures[92]; as stressed in the Action Plan, «their contribution is vital as they address the emotional and perceptive aspects preceding and accompanying cognitive accessibility, thus potentially causing community mobilization»[93].

In this context, "Projects" are intended as specific, concrete actions carried out by partnerships and often (but not exclusively) born after applying for a EU program. Projects are usually but not always funded, are linked to one or more specific sites, and have a lead partner and a fixed duration.

Actors

The last identified class is "Actors": it includes any private or public institution, group, network, foundation, community active in the sector under investigation, with agency and who has performed relevant actions[94].

Actors from the research field and from advanced education institution (universities, research institutes, European networks working on climate change and cultural heritage), local administrations acting as leaders of projects in the field (municipality offices and departments), associations, foundations, groups of activists are all included in this class, as well as museums, theatres and private companies working in technologies.

[92] This class collects therefore the items listed in Activity 1 (1d,1f,1g) of the Action Plan.

[93] Final Action Plan 2018, p. 98. Among the art initiatives, we have decided not to classify temporary exhibitions or single performances by artists. This decision was taken not because they do not fit in this class but because, given the timeframe in which the mapping work had to be completed, it was not possible to map also this kind of projects. The initiatives of this kind that have been found during the research have been collected outside the database and we hope it will be possible to add them to the database in the future.

[94] This class collects therefore the items listed in Activity 2 (2a, 2b).

Research Object Classification: *Categories and Keywords*

In order to better organise the classified content, every item has been assigned a category and it has been characterised by one or more keywords.

Categories

Four categories were used to classify items in the database: High Ambition, Mitigation, Adaptation, Loss & Damage; they were derived from "The Future of Our Pasts: Engaging Cultural Heritage in Climate Action", a report released in 2019 by ICOMOS[95]. Part I of that report outlines the need for a positive, policy-based vision of the role of cultural heritage in responding to climate change and achieving the ambitions of the Paris Agreement, in order to discuss heritage using the logic and vocabulary of climate action and climate science. In this section, the report synthesized and condensed the contents of the Paris Agreement into four majors 'divisions,' finalised to emphasise correlations with cultural heritage (Fig. 6):

1. High Ambition;
2. Greenhouse gas (GHG) Mitigation;
3. Adaptation;
4. Loss and Damage.

The input to look at this report to define the categories in which to classify the knowledge base came from Andrew Potts' contribution, as Andrew Potts maintains that the Observatory should not adopt a framework derived from cultural heritage policy (i.e., organised by heritage typologies), but a framework derived from climate action policy (in particular from the structure of the Paris Agreement), then adapted to culture and cultural heritage:

> *Adopting for the Observatory a framework derived from climate policy would emphasize how culture and cultural heritage fit into climate change frameworks, including the European Green Deal. It would make the information more accessible to operators from climate, land use and other sectors and would emphasise to cultural operators how their work fit into climate action. The 2015 Paris Agreement remains the indispensable multilateral policy framework for tackling climate change and utilising a climate policy framework derived from the Paris Agreement would emphasise coherence between the Observatory and other climate change related knowledge and policy systems, many of which are also correlated to the Paris Agreement.*[96]

[95] ICOMOS 2019.

[96] Potts 2021b, p. 4.

In order to readily adapt the structure of the Paris Agreement into a framework for the Observatory, he suggested to look at the 'The Future of Our Pasts: Engaging Cultural Heritage in Climate Action' report.

Therefore "The Future of Our Past" was adopted by our research team as the guiding framework for the organisation of knowledge we would collect, as this would have facilitated a «positive vision of the role of cultural heritage in responding to causes and effects of climate change, by mapping the core considerations and competencies of cultural heritage to the major sectors of climate action»[97].

Thus, all the Policies, Programs and Projects collected in the database were assigned to the four categories taken from "The Future of Our Past"; categories could not be used to usefully classify Actors, as Actors are often multidisciplinary and active in several fields, they are or local/regional authorities and their activities affect several aspects of citizens' lives.

Moreover, while for Policies and Programmes only one category was assigned to each item, being them very specific, the case of Projects was different. The class "Project", in fact, is the most complex, rich and diverse: in several cases, we were not able to assign only one category to the project selected, but it was necessary to assign it to more categories, since projects often have more than one goal or purpose.

Talking specifically about projects, we can list which kind of project falls within each category, according to our classification.

High ambition: projects willing to raise awareness in climate change and culture/cultural heritage and to bring a change in the cultural behaviour or in the development model, thus acting against climate change.

Mitigation: projects aiming at reducing CO2 emissions and global temperature; projects of urban regeneration and retrofitting fall within this category.

Adaptation: projects looking for innovative and technological solutions to measure the impact of climate change, to strengthen resilience and to reduce vulnerability to climate change.

Loss and Damage: this is the less represented category among the projects and it is also the more complex. We have highlighted the importance of this topic in the Paris Agreement (par. 1.1), which recognized for the first time that it is impossible to adapt to all effects of climate change. Only a few projects in the database belong to this category: they aim at understanding the impact of climate-change-driven heritage loss on local communities (e.g., CHICC; Learning From Loss: Transformation In The Historic Environment In The Face of Climate Change) or aim at establishing a driven

[97] Potts 2021b, p. 4.

interdisciplinary capacity for the safeguard of cultural heritage in emergency (ProCultHer - Protecting Cultural Heritage from the Consequences of Disasters; ProteCHt2save).

Outline Report (The Future of our Past)	Paris Agreement Concordance
High Ambition	Finance, technology and capacity-building support (Paris Agreement Articles 9, 10 and 11): International cooperation on climate-safe technology development and transfer, and building capacity in the developing world are strengthened; a technology framework is established and capacity-building activities will be strengthened. Climate change education, training, public awareness, public participation and public access to information (Article 12) is to be enhanced.
Mitigation	Long-term temperature goal (Article 2): Reaffirms the goal of limiting global temperature increase to well below 2 degrees Celsius, while pursuing efforts to limit the increase to 1.5 degrees Celsius. Global peaking and Climate Neutrality (Article 4): Parties aim to reach global peaking of Greenhouse Gases (GHGs) as soon as possible, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of GHGs in the second half of the century. Developed countries to undertake absolute economy-wide reduction targets, while developing countries should continue enhancing their mitigation efforts Sinks and reservoirs (Article 5): Encourages Parties to conserve and enhance, as appropriate, sinks and reservoirs of GHGs, including forests.

Adaptation	Adaptation (Article 7): Establishes a global goal on adaptation of enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change in the context of the temperature goal of the Agreement. It aims to significantly strengthen national adaptation efforts, including through support and international cooperation.
Loss and Damage	Loss and damage (Article 8): Recognize the importance of averting, minimizing and addressing loss and damage associated with the adverse effects of climate change, including extreme weather events and slow onset events, and the role of sustainable development in reducing the risk of loss and damage. Parties are to enhance understanding, action and support with respect to loss and damage.

Fig. 6. Concordance between the division in "The Future of our Past" (left) and the Paris Agreement statements (right)

Keywords

A set of keywords has been defined to tag classified Policies, Program and Projects, in order to characterize them and to allow users to search the database using keywords (for the functioning of the database, see the following paragraph “The knowledge base structure”).

The list of keywords was built alongside the research, starting from the three aspects of the research context (culture/cultural heritage, climate change and urban context) and then isolating keywords from each analysed sector (the urban mobility, the energy cycle, climate impacts, climate action, cultural heritage prevention, etc.). The list was prepared trying not to replicate the same concept and, at the same time, trying to give back the variety of objects composing this field. In the end, we were able to build a list of 37 keywords (Fig. 7) Once the set of keywords was defined, keywords were assigned to each item collected in the database (up to a maximum of 10 keywords for each entry). An exception was made for Municipalities, catalogued as “Actors”, for which we have decided not to apply keywords: Municipalities, in several cases leader or partner in relevant projects in the field, are in fact very well-known institution with different scopes and many articulations.

List of Keywords used in the Database		
Advocacy	Green Energy	Risk Management
Arts for Climate	Green Economy	Smart Cities
Built Environment	Intangible Heritage	Solar Energy
Circular Economy	Landscape	Technologies
City Farming	Mobility	Tourism
Cultural Activities	Monitoring of Climate Impacts	Traditional Practices
Cycle Path	Movable Heritage	Training
Data Collection	Networking	Urban Green Spaces
Digital Transformation	Prevention	Urban Planning
Dissemination	Protection	Walkability
Education	Renewable Energy	Water Resources
Engagement	Research&Innovation	
Evacuation Plans	Retrofitting	

Fig. 7. List of keywords used in the database (in alphabetical order).

The knowledge base structure

Data were collected and organised into a structured knowledge base, accessible online on the Fondazione Scuola beni e attività culturali's web site, on the web page dedicated to the Urban Agenda for the EU[98].

Within each class, for each item catalogued, we have collected the data indicated below:

Policies	Programmes	Projects	Actors
Policy title	Programme title	Project title	Name
Country	Institution	Parent Project	Parent Organization
Institution	Description	Description	Headquarter
Document type	Date	Goals	Territorial Scope
Date	Financed Projects	Time Duration	Project
Description	Website	Country	Legal Status
Web site	Category	Leader Institution	Description
Document	Keywords	Intervention Place	Web Site
Category		Partners	Contact
Keywords		Funding Programme	Keywords
		Other Fundings	
		Web Site	
		Link to documents	
		Category	
		Keywords	

Here, a short description of each field in each Class:

POLICIES	
Field	Description

[98] The knowledge base is accessible at the following link: <https://www.fondazionescuolapatrimonio.it/innovazione-e-sperimentazione/the-culture-cultural-heritage-and-climate-change-knowledge-base/>

Policy title	Title of the policy
Country	Country in which the policy is applied
Institution	The institution who released the policy
Document type	Definition of the type of policy: agreement, pact, recommendation, strategy, etc.
Date	Date in which the policy was released
Description	Description of the content of the policy, its goals and its domain of application
Web site	Web site describing the policy (web site of the institution that released the policy or, when not available, web site providing news about the policy)
Document	Direct link to the pdf document published online
Category	Category assigned to the policy (one of the following: High Ambition, Adaptation, Mitigation, Loss & Damage)
Keywords	Keyword/keywords assigned to the policy in the list of possible keywords

PROGRAMMES	
Field	Description
Programme title	Title of the programme
Institution	The institution financing the programme
Description	Description of the content of the programme, its goals and its applications
Date	Duration of the programme
Financed Projects	List of projects financed through this programme
Website	Link to the web page describing the policy (web site of the institution that has released the policy or, when not available, web site providing news about the policy)
Category	Category assigned to the policy (one of the following: High Ambition, Adaptation, Mitigation, Loss & Damage)
Keywords	Keyword/keywords assigned to the policy in the list of possible keywords

PROJECTS	
Field	Description
Project title	Title of the project
Parent Project	It is the wider project from which the analysed project was born. Some projects are very wide and include different sub-projects or pilot actions applied to different test sites
Description	Description of the content of the project and its results (if the project is concluded)
Goals	Description of the main goals and aims of the project
Time Duration	Starting and ending date of the project Some projects were still ongoing at the moment in which we have catalogued them: if known, the end date is indicated; if not known, the ending date is indicated by "ongoing"
Country	Country/Countries in which the project is developed
Intervention Place	Countries/Regions/Sites in which the project is tested. They are usually called "Pilot sites"
Leader Institution	The institution leading the project. It might be a research centre, an association, a university or any public or private institution
Partners	It includes all the actors who were engaged as partners in the project, as they are listed in the projects' websites
Funding Programme	The Programme which funded the project. Not all the projects have been funded by "programmes"
Other Fundings	Funding which are different from "Programmes". They might be National/Regional/Local funding or private funding. Projects sometimes were funded both by Funding Programmes and other funding, sometimes by only one of them. In a few cases, it was not possible to identify the source of funding
Web site	Web site of the project, if there is a dedicated website, or web site providing information about the project
Link to documents	Direct link to pdf documents produced by the project as outputs (reports, questionnaires, publications, etc.) or to the web page giving access to the documents. Some of the outputs of the projects are not accessible without permission.

Category	Category assigned to the project (one or more among High Ambition, Adaptation, Mitigation, Loss & Damage)
Keywords	Keyword/keywords assigned to the policy in the list of possible keywords

ACTORS	
Field	Description
Name	Name of the institution active in the field
Parent Organization	The wider organization (if any) from which the analysed actor depends
Headquarters	Location of the headquarters of the organization
Territorial scope	The geographical area in which the analysed institution is active
Project	Project/Projects led by the actor or in which the actor takes/has taken part as a partner
Legal Status	Indication of the typology of the actor (NGO, Foundation, University Department, etc.)
Description	Description of the analysed actor, of its role and scopes
Web site	Official website of the institution
Contact	Contact of the institution, when available on the web site (email, address, phone numbers, people's reference)
Keywords	Keyword/keywords assigned to the policy in the list of possible keywords

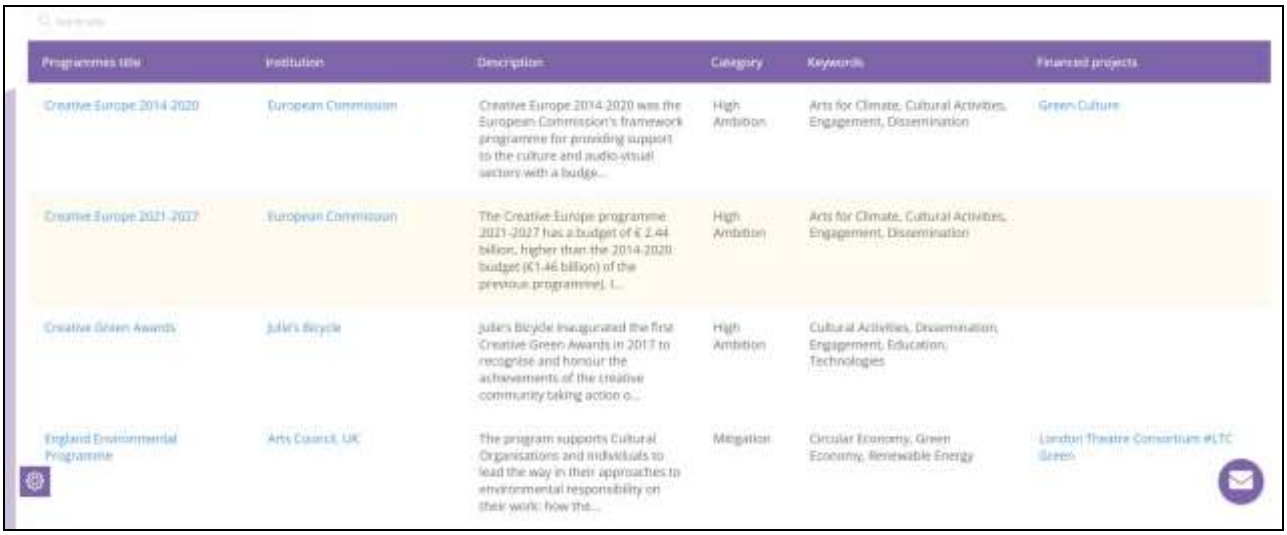
Information about each class and each field were usually taken from the web site of the catalogued item or from available literature. In a few cases, when we were not able to reach all the information, we have directly asked the people involved.

The data collected have been organised into a relational database made of 4 tables ("Policies", "Programmes", "Projects" and "Actors": one for each class), published on the Fondazione's web site[99]. For each table, the main page shows the list of records collected and the most important information related to that record. Therefore, the kind of information visible on the main page is different in each table (Figs. 8-11).

[99] The database has been realised with the open technology MySql Maria DBset, on the Wordpress platform and with the WPDataTable plugin.

Policy title	Institution	Category	Description	Keywords
Words into Action guidelines: Developing National Disaster Risk Reduction Strategies	UNDRR - United Nations Office for Disaster Risk Reduction	Adaptation	The Words into Action (WiA) guidelines are designed to provide practical guidance on disaster risk reduction topics, supporting countries in developm...	Risk Management, Prevention, Protection, Monitoring of Climate Impacts
2021 KIEL STATEMENT ON ARCHAEOLOGY AND CLIMATE CHANGE	EAA CCH - European Association of Archaeologists, community for Climate Change and Heritage	Adaptation	The document states that archaeologists should take a more active role in contributing to the current climate change debate. The EAA is encouraging Me...	Cultural Activities, Dissemination, Engagement, Intangible Heritage, Traditional Practices
A New European Agenda for Culture - SWD	EU Commission	High Ambition	The New Agenda explains how the European Commission will support the EU Member States in tapping into culture's potential to foster innovation, creati...	Cultural Activities, Built Environment, Arts for Climate, Dissemination, Engagement, Research&Innovation, Education, Protection, Technologies
A practical guide to Climate-resilient buildings & communities	United Nation Environment Program	Adaptation	The report demonstrates how buildings and community spaces can be constructed to increase their resilience to climate change, especially in developing...	Built Environment, Green Energy, Renewable Energy, Retrofitting, Traditional Practices
ction Plan on the Sendai Framework for Disaster Risk Reduction 2015-2030	EU Commission	Loss&Damage	On 17 June 2016, the European Commission published an Action Plan on the Sendai Framework. Covering a five-year	Risk Management

Fig. 8. Table “Policies”, main page.



Programmes title	Institution	Description	Category	Keywords	Financed projects
Creative Europe 2014-2020	European Commission	Creative Europe 2014-2020 was the European Commission's framework programme for providing support to the culture and audio-visual sectors with a budge...	High Ambition	Arts for Climate, Cultural Activities, Engagement, Dissemination	Green Culture
Creative Europe 2021-2027	European Commission	The Creative Europe programme 2021-2027 has a budget of € 2.44 billion, higher than the 2014-2020 budget (€1.46 billion) of the previous programme). I...	High Ambition	Arts for Climate, Cultural Activities, Engagement, Dissemination	
Creative Green Awards	Julie's Bicycle	Julie's Bicycle inaugurated the first Creative Green Awards in 2017 to recognise and honour the achievements of the creative community taking action o...	High Ambition	Cultural Activities, Dissemination, Engagement, Education, Technologies	
England Environmental Programme	Arts Council, UK	The program supports Cultural Organisations and individuals to lead the way in their approaches to environmental responsibility on their work: how the...	Mitigation	Circular Economy, Green Economy, Renewable Energy	London Theatre Consortium #LTC Green

Fig. 9. Table “Programmes”, main page.

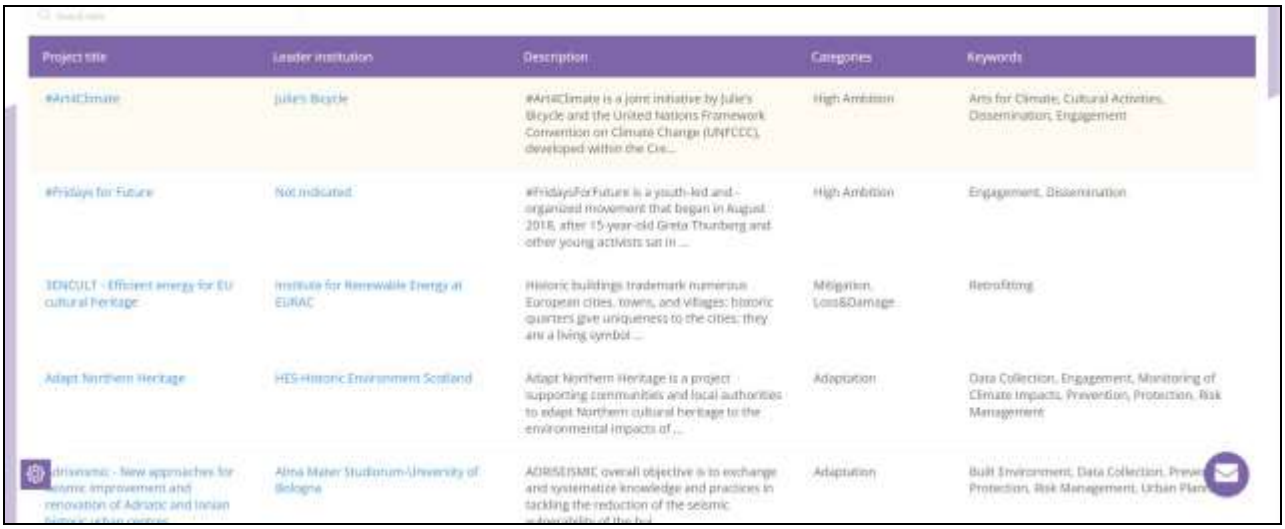


Fig. 10. Table “Projects” main page

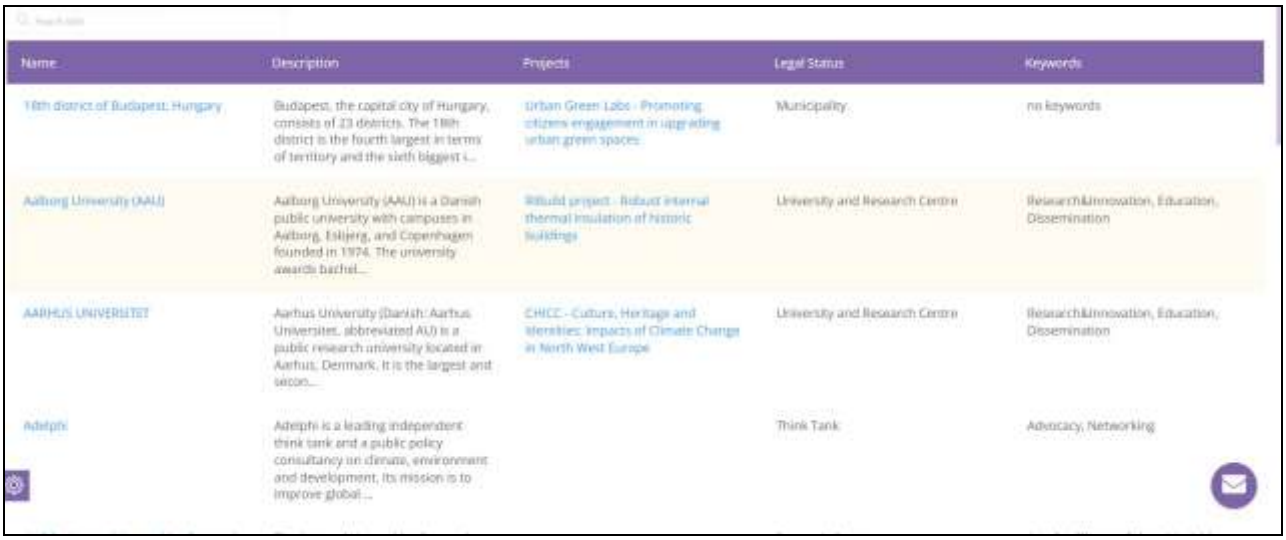


Fig. 11. Table "Actors", main page.

To reach the full information collected for each item, it is possible to click on the title/name of the item in the first column (characterised by a Hyperlink): the system will bring you into a ‘Detail sheet’ showing all the collected information[100]. The detail sheet will be opened on a new page so that it will be possible in the meanwhile to continue browsing the main table (Fig. 12).

[100] Some of the information collected, such as Actors' contacts, have not been shown neither in the mail table nor in the "Details sheet" but are still part of the knowledge base collection.

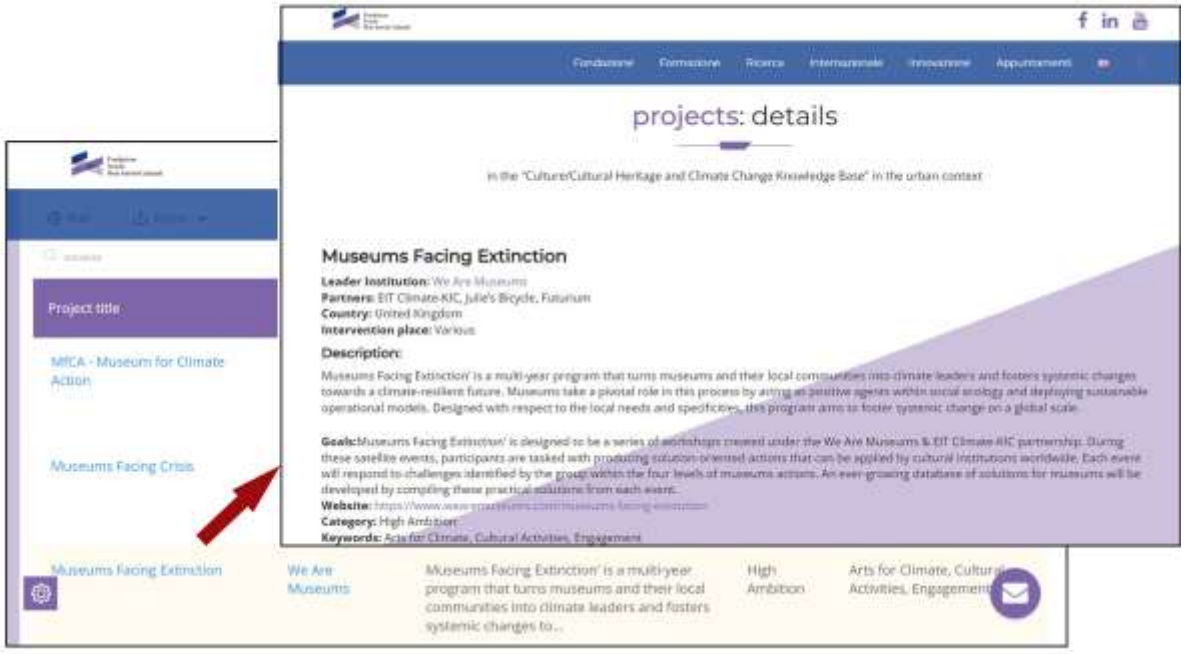


Fig. 12. Table "Project": example of the detailed sheet, accessed from the main page.

It is worth noting that some of the data collected in one table relate to the information registered in another table (Fig. 13). Therefore, some relations between the four tables have been created:

a. **Table "Policies"**

   it is as stand-alone table, no relations with other tables have been created

b. **Table "Programmes" – Table "Actors"**

   In the table "Programmes" the field *Institution* contains the name of the institution that has released the programme. The same institution is described in one of the records of the table "Actors", and its name appears in this table, in the field *Name*.

   The relation is in both directions: "Programmes to Actors" (many to one) and "Actors to Programmes" (one to many).

c. **Table "Projects" – "Table Actors"**

   1. In the **table "Projects"**, the field *Leader Institution* contains the name of the institution leading the project. The same institution is described in one of the records of the table "Actors" and its name appears in this table, in the field *Name*.

      The relation is in both directions: "Projects to Actors" (many to one) and "Actors to Projects" (one to many).

   2. In the **table "Project"**, the field *Project Title* contains the name of the catalogued project which is described in that record. The same name appears in the table

"Actors" in the field *Project*, where it shows the project or projects led by that actor.

The relation is in both directions: "Projects to Actors" (many to one) and "Actors to Projects" (one to many)

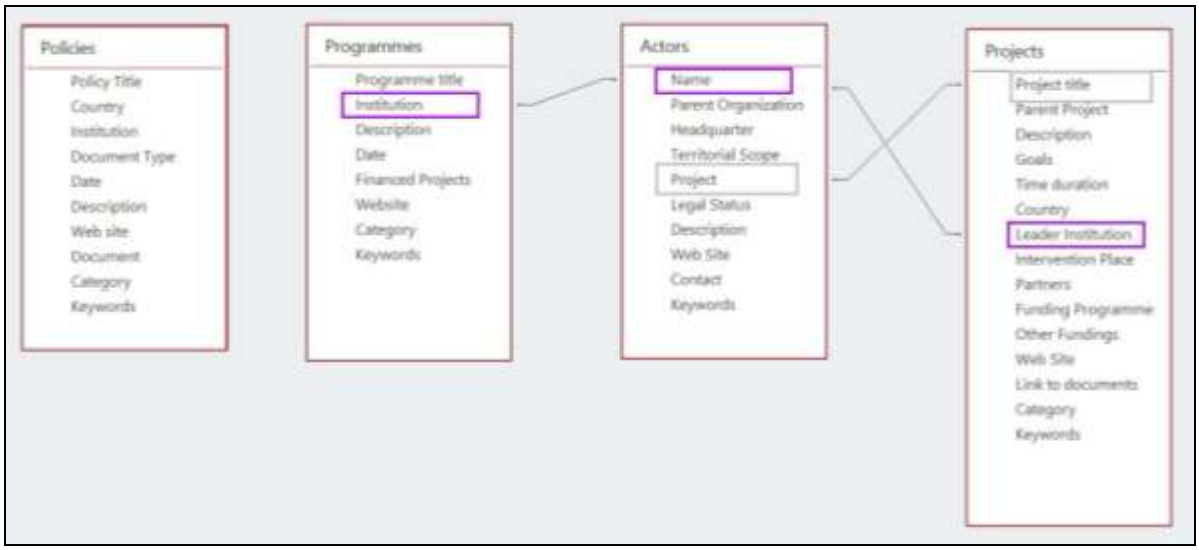


Fig. 13. Relations existing between the tables.

Thanks to these relations created in the knowledge base and between tables, whenever there is a link between the data collected in two different tables, it is possible to switch from one table to the other. For example, while looking at the record "Museum Facing Extinction" in the table "Projects", it is possible not only to open the detailed sheet of the project (Fig. 12), but also to click on the name of the Project Leader "We are Museums" and to open the detail sheet of the Project Leader, which is none other than one of the items collected in the table "Actors" (Fig. 14). In the same way, looking at the table "Programmes", it is possible to click on one of the "Financed Project" in a specific record and to visualize, in another page, the detailed sheet of that Programme. Links between tables function not only from the tables, but also from the detailed page.

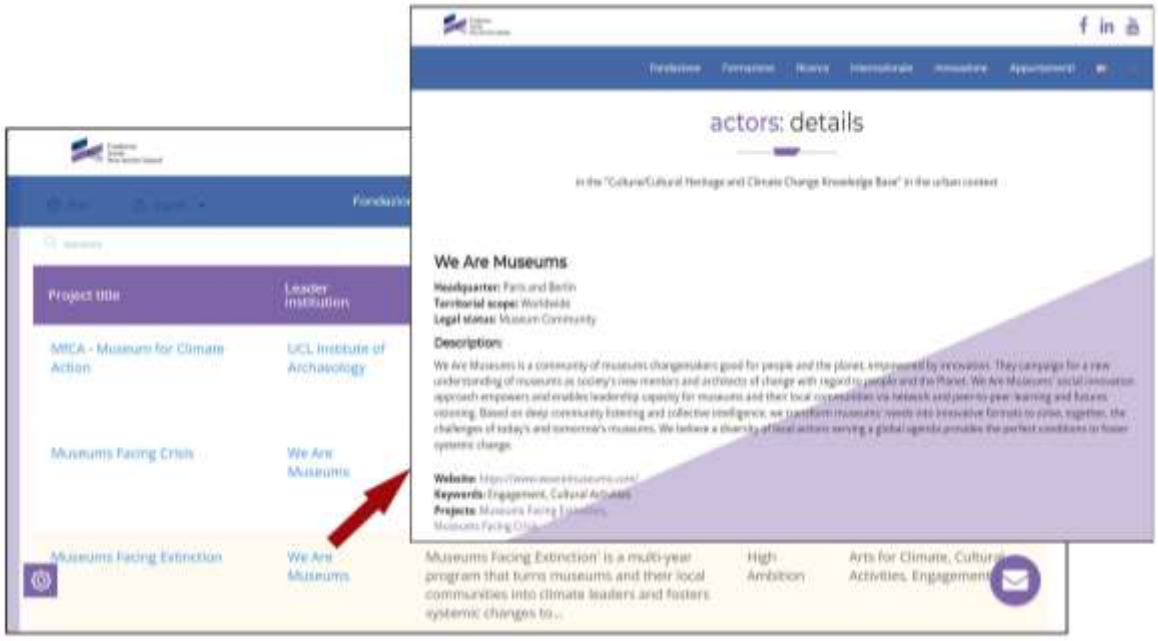


Fig. 14. Table "Project": link to the detailed sheet of the Leader Institution (Table "Actors").

***

In each table, it is possible to search for information in different ways:

1. It is possible to browse the tables and to look for data: when landing on the main page from the Fondazione's web page, records are automatically ordered in increasing alphabetical order than can be changed in decreasing alphabetical order. Moreover, it is possible to switch from one table to the other one either through internal links or by opening the tables one by one.
2. In each table, in the upper part of the table, it is possible to apply filters to one or more fields. Some fields can be filtered through a "free search" in the box (e.g., *Policy Title, Programme Title*), while other fields can be filtered selecting a value from the drop-down menu provided (e.g., *Document Type* or *Keywords* in the Table "Policies"). Results will be then shown in the lower part of the page.
3. In each table, it is possible to make a completely "free search": writing one or more words, the system will look for that word/words in each record and in each field of the table. Results will be then shown in the lower part of the page[101].
4. Each table can be exported, through the button "Export", into an excel file.

[101] The "free search" is limited to each sheet: it is not possible to search the whole knowledge base in the same moment, but only table by table.

Database numbers' analysis

"Culture/ Cultural Heritage and Climate Change Knowledge Base" in the mapping period from March to December 2021 collected 600 records (Fig. 15). It is an open and implementable database, with the ambition to grow over time. Almost 50% of the records relate to the actors and a third of the records relate to the projects (Fig. 16).

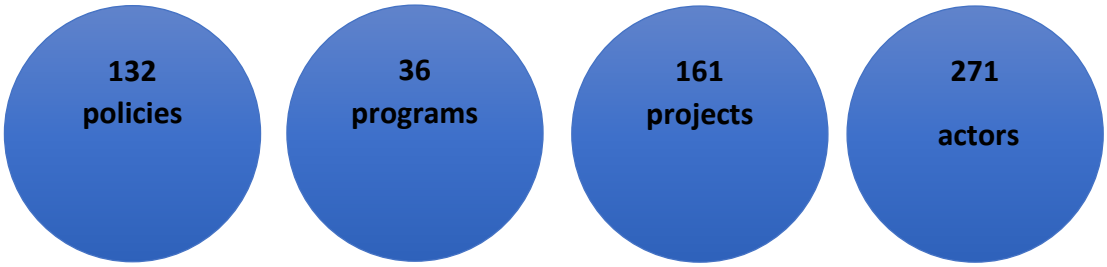


Fig. 15. Distribution of the items recorded among the classes

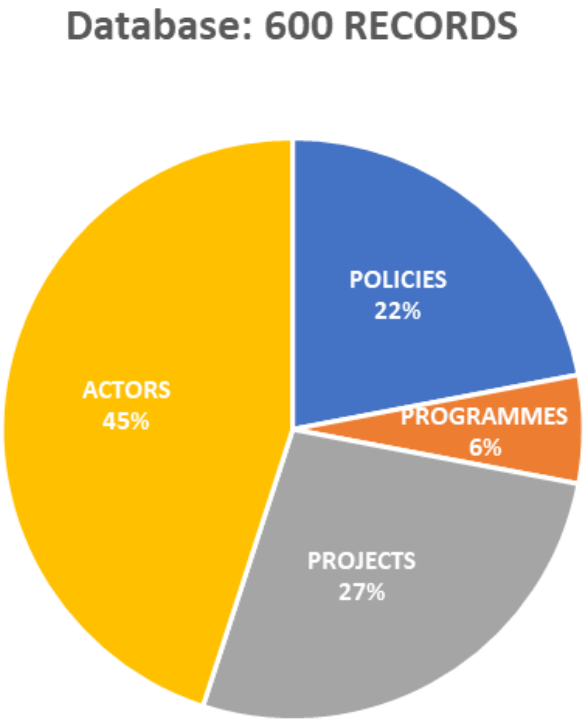


Fig. 16. Distribution of the items collected among the classes (%).

With regard to policies, we can observe that the vast majority of policies are issued centrally (by the United Nations or the European Commission). Among the most active

countries from the point of view of policies we can list: United Kingdom, Italy, Scotland, Netherlands, Spain, Sweden and Germany.

As for the categories, the one concerning adaptive measures and solutions, i.e., "Adaptation" found more interest, while the least noticeable category is the one relating to Loss & Damage (Fig. 17). As shown in Fig. 18, there are no projects in the category "Loss & Damage" and, generally, this category is underrepresented in the whole knowledge base. It should be emphasized that it is a complex and sensitive subject that requires careful consideration to be addressed. This situation might have different reasons and could relate to the difficulties in defining this category in the cultural sphere, its application in the cultural planning process, and its prioritization with respect to other life domains. However, the question also touches on various legal aspects, and this lack of formal definition could be seen as one of the causes why our research found a limited availability of funding for Loss & Damage in the cultural sphere[102].

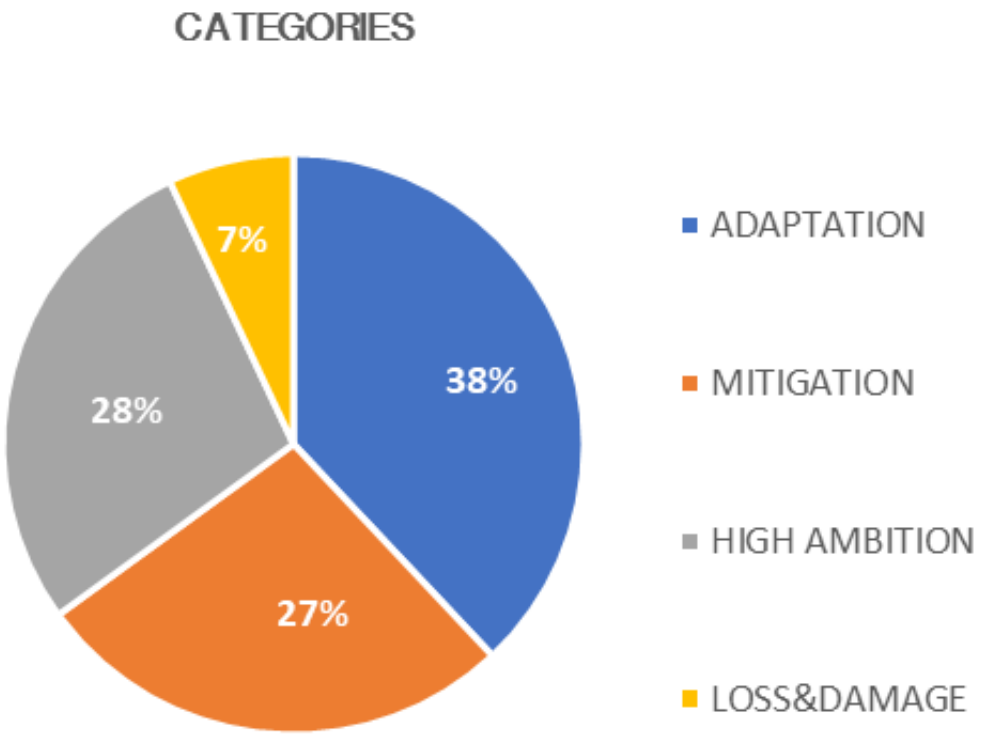


Fig. 17. Distribution of the categories in the Knowledge Base (%).

[102] The situation is alarming: COP26, in which high hopes were placed, ended with no concrete measure to provide funding for the damage caused by the impacts of climate change. As Nicola Sturgeon, the first minister of Scotland, mentioned at the beginning of COP26, «finance is key to this - not as an act of charity but as an act of reparation» (Harjeet 2021).

CATEGORIES' DISTRIBUTION					
CATEGORY	POLICIES	PROGRAMMES	PROJECTS	ACTORS	TOT.
ADAPTATION	63	18	50	-	131
MITIGATION	33	11	51	-	95
HIGH AMBITION	28	7	58	-	93
LOSS & DAMAGE	8	0	17	-	25

Fig. 18. Distribution of the categories in the four classes of the Knowledge Base.

The analysis of the records in the database revealed the most recurring themes thanks to identifying the ten keywords most present in the database. Therefore, the issues on which the projects, programs, and policies focus are topics such as involvement, dissemination, research & innovation, green energy, cultural activities, built heritage, conservation, education, risk management, and monitoring of climate impacts (Fig. 19). Involvement, dissemination, research & innovation are the keywords that affect the largest number of projects, programs and policies. It's interesting to note that these refer to complex concepts with results that are often intangible and measurable only in the long-medium term.

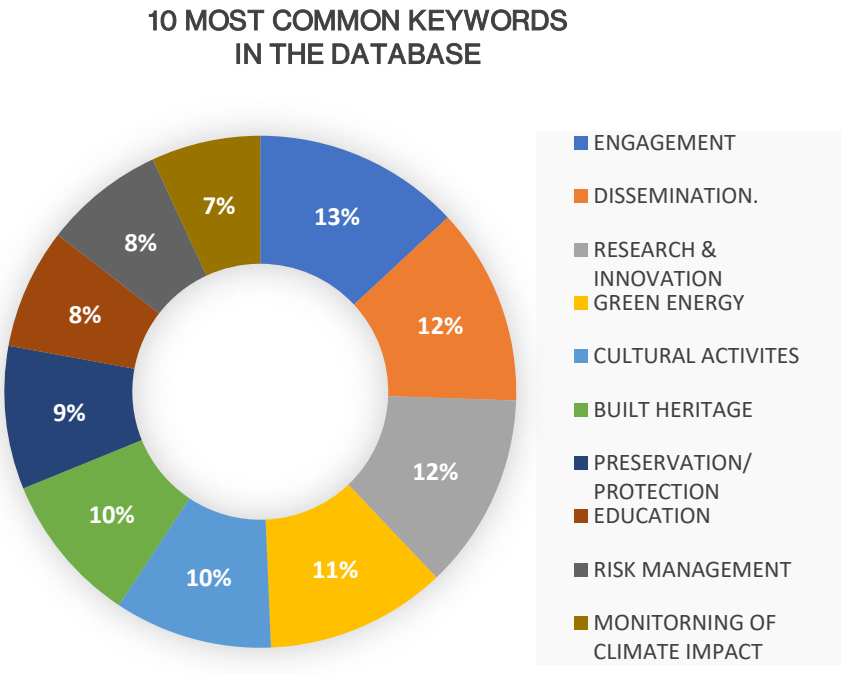


Fig. 19. The 10 most present keywords in the Knowledge Base.

KEYWORDS'S DISTRIBUTION					
KEYWORDS	POLICIES	PROGRAMMES	PROJECTS	ACTOR	TOT.
ENGAGEMENT	37	10	66	52	165
DISSEMINATION	21	7	49	80	157
RESEARCH & INNOVATION	14	13	22	107	156
GREEN ENERGY	63	9	32	39	143
CULTURAL ACTIVITES	20	6	40	61	127
BUILT HERITAGE	45	5	42	27	119
PRESERVATION/ PROTECTION	42	8	34	29	113
EDUCATION	13	4	40	41	98
RISK MANAGEMENT	33	6	38	17	94
MONITORNING OF CLIMATE IMPACT	29	4	37	17	87

Fig. 20. Keywords distribution among the classes (in bold, the highest presence, according to the class)

Analysing the database results, we perceived a certain tendence to plan action aiming to influence policy makers. The engagement of the whole community seems to be a lesser sought after goal, while, on the other hand we could not detect but few bottom-up initiatives, although it may well be that the tools we used were not the best ones for finding out such projects.

Another transversal theme that emerged relates to the sustainability of European projects. During the mapping, we found numerous projects that were carried out thanks to European funding and eventually run out of funds. The same problem is shown by the many inactive platforms and now outdated databases. Analysing the funded projects, it appears sometimes challenging to pin down the outputs of many projects and to detect their long-term impacts.

Any individual or organisation is very welcome to use our databases and access quantities of data deriving from multiple sources, for research purposes, for policy making, or a repository of applied practices.

\\\\ Issues emerged during the interviews with key players

After trying to map what has been written and experimented in this field, it was jointly decided to deepen the understating of this field through interviews with some of the key players in the sector. The interview phase, carried out mainly between July and October 2021, involved 38 respondents from 32 different institutions (Fig. 21), working on the topic from different points of view and coming from diverse disciplinary backgrounds. 28 interviews were carried out via Google Meet and Zoom platforms. Only four interviews were sent to us via e-mail without a “live” contact. In addition to questions concerning the feasibility and structure of the Observatory, the interviews raised more general topics concerning culture/cultural heritage and climate change in the EU urban context.

Interviewee	Academic background / Profession	Reference project / Institution
Stefania Manca	Graduated in Natural Sciences with a highly specialized training course in Information Systems Expert for the Territory and the Environment / Municipal official (Municipality of Genoa, Italy)	Climate adaptation partnership of the Urban Agenda, Municipality of Genova
Kinga Kovacs	Master in "Management - Leadership and Organization" and in "Commerce and Marketing" / Project Manager	Energy-Cities, HUB-IN Project, T-Factor Project
Giustino Piccolo	Civil Engineer, Degree in "Civil Engineering for sustainable development" / Project Manager	
Egusquiza Ortega Aitziber	Architect and Urban Planner / Senior Researcher in TECNALIA	TECNALIA, SHELTER Project
Patricia Alberth	Economist and heritage professional, Master in “World Heritage Studies” and in “International Bussiness”, World Heritage expert / Municipal official (Municipality of Bamberg, Germany)	URBAN GARDENING - Intangible Cultural Heritage in Bamberg
Peter Coles	Freelance writer, translator, editor and photographer	Morus Londinium, Goldsmiths, University of London, Urban Tree Festival
Henry A. McGhie	Museum Consultant, Museologist, Zoologist, Master in Arts / Consultant	Museums for Climate Action, Curating tomorrow

Stefano della Torre	Architect / Professor in Monument Restoration (Politecnico di Milano, Italy)	CHANGES Projects, Politecnico di Milano
Alessandro Bollo	Economist, culture manager / Director at the Fondazione Polo del '900	Fondazione Polo del '900
Carsten Hermann	Conservative Architect, Restoration Specialist / Public official at HES	Historic Environment Scotland
An Li Yap	Architect / Project manager and architectural engineer	Extensa Group, Gare Maritime Project
Daniele Spizzichino	Civil and environmental engineer /Researcher	ISPRA AMBIENTE, PROTHEGO, IdroGEO
Johanna Leissner	Chemist active in the field of the protection of cultural heritage /Researcher, Project Manager and Scientific Representative	Fraunhofer-Gesellschaft
Stelios Zeferos	Architect / Coordinator of the Master "Protection of Cultural Heritage and Monuments of Nature from the Effects of Climate Change"	Hellenic Open University
Tor Brostrom	Engineer, Building Conservator and Monument Restoration Specialist / Professor in Conservation	Uppsala University
Lena Hartog	Sociologist, Activist, Organizer / Climate Campaigner & Trainer	De Ceuvel Project
Toon Maassen	Physicist, specializing in sustainability, activist / co-founder at Cafè de Ceuvel (Amsterdam, Netherlands)	
Esteban Pelayo	Agricultural engineer / Manager, Director of EURADA	POCITYF Project
Ivana Rae Almora	Linguist, Graduated in "European Languages" / Project and Policy Officer at EURADA	
Ceciel Nieuwenhout	Lawyer, Graduated in "Law, Energy and Sustainability" / PhD researcher at the Groningen Center of Energy Law	
Alessandra Bonazza	Geologist, Degree in Geological Sciences / Professor at Bologna University (Italy) and Researcher at the Institute of Atmospheric and Climate Sciences (ISAC) within the National Research Council (CNR).	CNR-ISAC
Daisy Narayanan	Architect / Municipal Official (Municipality of Edinburgh, Scotland)	City of Edinburgh
Miguel Rivas	Business Management Engineer, Economic Geographer / Consultant and URBACT lead expert	KAIRÓS project, ROCK Project
Hans Thoolen	Urban Planner / Municipal Official (Municipality of Breda, Netherlands)	WAVE Project

Silvia Bartoloni	Linguist, Graduated in foreign languages and literatures / Municipal Official (Municipality of Bologna, Italy)	ROCK Project
Valentina Gianfrate	Architect, Academician / Associate Professor in Service Design at Alma Mater Studiorum University of Bologna, Italy	
Giuseppina Padeletti	Chemistry specialized in Materials Science / Researcher at the CNR - ISMN	CNR, HERACLES Project
Evangelios Gerasopoulos	Atmospheric physicist / Director of the National Observatory of Athens and member of the Greek Council for Climate Policy	GEO, Urban Heritage Climate Observatory
Peter Biehl	Anthropologist, Academician / Professor of Anthropology at University of California in Santa Cruz	EAA/CCH – European Association of Archaeologists/Climate Change and Heritage
Johannes Muller	Archaeologist, Academician / Professor of prehistoric archeology at the university Kiel in Germany and Director of the Academy for interdisciplinary socio environmental research	
Saveria Teston	Architect / Municipal Official (Municipality of Ravenna, Italy)	WAVE Project
Alison Tickell	Musician, activist / Founder and CEO of Julie's Bicycle	Julie's Bicycle
Elisabetta Dall'O	Anthropologist / Post-doctoral researcher	University of Turin
Xavier Troussard	Lawyer, graduated in "Law and General Administration" from the University of Rennes (France) and from the College of Europe in European Studies (Bruges, Belgium) / Head of the New European Bauhaus Unit, Joint Research Centre	New European Bauhaus
Annika Haugen	Civil Engineer and Architect / Head of Building Department in NIKU	NIKU - Norsk institutt for kulturminneforskning
Angelos Amditis	Electrical and Computer Engineer / Research Director in the Institute of Communication and Computer Systems of NTUA	HYPERION Project
Marica Mercalli	Art Historian/ General Director of Direzione Generale Sicurezza Patrimonio Culturale	MiC – Ministry of Culture, Italy
Erminia Sciacchitano	Architect / Officer in the Minister's Cabinet of the Minister of Culture (Italy)	MiC – Ministry of Culture, Italy

Fig. 21. List of respondents.

Among the interviewees, 18 come from the research & university domain, 2 from

ministries and and 5 from municipal authorities. The other interviewees come from associations and private institutions that collaborate with public institutions. The overwhelming part of the interviewees comes from the architectural and building sector (14 people, including Architects, Restorers, Conservative Architects, Civil Engineers, Urban Planners). Applied sciences were represented by 6 people (Chemists, Physicists, Atmospheric Physicists, Geologists, Agricultural Engineers). For issues related to climate policy in the context of cultural heritage in the urban context, we consulted two lawyers and one architect active in the field. We also consulted: 3 sociologists, 2 anthropologists, 1 archaeologist, 1 art historian, 1 economist, 1 management engineer, 1 electrical and computer engineer, 1 museologist, 2 activist and a writer/photographer.

By way of conclusion, we would like to give some first insights into some relevant issues raised during the interview phase.

***

Climate change actually questions our idea of culture/cultural heritage in itself.

Many of the experts that kindly agreed to be interviewed shared their thoughts about this point, as the action we might be taking against the effects of climate change on cultural heritage clearly depends on our understanding of culture/cultural heritage in the first place.

Posing the question in itself gives rise to fundamental questions regarding what we save and for what purpose. And this is not only in the perspective of an unlikely direct choice ("what would you bring with you on a desert island"), but for re-orienting our daily practices.

We do not only see this in the perspective of "Loss and Damage" where we ask ourselves what we might lose in terms of cultural heritage that cannot survive the effects of climate change (and here we should consider not only built heritage but immaterial manifestations of culture, so often depending on nature and on landscape) and what it is paramount for us to save. Analogous to this reflection field is that considering practising mourning[103] starting today, to get somehow ready to face the idea that we will not be able to preserve everything, at least not in its optimal or actual conditions.

Most actors who engage in the culture/cultural heritage debate we interviewed or read get to face this fundamental question, which lies behind the three key questions we proposed for the round table discussion.

[103] Among others, see Pihkala 2020.

Representatives of ROCK Project[104], for example, shared the impossibility of tackling the question of regenerating historical city centres only considering cultural assets in the way they generally are seen, i.e., as built heritage. The interviewed representative of HERACLES project[105] (focussing on technical monitoring and new materials solutions) also indicated that some experimented approaches were conceived and designed for the resilience of built heritage, yet they are well aware that this can cover only a part of the whole domain of culture.

"Activists" tend to disclose their views on this matter quite openly.

Alison Tickell[106] of Julie's Bicycle detailed what could be included in what we understand as culture, in the climate change discussion, indicating at least three main relevant aspects:

Cultural heritage understood as what we keep from the past, what, material or immaterial, testifies to our beliefs

Art, which is how we represent our feelings and experiences and which shapes our imaginaries

Creative industries, which create an economy around arts and culture.

The theme of creative industries as an important agent in climate change in respect to regenerating urban centres was present in many discussions with project leaders dealing with this aspect of the theme.

It becomes very clear then that keeping in mind only built heritage tends to orientate our actions towards what Miguel Rivas[107] indicated as the "preservation mode", which, according to some critics, is maybe consuming too much energy in "cataloguing heritage at risk".

Museums for Climate Action put this theme at the basis of their work and, through the voice of Henry McGhie[108], saw a way out from easy solutions stressing the idea of cultural participation (as expressed by the Faro Convention) as the value that is necessary to keep. The effort should be oriented not towards safeguarding monuments that testify to the past, artistic masterpieces and symbols, but far more the access to, the possibility of creating symbols and art towards which individuals and the community can develop a sense of belonging. As Henry McGhie states, «cultural heritage provides a resource for people to draw upon. With effective and inclusive cultural heritage policies and practices, people can draw upon and develop cultural heritage in the context of myriad social, economic and environmental challenges. It is not for institutions to say how they should

[104] Silvia Bartoloni and Valentina Gianfrate were interviewed on 26 October 2021.

[105] Giuseppina Padeletti was interviewed on 19 October 2021.

[106] Alison Tickell was interviewed on 17 September 2021.

[107] Miguel Rivas, Project manager of KAIROS and ROCK project was interviewed on 14 September 2021.

[108] Henry McGhie was interviewed on 26 July 2021.

be used or what for, but to empower people to claim their rights through their institutions».

There might be a common ground between activists' and some contemporary artists' perspectives when they claim that «cultural heritage of the past is not cultural heritage of the future», as Toon Maassen[109] put it. Future art will deal with climate change as all human activities probably will, but art is prefiguring future scenarios now. It is easy to imagine that art will be the testbed for new materials and innovative techniques, yet climate aware artists push their imagination further in prefiguring post climate worlds and scenarios. And although artistic creation cannot be reduced to serving didactic goals, yet the existence of such images affects people and their understanding of the world around us.

To be effective, climate action needs then to be able to reflect culture in all its dimensions, and multidimensionality is needed also by the other polarity shaping the field of our debate, which is the city.

And if ROCK project claims that cities can be the laboratories for testing how cultural heritage can be a powerful engine of regeneration, tools have to be devised to deal with cities and the climate crises: the urban dimension can be approached from diverse points of view, and the notion of city in itself takes on a different meaning in different geographical contexts. To encompass all of its dimensions a very flexible, systemic or holistic framework seems to be needed.

Cities, as relevant active partners in the debate, are orienting the discussion, indicating hot issues that need immediate consideration; emblematic is the effort to find a right balance between protection/regeneration/renovation measures, especially in historical town centres.

The relation with tradition is indeed a very sensitive topic. If some trust in technological solutions without a deep community's engagement seems too optimistic, many voices (EAA/CCH – European Association of Archaeologists/Climate Change and Heritage[110]) value the repertoire of past techniques not only as a working syllabus of mitigation techniques, but also as inspiration for how to build society's resilience to drastic changes.

From what we understood, thanks to the generosity of our interlocutors, there is a crucial question that regards the level at which climate action should take place, in regards to culture/cultural heritage.

On one hand, policies and projects, in order to be effective, need to be articulated at all the geographical and administrative scales, yet the dynamics of the interlocution between EU, national, regional and local levels is not always easy to manage, and at times local

[109] Toon Maassen founder of Cafè De Ceuvel, Amsterdam, was interviewed 7 July 2021.

[110] Peter Biehl (EAA) and Johannes Mueller (ROOTS) were interviewed 6 October 2021.

actors and movements, or even cities, feel they are not given a voice or neglected; here too dialogue and coordination are necessary as it is by now clear that climate crises cannot be approached other than globally and through shared political choices, yet individual action and local activism are fundamental for changing individuals' behaviours.

> *The cultural community no longer needs to be sensitised to the environmental emergency; they need the policy frameworks and authority, funding and accountability to be fully mainstreamed into national environmental planning. Cultural ambition everywhere is high, solutions abound, and creativity is in abundant supply. An urgent and overdue policy dialogue with national policymakers, which supports this expertise already happening, is the missing link*[111]*.*

Another question regards the level where research, projects and debate are to take place. Many voices indicated that until now there has been a sort of gap between theoretical research and pilot applicative actions. There seems to be a gap between researchers, policy makers and activists, between people who professionally work in conservation of cultural heritage and city managers, and so on. This separation is reflected in projects that, just to indicate the two extremes of the field, either have a local concrete ambition or are the result of very large partnerships where a lot of time is needed to find a common language and a common ground, and which often result in not totally applicable indications and in unsustainable tools.

The New European Bauhaus faces some of these issues. As a movement, it seems to be very much about the how, and not only concentrating on the what. Tools are central in its vision. There is a shared understanding that most of the tools that have been created for intervening on culture/cultural heritage and on city planning etc. are only accessible to professionals, and not to the larger community that would need them. This issue is truly transversal: the need to translate scientific evidence in what civil society understands is not easy to satisfy.

In order to make knowledge accessible we need to understand how we can collect and organise all the data we are accumulating, but we also have to understand how we can make sense of all the collected evidence. One way is turn to story-telling, as narratives are powerful tools for constructing sense and to turn a content into something personal. In this respect culture has another fundamental task, as a repository of wonderful stories and a syllabus where we can learn how to tell meaningful stories.

Yet culture is also a profound part of why we belong to certain communities, why we adhere to a certain life-style and which choices we make. Therefore, the cultural domain is an unavoidable arena where climate action should take place: climate change is all about choices, to be articulated on various levels. Many reasonably argue that climate

[111] Culture: The Missing Link to Climate Action 2021.

mitigation is expensive[112] and its application will imply cutting some comforts in our lives, apart from making aware choices. Therefore, it will only be the result of change in the common frame of mind, a change in culture.

This is the High Ambition, which probably could never be achieved without the engagement of the cultural sector.

[112] As expressed by Peter Biehl in the aforementioned interview.

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