

mobilising museums for climate action

Tools,
frameworks
and opportunities
to accelerate climate
action in and with museums

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Mobilising Museums for Climate Action:
Tools, frameworks and opportunities to
accelerate climate action in and with museums

Museums for Climate Action
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This team worked closely with Glasgow Science Centre, one of Scotland's most popular visitor attractions.

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Further information and resources relating to RMCA are available on the project/exhibition website at www.museumsforclimateaction.org

museums must:



CLIMATE ACTION IN AND WITH MUSEUMS CAN BE THOUGHT OF AS HAVING FIVE COMPONENTS:

1. Mitigation through museums

Museums must support all of society to reduce its greenhouse gas emissions, rapidly, in line with Paris Agreement commitments, by encouraging and empowering people to understand the part they have to play in climate action and have the skills to play it, and to use less, waste less, and make sure anything they do use is renewable. They can foster support, and sharing of resources, for nature conservation efforts that strengthen nature's ability to absorb greenhouse gas emissions.

2. Mitigation in museums

Museums must aggressively reduce greenhouse gas emissions across all aspects of their activity, in line with Paris Agreement commitments. They can ensure all staff, and all people and organisations in the value chain understand the part they have to play in climate action, and are empowered to act through policies and resourcing so that every action is supporting climate action, in order to use less, waste less, and make sure anything that is used is renewable. They can direct financial and other resources towards nature conservation efforts that strengthen nature's ability to absorb greenhouse gas emissions, through their everyday decisions and procurement practices.

3. Adaptation through museums

Museums must support all of society, and nature, to face and cope with current and projected climate change impacts.

4. Adaptation in museums

Museums must understand how they will be impacted by climate change, and adapt their practices, location, programmes and collections to be fit for the future.

5. Climate action as part of sustainable development, climate justice and a just transition

Museums must ensure that all climate-change activity is undertaken in ways that do not themselves disenfranchise people or communities, locally or globally; and recognise that, in tackling climate change, other sustainable development challenges have to be addressed at the same time.

HOW THIS TOOLBOX IS ORGANISED

SECTION A

Introduction and background

Sets out what this Toolbox aims to achieve and some 'essential knowledge' to use the Toolbox. It explores some of the key terms, such as Net Zero. It also explores how museums are both part of the 'solution' and part of the problem. It explores some of the ways museums have been contributing to climate action, and introduces the 'reimagining museums for climate action' concept.

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SECTION C

Climate change and its many impacts: the need for climate action

Provides a brief overview of some of the headline challenges of climate change.

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SECTION B

Questions to help you plan for climate action in and with museums

Provides sets of questions to help you understand and accelerate climate action in and with museums. The questions are intended to help you use this Toolbox, and also to ask questions about how your museum is, or could be, contributing to climate action.

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SECTION D

Reducing greenhouse gas emissions: climate mitigation

Explores climate mitigation, one of the main planks of climate action. It explores how emissions are measured in three Scopes, and how museums can measure and reduce emissions across these Scopes.

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SECTION E

Coping with change: climate adaptation and resilience

Explores the three main kinds of adaptation option (physical, social, institutional), and principles for successful adaptation. Suggestions are provided on how adaptation can be incorporated across museums' main activities, supporting adaptation in the locality and community, and in the museum itself.

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SECTION G

Human rights and climate change

Explores which human rights are especially impacted by climate change, and how climate action relates to the right to development and the Aarhus Convention.

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SECTION I

Just transition

Explores how workers and communities can be treated fairly and decently as part of climate action, and as part of the move to sustainable industries. Just transition principles can be applied to museums' programmes for communities, and also to museum professions.

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SECTION F

Disaster Risk Reduction and 'Build Back Better'

Explores how Disaster Risk Reduction approaches can be applied to museums, so that they reduce the levels of risk they and their communities face, and to make use of the recovery period after disasters to build their resilience to face future threats.

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SECTION H

Climate justice

Explores the different aspects of climate justice, and how museums can incorporate climate justice approaches into their activity.

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SECTION J

Common But Differentiated Responsibilities

Explores this principle, which is included in the UNFCCC, Paris Agreement, Agenda 2030 and SDGs. The principle acknowledges that countries have not contributed equally to climate change, and that those that have developed at the cost of the environment have a responsibility to support those that are still undergoing economic development. The same principle can be applied to museums in developed countries.

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SECTION K

Action for Climate Empowerment

Explores this agenda, which was included in the UNFCCC and Paris Agreement. Action for Climate Empowerment relates to public education, training, public awareness, access to information, public participation and international co-operation in climate change matters. It is very relevant to the work of museums.

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SECTION M

Additional learning approaches

Discusses a number of further educational approaches relevant to climate action, including Ocean Literacy, Climate Literacy, Futures Literacy, and Human Rights Education. All of these approaches can be made use of by museums to develop outcomes-based educational programmes.

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SECTION O

Nature-based Solutions

Presents some of the best practice in how Nature-based Solutions should be used as part of climate action. These help to ensure that Nature-based Solutions are not used in ways that are harmful to people or nature, and that are realistic about the potential of NbS, as part of climate mitigation and adaptation.

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SECTION L

Education for Sustainable Development

Explores this well-developed educational approach, which acknowledges the importance of all three of knowledge, attitudes, and practical skills as a basis of education and empowerment. Education for Sustainable Development approaches can be applied to museum activities for both public audiences and among staff.

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SECTION N

Towards positive relationships with nature

Sets out a typology of attitudes to nature that can inform programming and communications regarding climate change, and presents some key recommendations from the field of nature-connectedness studies, which aims to understand and strengthen people's relationships with/in nature, and which can contribute to sustainable development.

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SECTION P

Heritage as part of the problem – and part of the solution

Explores critical approaches to heritage as a future-making practice, based on a major research project. Museums can draw on the findings of the research project as they consider how to manage, develop and make use of heritage as part of sustainable development.

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SECTION Q

Reimagining Museums for Climate Action: a resource to inspire and support museums to take radical climate action

Explores the Reimagine section on the Museums for Climate Action website. This contains 79 concepts to inspire and support museums to take more radical climate action.

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SECTION S

How does this story end?

Invites you to reflect on what part you will play in climate action, and which parts of the Toolbox you could use to accelerate your climate action.

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SECTION R

Current opportunities to take part in climate action

Lists some of the key international initiatives that aim to address climate change, or that could contribute to climate action. These are high-potential opportunities that museums can help support, and provide people with opportunities to participate in. These are also very good opportunities for museums to 'play their part', and demonstrate their value in addressing global challenges tailored to local circumstances.

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introduction and background

ABOUT THIS TOOLBOX

INGREDIENTS FOR CLIMATE ACTION

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CLIMATE ACTION AS PART OF SUSTAINABLE DEVELOPMENT

WHY MUSEUMS? PART OF THE SOLUTION, AND PART OF THE PROBLEM

REFRAMING CLIMATE CHANGE

THE 'REIMAGINING MUSEUMS FOR CLIMATE ACTION' CONCEPT

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ABOUT THIS TOOLBOX

Climate change poses a tremendous threat to people, and nature, but that threat is not felt evenly. Climate change is a magnifier of injustice. It will drive inequality and intolerance. Climate change is bad news for everyone. Climate action, which we will explore in the Toolbox, requires deep and rapid transformations in society. However, institutions and sectors – including museums – are often unprepared for these transformations. Action is woefully insufficient to address the challenge.

The Toolbox brings together information on climate change policy, sustainable development and the Sustainable Development Goals, and a number of approaches that museums can draw on to inform their activities. The Toolbox explores some of the ideas that were generated through the project Reimagining Museums for Climate Action, which included a design competition, exhibition, website and book.

The Toolbox consists of a variety of approaches that you can pick and choose from, depending on your context, challenges, and aspirations. It is not intended to be the last word on the subject, or to be read from start to finish as a single tool: think of it as a go-to manual.

Climate change is complex, and the challenges, and appropriate responses, vary from place to place, and community to community. That is why this collection is a Toolbox, rather than a tool or a toolkit.

The Toolbox has been formatted to be used on a computer screen. Hyperlinks are embedded in this file, to access further information. If you do plan to print this document, please think of the environment, print only what you need, and print double-sided.

It is suggested that all readers explore the questions in section b, as well as sections on climate impacts (section c), climate mitigation (section d), climate adaptation (section e) and human rights and climate change (section f). Finally, all readers should explore section r, which includes current opportunities to take part in climate action.

INGREDIENTS FOR CLIMATE ACTION

Climate change poses a tremendous threat to people, and nature, but that threat is not felt evenly. Climate change is a magnifier of injustice. It will drive inequality and intolerance. Climate change is bad news for everyone. Climate action, which we will explore in the Toolbox, requires deep and rapid transformations in society. However, institutions and sectors – including museums – are often unprepared for these transformations. Action is woefully insufficient to address the challenge.

This Toolbox draws upon a number of foundational concepts and frameworks. Among these are:

- The United Nations Framework for Climate Change (UNFCCC) and the Paris Agreement, and Action for Climate Empowerment.
- Climate mitigation (reducing emissions) and climate adaptation (coping with change).
- Agenda 2030 and the Sustainable Development Goals.
- Disaster Risk Reduction approaches.
- Human rights, climate justice and a just transition.
- Education for Sustainable Development and other relevant pedagogies.
- Differentiated national and institutional responsibilities in relation to climate change and sustainable development.
- Nature's role in climate action, and supporting positive relationships with nature.

The Toolbox aims to help you understand how each of these relates to climate action, and gives practical links and actions to help you make use of them in museums, to support people's individual and collective responses to climate change.

AIMS

This Toolbox aims to strengthen the connections between six contemporary concerns:

1. The scientific and political consensus that drastic action is required to address climate change.
2. The recognition that the world's challenges – social, economic and environmental – are interconnected and can't be tackled in isolation from one another, as set out in Agenda 2030 and the Sustainable Development Goals.
3. The widespread calls for greater action on climate change from the public.
4. The commitment from the international museum sector, made in 2019, to accelerate its activity in support of sustainable development, using Agenda 2030 and the Sustainable Development Goals as its blueprint to do so.
5. The recognition of the key role that museums and cultural institutions have in supporting the achievement of Article 6 of the UNFCCC and Article 12 of the Paris Agreement (Action for Climate Empowerment) by governments at COP24 and COP25.
6. An acknowledgement that museums are implicated in the unsustainable world we live in – with its social, economic and environmental challenges – and a sustainable future requires different forms of institution and museum practice.

This Toolbox is intended to help museums and those who work in them, their partners, and the broader public, to accelerate their activity to support climate action. This overarching aim is achieved through the following approaches:

- Raising people's awareness of the UNFCCC and the Paris Agreement, and the ways in which museums can help support these agendas through their activities.
- Empowering people to connect their work with Agenda 2030 and the Sustainable Development Goals, as the main current blueprint for sustainable development activity worldwide, tailored to local circumstances.
- Familiarising readers with the main elements of climate action – mitigation, resilience and adaptation – and of climate justice, and the ways that museums can support these.
- Fostering a greater awareness of the ways that climate change relates to human rights, how museums relate to human rights, and how to use human rights-based approaches as a basis and rationale for climate action.
- Inviting people to reconsider and reimagine museums – whether their own or more broadly – to better support people as individuals, communities and society to meet and face the challenges presented by climate change, now and in the future.

WHO IS THIS TOOLBOX FOR?

- Museums and museum workers everywhere.
- Those who work with, or could work with, museums to enhance and accelerate climate action.
- Museum policy makers, and climate policy makers.
- Museum funders.
- Researchers studying museums and/or climate action.
- People working with climate change mitigation and adaptation.
- Planners and those involved in urban and community development.
- Museum sector support organisations, and those responsible for museum certification and training of staff and students.
- Government departments and officials.
- Ultimately, this Toolbox is intended to benefit all those who make use of museums, including individual members of the public. It is aimed at providing more effective, transparent and transformative public services through museums.

WHAT DO WE MEAN BY CLIMATE ACTION?

This Toolbox is focused on climate change, widely recognised as one of the biggest and most complex challenges facing humankind, and also facing nature, but climate is only really half of the problem. In many ways, it is merely the symptom – albeit a very serious one – of a deeper malaise, namely an unsustainable relationship between human society and the natural environment. The world is currently on track for three or more degrees of warming compared to pre-1900 levels. This would be a disaster. To lay out the ‘groundwork’:

1. Climate change will affect all of us, if it isn’t already affecting you. It will affect the most vulnerable worst, those who contributed and contribute least to the problem, which is deeply unfair.
2. We all contribute to climate change, to different degrees.
3. We can all contribute to climate action.
4. People need opportunities to know what they can do to contribute to climate action, and they have the right to do so.
5. There is no ‘one size fits all’: people, communities and particular social groups all need information and opportunities that are suitable for them, in order to be able to participate in climate action effectively.
6. Museums have a lot of potential to support people to take climate action.
7. Climate change also requires a radical adjustment to thinking what museums are and how they do things, to be more effective in supporting climate action everywhere.
8. Museums, as an existing infrastructure associated with modernity, are also part of the system that has resulted in the challenge of climate change. They too need to change to contribute effectively to a sustainable future, and to change within the context of a wider reshaping of organisations, institutions, and structures that collectively form the basis of a sustainable society in a sustainable world.

The United Nations Framework Convention on Climate Change (UNFCCC), in its Article 1, defines climate change as: “a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods”. The UNFCCC thus makes a distinction between climate change attributable to human activities altering the atmospheric composition and climate variability attributable to natural causes.

What causes climate change?

- Burning fossil fuels as a source of energy, in homes, industry and transport.
- Degrading land and soil so that it releases greenhouse gases or is unable to remove them from the atmosphere.
- Destroying forests, especially by burning. Most forest clearance is for agriculture.
- Release of methane and other greenhouse gases from melting permafrost, paddyfields and degraded peatlands.
- Production of fertilisers.
- Production of concrete and cement.
- Release of other greenhouse gases from domestic and industrial settings.
- Increasing numbers of cows, sheep and goats which release methane through their digestion process.
- General wastefulness, with over-production, over-consumption of natural resources, waste of used resources that could be reused or recycled, and high-energy lifestyles among a relatively small proportion of people.

Greenhouse gases (GHGs)

Greenhouse gases are those responsible for causing global warming and climate change. The major GHGs are carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O). Less prevalent, but very powerful, greenhouse gases are hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF₆).

Climate action is typically thought of in two forms:

Mitigation action, that reduces greenhouse gas emissions, or strengthens nature's ability to absorb them (for example by protecting or creating wetlands, or planting trees).

Adaptation action, meaning action that enables people and nature to cope with climate impacts. This is typically thought of as consisting of three main groups of actions: structural/physical adaptation, which protects lives and property from climate impacts, such as flood defences, development of new crop varieties, or helps nature face climate impacts; social adaptation, including education, awareness and skills development; and institutional adaptation, including laws and policies.

We can think of this simply as:

1. Reducing greenhouse gases (CO₂, methane, nitrous oxide, fluorine gases).
2. Strengthening nature (protecting forests, healthy soils and wetlands, healthy seas and oceans).
3. Adaptation actions.
4. Climate justice and a just transition – meaning that climate action is undertaken in ways that are fair, inclusive and that don't lead to further injustice.

Note, the use of the term mitigation is quite specific: when people talk about 'mitigating climate change' they often mean reducing the impact of climate change, which is adaptation action, not mitigation action. Climate mitigation means reducing emissions and strengthening greenhouse gas removal.

Climate Neutrality, Carbon Neutrality and Net Zero

The terminology of climate neutral, carbon neutral and Net Zero can be confusing, but there are important differences. While there are no universally agreed definitions, the UN Climate Neutral Now initiative uses the terms in the following ways:

Climate Neutrality

A balance between GHG emissions and removals. Achievable at global/planetary level, and at stakeholder (companies, organisations, subnational authorities, individuals) level. At stakeholder level, only carbon credits from projects that capture GHGs in the long term can be used.

Carbon Neutrality

Action by a stakeholder (company, organisation, subnational authority, individual) to reduce and avoid emissions, and then compensate the remaining ones through the use of carbon credits. Use of carbon credits from projects that reduce, avoid and temporarily capture GHGs is possible. Not applicable at global/planetary level.

Net Zero

Is regarded as synonymous with carbon neutrality.

The most important thing to note is that the priority in all of these must be a firm commitment to rapidly reducing greenhouse gas emissions, before any consideration of offsetting in whatever form. The key difference between climate neutrality and carbon neutrality/Net Zero, is that climate neutrality does not allow for the use of short-term offsets. Only projects supporting long-term storage of greenhouse gases are permissible. Many organisations are declaring their intention to be 'Net

Zero', which should be backed up by concrete plans that are reported upon transparently.

The UNFCCC, Kyoto Protocol and Paris Agreement

One of the outcomes of the Rio Earth Summit (1992) was an international convention, the United Nations Framework Convention on Climate Change. Countries committed to the “stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system ...” (UNFCCC, Article 2)

Since it came into force, in 1994, signatories (called Parties) have met yearly to monitor progress and debate issues, at conferences called the COP (Conference of the Parties). Important developments since 1994 include the Kyoto Protocol, which further committed signatories to reduce (rather than stabilise) greenhouse gas emissions, and the Paris Agreement of 2015, which set to limit average temperature rise well below 2°C, and preferably to 1.5°C compared to 1900 levels. Countries make their own plans to deliver these commitments, called Nationally Determined Contributions.

The development of the UNFCCC and Paris Agreement, and action to support their achievement, are presented in an [interactive timeline](#).

To browse commitments made by countries, see the [NDC Registry](#).

The [Climate Action Tracker](#) tracks climate action by governments to assess likely temperature rise from countries' commitments, and more detailed analysis by sector.

Museums, among a range of other institutions, were specifically mentioned in the [Katowice Package/Paris Work programme](#), adopted at COP24 in 2018 by governments. This was an important recognition of the key role they play in public education, training, public awareness, access to information, public participation and international co-operation in climate change matters, which are the basis of Article 6 of the UNFCCC and Article 12 of the Paris Agreement, referred to as Action for Climate Empowerment.

CLIMATE ACTION AS PART OF SUSTAINABLE DEVELOPMENT

What is this?

Sustainable development is commonly defined as “development [activity] that meets the needs of the present without compromising the ability of future generations to meet their own needs”, as expressed in [Our](#)

Common Future (the Brundtland Report, 1987). Sustainable development means trying to achieve a better balance of considerations of people, planet and prosperity, as a basis for a peaceful and harmonious world.

Why is it important?

Climate action has to be undertaken in ways that don't create new problems, or that move problems elsewhere. For example, tree planting could contribute to climate mitigation, but may inadvertently be harmful for nature when the wrong kinds of trees are planted in the wrong place, and valuable habitats destroyed. Similarly, people may be dispossessed of land, food or opportunity through ineffective climate action. Sustainable development recognises that challenges are interconnected, and have to be considered together.

"The problems of today do not come with a tag marked energy or economy or CO₂ or demography, nor with a label indicating a country or a region. The problems are multi-disciplinary and transnational or global. The problems are not primarily scientific and technological. In science we have the knowledge and in technology the tools. The problems are basically political, economic, and cultural."

P. Lindblom, 1985¹

Agenda 2030 was adopted in 2015 as the blueprint for sustainable development, to address the lack of progress with multiple international agreements, and recognising that challenges can't be tackled one after the other or without considering how actions for one problem might create new problems elsewhere. Agenda 2030 will run to 2030, and is an invitation to all sectors to collaborate in a renewed global partnership for sustainable development.

Agenda 2030 is largely achieved through 17 Sustainable Development Goals (SDGs), supported by 169 targets. 'Take urgent action to combat climate change and its impacts' is the subject of SDG 13, but climate change is mentioned in the targets for other SDGs, and is relevant to many more.

¹ Lindblom, P. 1985. International Federation of Institutes of Advanced Studies. World Council on Environment and Development. Public Hearing: Oslo, Norway.

There are many connections between climate change and the SDGs, including:

1. Climate change threatens to undermine activity for all of the SDGs.
2. All of the SDGs can be directed towards supporting climate action, in terms of reducing greenhouse gas emissions, strengthening nature's ability to absorb carbon and trap, and helping people be resilient to, and be able to adapt to, climate change.

The SDGs are mainstreamed across the UN system, and are an excellent access point for information, resources and tools that support climate action, including both adaptation and mitigation.

What does this mean for museums?

Museums can use the Sustainable Development Goals and their targets to plan for climate action that doesn't inadvertently cause other problems, but that creates social, economic and environmental co-benefits.

For further information on how the SDGs relate to museums, and vice versa, see:

Museums and the Sustainable Development Goals: a how-to guide for museums, galleries, cultural institutions and their partners (2019) [LINK](#)

Mainstreaming the Sustainable Development Goals: a results framework for galleries, libraries, archives and museums (2021) [LINK](#)

ICCROM's Our Collections Matter Toolkit provides a wide range of tools for collections-based institutions to use to enhance their contributions to the Sustainable Development Goals. [LINK](#)

170 Actions to Combat Climate Change, by UN Geneva, is organised around the 17 Sustainable Development Goals. Museums can use the actions to plan the support they provide to people, to empower them to take climate action. [LINK](#)

The Good Life Goals, by Futerra and partners, are a public-friendly version of the Sustainable Development Goals, with five suggested actions for each goal. [LINK](#)

WHY MUSEUMS? PART OF THE SOLUTION, AND PART OF THE PROBLEM

There are an estimated 95,000 museums in the world (at least there were before the COVID-19 crisis). They reach huge numbers of people – probably around 1–2 billion visits each year – and at least have the potential to support people to take part in climate action and sustainable development (which, as we will see, people are entitled to as part of their human rights). Many museums are already working to support sustainable development, and the International Council of Museums – the leading organisation representing museums and museum workers everywhere – adopted the Sustainable Development Goals in 2019, as its blueprint for activity to contribute to a more sustainable future, both through the programmes museums offer to the public and other stakeholders, and to address their own negative impacts.

As a global cultural infrastructure, museums can connect global agendas – addressing climate change, preventing biodiversity loss, reducing poverty and inequality – with local circumstances, and to support people to participate in climate action and other sustainable development activities.

However, supporting people to participate in climate action remains a small part of museums' activity, and the museum sector is in the early stages of taking up sustainable development activity in a meaningful way. Most museums remain silent on sustainable development, although many are interested in doing more. Tourism – which many museums encourage – is a rapidly expanding sector with enormous greenhouse gas emissions, representing around 8% of global emissions. Museums are also embedded in the society and societies that have led to a world of growing inequality, climate change and biodiversity loss.

Museums also consume vast quantities of energy, are often in old or inefficient buildings, and professional standards for maintaining environmental controls in collections stores and exhibitions are very energy hungry. Hidden aspects of museums' activity – their funders, pension funds and investments, and sponsors – may also be supporting industries that are responsible for damaging the climate and natural environment, or that put people, communities and countries at risk through exploitation that erodes their resilience and capacity to deal with climate change. Museums, like many institutions, are also slow to change: too slow to meet the rapid rate of change that we face today, or to meet the scale of the challenges in the required timeframe.

Museums typically aim to educate, inform and inspire people, but it is often unclear what they are educating or informing them about, or what they are inspiring them to do.

Public museums have mostly developed over the last 200 or so years; the collections of many of them developed as a result of links to colonial and/or imperial expansion, and coinciding with a period of massive and rapidly accelerating environmental exploitation and destruction. The failure to realise a sustainable future is thus also a failure of institutions and organisations, including museums.

So, we see that museums can be both part of the solution in addressing climate change, but they are also part of the problem, with a huge potential to engage people in climate action, while also consuming huge volumes of resources. Climate change will transform our world in profoundly negative ways (we will explore the impacts in more detail further on): sectors, including museums, can't expect to go on as they did before. Climate action needs everyone, and every organisation and institution.

Different futures will require different approaches, wholesale and everywhere.

This Toolbox explores some of the key sustainable development approaches and elements, and a reimagining of museums for climate action. You are invited to consider how you could incorporate these ideas and approaches – practically and/or imaginatively – into your work, and to reprioritise what is considered important or as a picture of success. What is presented here is not necessarily a new vision for museums, but a wide selection of concepts and ideas that you can use in your work.

Having read this Toolbox, you should know about some of the challenges and opportunities for museums to contribute meaningfully to climate action, and you should have access to practical tools and approaches that you can use to support climate action through museums more effectively. The rest is up to you.

Imagine if every community had access to cultural infrastructure – in whatever form – that supported people, as individuals, to contribute effectively to sustainable development, to imagine, debate and create communities and whole societies where people lived in peace and tolerance with one another, where everyone had the information, attitudes and practical skills to know how to live in harmony with nature, and where communities and societies didn't just survive, but thrived and developed positively over time.

To use the language of Agenda 2030 and the SDGs, we must ensure we 'leave no-one behind': no-one, no community, no sector and no museum.

What has been happening in the museum sector?

At a museum sector level, ICOM has passed many Resolutions relating to climate change and sustainable development, highlighting, for example, the need to protect and conserve global cultural and natural heritage (e.g. Copenhagen, 1974), the importance of training of staff to support sustainability (Stavanger, 1995), and the need to address climate change (Shanghai, 2010).

In 2019, the ICOM General Assembly, held in Kyoto, Japan, included a major strand on sustainability. One of the outcomes of the conference was the adoption of two Resolutions related to sustainability and sustainable development. The first of these, 'On Sustainability and the Implementation of Agenda 2030 'Transforming Our World' makes the following recommendations:

1. Recognise that all museums have a role to play in shaping and creating a sustainable future through our various programmes, partnerships and operations.
2. Endorse the urgent call by ICOM's Working Group on Sustainability for museums to respond through rethinking and recasting their values, missions, and strategies.
3. Become familiar with, and assist in all ways possible, the goals and targets of the UN SDGs and use the 2030 'Transforming our World' Agenda as the guiding framework to incorporate sustainability into our own internal and external practices and educational programming.
4. Empower ourselves, our visitors and our communities through making positive contributions to achieving the goals of Agenda 2030, Transforming Our World; acknowledging and reducing our environmental impact, including our carbon footprint, and helping secure a sustainable future for all inhabitants of the planet: human and non-human.

Science centres and museums have adopted the SDGs as a framework for supporting sustainable development, in the Tokyo Protocol, adopted in 2017.

There have been many conferences on what museums could do to address climate change, which have helped build greater common awareness and knowledge of what actions are needed. These have resulted in many publications. Many museums have held exhibitions and events linked to climate change. Some examples of these are illustrated on the Museums and Climate Change Network website, and on the Coalition of Museums for Climate Justice website.

Museums have participated in the UN processes to support the UNFCCC and Paris Agreement. For an overview of activity in museums related to the six elements of Action for Climate Empowerment see the following submissions, made to the UNFCCC to inform the development of programmes to support the Paris Agreement:

“Museums as Key Sites to Accelerate Climate Change Education, Action, Research and Partnerships” (submission to the Talanoa Dialogue, 2018)

“Information on Steps Taken by Global Museums to Implement the Doha Work Programme and in Relation to Action for Climate Empowerment” (submission to Doha Review, 2020)

Museums often consume huge amounts of energy, and continue to use fossil fuels as an energy source (either in the generation of electricity, or directly as oil or gas). This will require a radical transformation to be anywhere close to the requirements of Paris Agreement targets. Some museums are taking practical steps to reduce their carbon footprint, but environmental standards in collections care remain a barrier. The Climate Toolkit presents how some museums, notably in the US, are aggressively reducing their carbon footprints, and provides resources to help others do the same.

Museums that are expanding without addressing their carbon footprint are headed in the wrong direction. They need to peak their emissions as soon as possible and rapidly transform to be part of climate action.

REFRAMING CLIMATE CHANGE

Let's look at climate change from some alternative perspectives. What beliefs do you hold about climate change, and what needs to be done? Reframing helps to look at climate change from a different perspective, and create new opportunities to explore what we can do, individually and collectively. Some of these may seem more realistic or applicable than others, but think of them as thought experiments. Add your own ones, or focus on a few of them, it doesn't matter. Changing the framing changes the outcomes. Through this Toolbox we will explore some of these reframings, and agendas, models and tools that can be applied to these alternative ways of approaching the challenge.

Typical framing	Alternative framing
Climate change is a problem of the future	Climate change is a problem of the past and the present
Climate change will happen somewhere else, and it will be worse there	Climate change is already happening here, and the impacts are more severe than we realise
Climate change is a scientific problem	Climate change is a problem of a cultural making
Climate change is the problem	Climate change is a symptom of a deeper problem
Climate change is very complicated to address	Climate change is very simple to address
Climate change is for politicians to address	Climate change is for everybody to address
Climate change will be addressed by technological solutions	Climate change will be addressed by culture change
You need to know about climate change before you can act to address it	You don't need to know anything about climate change in order to address it
We have to minimise the harm that we do, as a baseline	We have to maximise the positive contributions that we can make, as a baseline

It's more important to uphold professional standards than address climate change	It's more important to change professional standards and practices to meet the requirements of climate action
Other people and countries should address climate change before I will do so myself	I should address climate change myself before expecting other people and countries do so
Climate action is about solutions	Climate action is about responses
Climate action means changing people's behaviour	Climate action means empowering people to take part

Public mandate for more ambitious climate action across society

Why should museums support climate action? There have been a number of major surveys of public opinion on what society's priorities should be. These provide a strong public mandate, in addition to the very real public need for climate action, to be explored in further sections.

The Peoples' Climate Vote

The People's Climate Vote, launched by UNDP and partners in 2020 was "the largest survey of public opinion on climate change ever conducted." The People's Climate Vote used a new and unconventional approach to polling, with results that "span 50 countries covering 56% of the world's population."

"The survey brings the voice of the people to the forefront of the climate debate. It signals ways in which countries can move forward with public support as we work together to tackle this enormous challenge."

Achim Steiner, Administrator, UNDP

Key findings include the following:

- With 1.2 million respondents, the survey has involved unprecedented levels of polling and responses.
- Over all 50 countries, 64% of people said that climate change was an emergency – presenting a clear and convincing call for decision-makers to step up on ambition.
- The highest level of support was in Small Island Developing States (74%), followed by high-income countries (72%), middle-income countries (62%), then Least Developed Countries (58%).

- Regionally, the proportion of people who said climate change is a global emergency had a high level of support everywhere – in Western Europe and North America (72%), Eastern Europe and Central Asia (65%), Arab States (64%), Latin America and Caribbean (63%), Asia and Pacific (63%), and Sub-Saharan Africa (61%).
- Of the people that said climate change is a global emergency, 59% said that the world should do everything necessary and urgently in response. Only 10% percent of people thought the world is already doing enough.
- Respondents were asked which policies governments should enact to address the climate emergency. Four climate policies emerged as the most popular globally:
 1. Conservation of forests and land (54% public support);
 2. Solar, wind and renewable power (53%);
 3. Climate-friendly farming techniques (52%); and
 4. Investing more in green businesses and jobs (50%)

The report is an invaluable source of information to guide programming and decision-making in museums in all countries.

UN75 survey

To commemorate the 75th anniversary of the United Nations, and to identify people’s priorities, UN75 was set out in 2020 as a global dialogue. More than 1.5 million people participated, in 195 countries. Among the key findings were the following:

- Supporting basic services and countries hardest hit by COVID-19 was identified as the main short-term priority.
- Respondents in less developed countries and those living in conflict situations expressed greater levels of optimism about the future than others.
- “Respondents in all regions identified climate change and environmental issues as the number one long-term global challenge”, with resounding calls for more environmental protection.

National surveys of attitudes

National surveys provide a granular picture of public attitudes. For example, in the UK, the RESIL-RISK project has drawn on the insights of social sciences research and environmental communications to draw up key messages that can help to connect public concern and attitudes with effective mitigation and adaptation action.

Using global and national surveys to inform museums' activities

Public surveys can be taken to represent a public mandate for climate-related activities, representing both a public demand and a public interest. More local surveys undertaken in museums' communities or towns can also be drawn upon as a basis for developing programmes and partnerships. Museums can make people aware of global and national survey results, and use these to kickstart discussions on people's priorities regarding climate change and climate action.

The time is now

So, the time to accelerate climate education, awareness, participation and action is now: there is both the demand and the need, to pivot away from an unsustainable past to a sustainable future, as society re-emerges or reshapes in a post-COVID-19 context.

Further reading

See Climate Outreach's guide, [Theory of change: creating a social mandate for climate action \(2020\)](#).

THE 'REIMAGINING MUSEUMS FOR CLIMATE ACTION' CONCEPT

'Reimagining museums for climate action' is a concept that we invite museums, their partners and stakeholders to make use of.

We can think of 'reimagining museums for climate action' as being made up of a number of elements:

Reimagining museums: exploring museums in terms of twisting existing museums into new shapes, or creating entirely new forms of museum, to support climate action more effectively. There are no limits to this reimagining, except the limits of our imagination, and the extent to which we are willing to abandon self-limiting beliefs about what museums have to do or be. Reimagining museums is not only about buildings, but the purpose, practice and assumptions of all aspects of museum work, for example place, permanence, collecting and collections, people and practices. As a manifestation of cultural practices, reimagining museums involves a reimagining of the practices that create, value and maintain museums, in various forms.

For: museums as catalysts, tools, agents for people to make use of to address external realities. 'For' is intended to relate to a sense of purpose.

Climate action: activity that meaningfully addresses climate change. Climate action is not just talk, it is real action. It is deliberately ambiguous in terms of who takes what action, but it is unambiguous in terms of addressing climate change. Climate action is about supporting society to reduce greenhouse gas emissions, and ensuring museums reduce their own greenhouse gas emissions. It is also about ensuring society, nature and museums can adapt to climate change wherever possible, to minimise the loss of lives and property. Climate action is usually considered as consisting of mitigation actions, that reduce greenhouse gas emissions or strengthen carbon sinks (such as forests, soil and oceans), and adaptation actions, that enable people and nature to adjust to new or projected climate conditions (nature can only adjust to new conditions, not projected ones).

'Reimagining museums for climate action' becomes a creative and imaginative challenge, to reform, repurpose and reinvent museums to contribute more effectively, and completely differently, to contemporary issues, of which climate change is taken as a particular example.

As outlined earlier, sustainability challenges are interlocked and interconnected, and in addressing one challenge – climate change – we also have to consider how those actions are undertaken fairly. That is why we have to consider climate action within the context of wider action for sustainable development, ensuring that we achieve a more harmonious balance of considerations of people, planet and prosperity.

questions to help you plan for climate action in and with museums

INTRODUCTORY QUESTIONS:

YOUR OVERALL ROLE[S] IN CLIMATE ACTION:

1. CULTURAL AND NATURAL HERITAGE FOR CLIMATE ACTION AND SUSTAINABLE DEVELOPMENT
2. LEARNING FOR CLIMATE ACTION
3. CLIMATE ACTION NEEDS EVERYONE
4. SUPPORT SUSTAINABLE TOURISM
5. RESEARCH FOR CLIMATE ACTION
6. MAKING CLIMATE ACTION EVERY MUSEUM WORKERS' JOB, EVERYDAY
7. WORKING EFFECTIVELY WITH OTHER MUSEUMS, ORGANISATIONS AND OPPORTUNITIES, TO SUPPORT CLIMATE ACTION

b

This section poses sets of questions to help you understand and accelerate climate action in and with museums

The questions are presented to help you evaluate your existing activities, and to plan further or future activities to accelerate climate action. They are intended to help you clarify what the challenges and opportunities are, what you intend to do about them, how you might address them, and how you might work with others to enhance your contributions to climate action.

You could explore the questions to decide which tools, frameworks and opportunities you want to focus on in the rest of the Toolbox; or, you could use them to evaluate your museum's climate action,

The questions should be useful to you as you develop exhibitions and events, as part of recruitment or to understand your museum's operational impacts, to frame discussions in your museum, or to develop partnerships and interactions with the public and other stakeholders.

The questions are not set in stone, nor are they a final list: use them, add to them, and debate them as you find useful.

At the end of each section you are directed to sections in this Toolbox that provide further information, frameworks and suggestions for climate action.

INTRODUCTORY QUESTIONS:

YOUR OVERALL ROLE[S] IN CLIMATE ACTION

- How will climate change impact the place[s] you operate in?
- Who will be affected and how?
- How do you contribute to climate change, locally and globally?
- What roles does your community currently think your museum plays?
- What resources and opportunities do you have or could you create, to foster climate action?
- Thinking about climate change impacts in your setting, what roles would be most helpful to your community and the natural environment, in reducing greenhouse gas emissions, and adapting to a changing climate? Who should decide?
- Which roles do you think your museum can't play, and why?
- What would you, your colleagues and your museum need to differently to play those roles?
- What would be gained, and what would be lost in making those changes? Who would benefit, prioritising the needs of those currently under-served or excluded?
- Who decides how you change, in the face of certain change? You, or your community?
- Whose voices and opinions matter?

- What scales should you operate at? What scales can you work at to support climate transformation?
- What is your overall vision and commitment to climate action?
- When are you currently on track to be zero carbon on climate neutral?
- How fast are you reducing your carbon footprint, before offsetting is considered?
- Are you contributing to the transformation needed, in line with Paris Agreement commitments, or are you too slow?

See sections on:

Climate change and its many impacts (section c) [JUMP](#)

Reducing greenhouse gas emissions: climate mitigation (section d) [JUMP](#)

Coping with change: climate adaptation and resilience (section e) [JUMP](#)

Disaster Risk Reduction and 'Build Back Better' (section f) [JUMP](#)

Human rights and climate change (section g) [JUMP](#)

Climate justice (section h) [JUMP](#)

Just transition (section i) [JUMP](#)

In the following sets of questions, a suggested 'destination' of 'where are you trying to get to?' is presented, followed by sets of questions to help you explore where you are now, and how you might get from there to the desired future destination.

1. CULTURAL AND NATURAL HERITAGE FOR CLIMATE ACTION AND SUSTAINABLE DEVELOPMENT

Cultural and natural heritage are threatened by climate change. They need to be managed in ways that address climate change and that can adapt to climate impacts. Caring for cultural and natural heritage should be undertaken in ways that do not themselves contribute to climate damage, which ultimately threatens people, and cultural and natural heritage.

Where are you trying to get to?

- A position where cultural and natural heritage are safeguarded and developed effectively, in the context of a changing climate.
- Where cultural and natural heritage contribute effectively to climate action.
- Where cultural and natural heritage are accessible to those who can make use of them for climate action.
- Where the negative impacts of heritage management are eliminated.

Where are you now?

- How are cultural and natural heritage threatened by climate change in your context (place)?
- How are your current approaches to managing cultural heritage impacting on wider cultural and natural heritage?
- Who is dispossessed from their heritage, or unable to draw on cultural or natural heritage because of museum practices?

How are you going to get there?

- What heritage preservation approaches are needed to meet the requirements of the Paris Agreement and Sustainable Development Goals?
- What cultural heritage could be helpful to reduce emissions or adapt to climate change, to whom, and how can they be provided with full access to it?
- How can you incorporate your impacts on wider society, cultural and natural heritage into your decision-making, energy use and planning?
- How can you incorporate the care and safeguarding of wider

climate and biodiversity into your internal museum decisions?

- How can you consider the impacts of decisions on heritage in three ways: ‘here and now’, ‘elsewhere’, and ‘later on’?
- What are the current and future climate scenarios, impacts and adaptation plans you need to be aware of and participate in?
- If your museum has to move because of climate change, where should it move to, and for whom, and why should it continue to exist?
- At what level of risk should your museum be allowed to come to an end?
- What questions would you need to ask now, and of whom, to help you change to a more constructive role, in safeguarding cultural and natural heritage from climate impacts?

See sections on:

Climate change and its many impacts (section c) [JUMP](#)

Reducing greenhouse gas emissions: climate mitigation (section d) [JUMP](#)

Coping with change: climate adaptation and resilience (section e) [JUMP](#)

Disaster Risk Reduction and ‘Build Back Better’ (section f) [JUMP](#)

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Towards positive relationships with nature (section n) [JUMP](#)

Nature-based solutions (section o) [JUMP](#)

Heritage as part of the problem – and part of the solution (section p) [JUMP](#)

Reimagining Museums for Climate Action: inspiring radical climate action in and with museums (section q) [JUMP](#)

2. LEARNING FOR CLIMATE ACTION

Education, for all ages and lifelong, is a fundamental part of climate action, empowering people to know what they can do, to care about addressing climate change and its impacts, and having practical skills to act to address climate change.

Where are you trying to get to?

- A situation where everyone has the knowledge, attitudes and skills to contribute meaningfully to climate action.
- Where everyone has the knowledge, attitudes and skills to understand and recognise how climate change will impact upon them, and what they can do to be prepared for those challenges to protect themselves, their families and their property from risk of harm.
- Where education, awareness and information are provided in forms that support people’s ongoing knowledge and ability to participate in climate action, so they are accessible, mindful of cultural differences, and respectful of minorities’ needs.

- Where people know their rights, and have the knowledge, attitudes and skills to claim their rights regarding climate action, through democratic and political processes.
- Where everyone is empowered through education to know who is responsible for climate change, and how they can influence those in power to fulfil their responsibilities regarding climate action.

Where are you now?

- Who currently has the knowledge, attitudes, and/or skills to contribute meaningfully to climate action?
- Who lacks the knowledge, attitudes and/or skills to contribute meaningfully to climate action?
- Who takes part in current affairs and who doesn't?
- What are the particular climate impacts facing people in your context[s], and how do you currently empower people to understand and manage those impacts?
- What cultural heritage is supporting learning opportunities to support climate action, and what cultural heritage is unused, under-used, or not available to those who could learn from it?
- How do your current programmes build people's knowledge, attitudes and/or skills relating to climate action?

How are you going to get there?

- How are you going to incorporate climate mitigation and action into your educational and awareness-raising programmes?
- What do you need to incorporate to support climate mitigation and adaptation effectively?
- What climate impacts are likely to impact on your communities and what information do they need to prepare for those impacts?
- How are you going to support high emitters to reduce their carbon footprint?
- How are you going to ensure everyone has the necessary and appropriate knowledge, attitudes and skills to contribute to climate action?

See sections on:

Climate change and its many impacts (section c) [JUMP](#)

Reducing greenhouse gas emissions: climate mitigation (section d) [JUMP](#)

Coping with change: climate adaptation and resilience (section e) [JUMP](#)

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Just transition (section i) [JUMP](#)

Common But Differentiated Responsibilities (section j) [JUMP](#)

Action for Climate Empowerment (section k) **JUMP**

Education for Sustainable Development (section l) **JUMP**

Additional learning approaches (section m) **JUMP**

Towards positive relationships with nature (section n) **JUMP**

3. CLIMATE ACTION NEEDS EVERYONE

Everyone is entitled, by right, to participate in the cultural life of their community, to benefit from scientific achievement, to participate in public affairs, and to take part in environmental decision making. Everyone is entitled to know the challenges facing them and their property, without exception. Cultural participation regarding climate change is not a 'nice to have': it is about people's lives and futures. Ensuring that climate action programmes are available, accessible and appropriate for all people supports people's rights to participate in climate action. More broadly, if museums deny people, or certain groups of people, access to their own cultural heritage, or prevent people from benefitting from the knowledge associated with collections, then they are getting in the way of climate action.

Where are you trying to get to?

- A situation where everyone has access to the information, resources and opportunities to face climate change.
- Where people are lifted out of poverty, their rights are fulfilled and they can achieve their potential, which would help them face climate change.
- Where those who consume most reduce their consumption and emissions most rapidly.
- Where people are aware of how political decisions keep people in poverty, and are empowered to make use of democratic processes.
- A future where everyone has access to a reasonable standard of living, without fear, violence, discrimination, or hunger.

Where are you now?

- Whose rights are you supporting, and whose rights are you violating? How are you reaching minorities, in ways sensitive to their aspirations and needs, and in ways that are meaningful to them?
- How are efforts to support all of society to meet the challenges of today, and to truly transform society, being achieved, beyond project-based approaches?
- Who are you excluding from making use of their own heritage, which could support their climate action and empowerment?
- What cultural norms are you responsible for shaping, and how do those norms contribute to climate action (or inaction)?

How are you going to get there?

- What does cultural participation regarding climate action look like?
Who is doing what?
- How are the needs of minorities met?
- How are those who are most at risk from climate impacts prioritised?
- How are everyone's rights regarding education, information, to take part in cultural life, to contribute to the life of the community, and their collective rights to play a role in the development of the community being met?
- How are the barriers that currently prevent people from participating in society, and accessing their cultural heritage – whether it is in their own country or elsewhere, and whether it is in relation to climate change or not – being removed?

See sections on:

Climate change and its many impacts (section c) [JUMP](#)

Reducing greenhouse gas emissions: climate mitigation (section d) [JUMP](#)

Coping with change: climate adaptation and resilience (section e) [JUMP](#)

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4. SUPPORT SUSTAINABLE TOURISM

Tourism has a massive carbon footprint. Working to support sustainable tourism can help ensure that museums are not driving climate damage. Museums often play a role in attracting tourists to particular locations and tourism is growing in unsustainable ways. The carbon footprint associated with visitor travel – including of international tourists – is part of museums' own carbon footprint. Reducing the negative impacts of tourism has to be part of museums' planning to reduce the impact of their activities.

Where are you trying to get to?

- A future where tourism is in balance with other museum activities.
- Where tourism doesn't necessitate long flights or emissions.
- Where museums are less place-based and reach out more, to avoid the need for travel and its negative emissions.

Where are you now?

- What proportion of your overall greenhouse gas emissions are a result of tourism?
- What are your plans to manage tourism?
- Has tourism grown sustainably, or not?
- If tourism has grown a lot, what else have you not been able to do, and what has been lost in the process?

How are you going to get there?

- By prioritising local sustainable development over climate-wrecking international tourism?
- Could digital media help you reach people without their needing to travel?
- Could you support people to become 'responsible tourists' before they travel?
- Could you better support localism? Are you prioritising the needs or desires of wealthy, high-emissions travellers, or disadvantaged local people?

See sections on:

Climate change and its many impacts (section c) [JUMP](#)

Reducing greenhouse gas emissions: climate mitigation (section d) [JUMP](#)

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Common But Differentiated Responsibilities (section j) [JUMP](#)

Nature-based solutions (section o) [JUMP](#)

5. RESEARCH FOR CLIMATE ACTION

Research – production of new knowledge and perspectives – is fundamental to climate action, in terms of science, social sciences and humanities approaches, and Traditional Knowledge. Museums contain unique resources and opportunities that can support research that can help meet the challenge of climate change, and also connect people with and in research. The research process can be very carbon intensive (for example through air travel to conferences), and shifting research practices to be lower carbon could contribute meaningfully to climate action.

Where are you trying to get to?

- A future where people have access to the knowledge resources they need to understand and meet the challenges of climate change.
- Where research and research-ready resources are developed effectively, and shared for the maximum benefit of humanity and for climate action.

- Where research is undertaken in ways that maximise its positive contributions to climate action and sustainable development, and use little carbon in the process.

Where are you now?

- What resources do you have – collections, information – that could help understand climate change or manage its impacts?
- How are these resources being made use of?
- Who is able, and unable, to make use of collections and other resources to meet the challenge of climate change and its impacts?

How are you going to get there?

- What are the biggest questions that could help address climate change, and cope with its impacts, and which researchers and disciplines might be able to answer them?
- Whose research and which disciplines can help inform public opinion and awareness to meet the challenges of climate change?
- What kinds of resources are needed in your context to ensure people can continue to understand and explore climate change and its impacts?
- In what forms does research need to be made available to meet the needs of communities and other stakeholders, notably through open access publishing?
- How can your museums support the communication and sharing of research, and promote critical thinking to enable people to make use of research?
- How can your museum support research to understand and enhance public support for climate action?
- How can research be more accessible, and appropriate to the needs of communities and a wide variety of users and stakeholders?
- How can your current, or new, research programmes contribute to climate action and sustainable development?
- How can the negative aspects of research and research practice – which often involves a lot of travel for research and conferences – be reduced and eliminated?

See sections on

Climate change and its many impacts (section c) [JUMP](#)

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Additional learning approaches (section m) **JUMP**

Towards positive relationships with nature (section n) **JUMP**

Nature-based solutions (section o) **JUMP**

Heritage as part of the problem – and part of the solution (section p) **JUMP**

6. MAKING CLIMATE ACTION EVERY MUSEUM WORKERS' JOB, EVERYDAY

Climate change represents a monumental challenge for all of society. That means it needs everyone to act, and to act fast. Climate change is too big a challenge to be a simple project alongside other activities, or a short-term project, or one particular person's job. Climate action needs everyone. Climate action has to be part of everyone's work and daily decision-making, and certainly a part of big decisions, to achieve the transformation to a climate-friendly future. Museums have to address their own carbon footprint and other greenhouse gas emissions, as part of climate action, in line with the Paris Agreement. Their pension funds and investments should be directed towards supporting climate action, and they should not be funding or supporting climate destruction. They – individual museums, sector support organisations and the entire museum sector – need to adopt policies and develop plans that incorporate the requirements needed to achieve the Paris Agreement and SDGs.

Where are you trying to get to?

- A future where museums are climate positive: responsible for removing more greenhouse gas emissions than you produce.
- Where museums and those who work in them are deploying their various resources – collections, buildings, staff – to concrete climate action as far as is reasonably possible.
- Where museums' and museum workers' external-facing actions (educational and participatory activities) complement their internal rapid greenhouse gas reductions.
- Where museums' climate action is reported and communicated openly, honestly and transparently to all stakeholders.

Where are you now?

- Do you know what your greenhouse gas emissions are, both for your museum and for your own work? Do you care?
- Do you know what emissions your museum and your work are indirectly responsible for? There's a good chance they represent 80%

or more of the overall emissions.

- Are your emissions reducing, both for your museum and your own work or, worse, are they increasing?
- When are you (your museum and your own work) on course to be carbon neutral/Net Zero, in the proper sense of aggressively reducing your emissions as far as is possible, and offsetting the remainder responsibly?

How are you going to get there?

- How can you make your museum accountable for the climate damage it has done over the course of its history?
- How can you ensure people in your museum know what emissions your country is responsible for, and the level of ambition that your museum should be taking to reduce its emissions?
- What concrete plans and actions should your museum prioritise to understand and reduce its largest/biggest sources of emissions from burning fossil fuels, energy and transport (Scope 1 and 2 emissions)?
- What concrete plans and actions should your museum prioritise to understand and reduce the emissions resulting from its activities, such as visitor travel and waste management (Scope 3 emissions)?
- How can you make concrete commitments that involve measurement, reduction, offsetting/contribution, and regular reporting of your climate actions to all stakeholders?
- How can you ensure that reporting incorporates all of positive actions, negative impacts, and actions to be taken to address negative impacts?
- How can you make climate action everyone's job, everyday, through recruitment, work plans, staff reviews and resourcing decisions?
- How can you understand how climate change will impact on your organisation and community, and ensure it is ready to cope with those impacts?

See sections on

Climate change and its many impacts (section c) [JUMP](#)

Reducing greenhouse gas emissions: climate mitigation (section d) [JUMP](#)

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Additional learning approaches (section m) **JUMP**

Towards positive relationships with nature (section n) **JUMP**

Nature-based solutions (section o) **JUMP**

Heritage as part of the problem – and part of the solution (section p) **JUMP**

7. **WORKING EFFECTIVELY WITH OTHER MUSEUMS, ORGANISATIONS AND OPPORTUNITIES, TO SUPPORT CLIMATE ACTION**

Partnerships between people, institutions, sectors, networks and countries are an essential part of climate action and sustainable development. Partnerships help to build collective value through synergies and added value. There are a number of excellent initiatives that museums can empower people to participate in. Museums can embed these into their planning, exhibitions, educational activities, and ensure that their own operations are steered towards supporting them, and removing their negative impacts.

Where are you trying to get to?

- Where museums are effective and willing partners in climate action.
- A situation where everyone knows the potential of museums to support climate action, and where that potential is realised.
- Where museums understand what agendas, initiatives and opportunities are underway or being developed, and how they can play their part.
- Where museum workers can work effectively with other sectors to build public value and climate action.
- Where collective action involving museums is communicated widely and effectively among partners, and to wider stakeholders.

Where are you now?

- Who (museums, other organisations) are you working with on climate change mitigation and adaptation?
- Who (museums, other organisations) are you working with on nature conservation and restoration?
- Which communities or agencies representing communities are you working with, in order to understand and address climate impacts they face?
- How are your current partnerships and collaborations directed towards climate action?
- Which of your current partnerships and collaborations support climate action, and which, if any, impede climate action?
- Which relevant agendas, such as international observance days, international years and decades, and sustainable development programmes, are you participating in?

- Who are you currently communicating your climate action to, how and why?

How are you going to get there?

- Which other museums or organisations could you work with, to accelerate and enhance climate change mitigation and adaptation?
- Which other museums other organisations could you work with, to accelerate and enhance nature conservation and restoration, which could contribute to climate action?
- How well do you understand which communities face particular climate impacts, and how could you work with them or with other agencies to support them to understand and address these impacts?
- How can you incorporate climate action into relevant decision-making processes, such as collaborations, partnership agreements, and policies?
- How can you enhance your current partnerships and collaborations that support climate action, and reduce and eliminate your current partnerships and collaborations that impede climate action?
- What additional or upcoming international observance days, international years, decades and sustainable development programmes could you support, and what steps need to be taken to support them?

See sections on

Disaster Risk Reduction and 'Build Back Better' (section f) [JUMP](#)

Action for Climate Empowerment (section k) [JUMP](#)

Education for Sustainable Development (section l) [JUMP](#)

Additional learning approaches (section m) [JUMP](#)

Nature-based solutions (section o) [JUMP](#)

Current opportunities to take part in climate action (section r) [JUMP](#)

climate change and its many impacts: the need for climate action

C

FURTHER INFORMATION ON CLIMATE
CHANGE AND CLIMATE CHANGE IMPACTS

Climate change has multiple impacts, on ecosystems, society, the economy and infrastructure. These interact and cascade to other impacts. Climate impacts vary from place to place, and impacts are experienced differently by different sectors and social groups.

The Intergovernmental Panel on Climate Change (IPCC) reviews scientific evidence that is made available to the Parties to the UNFCCC and the Paris Agreement. Other leading sources of information are the annual State of the Global Climate reports from the World Meteorological Organization, Emissions Gap reports produced by the UN Environment Programme (UNEP) and IPBES reports on the state of biodiversity.

The most recent assessment report (AR6), by the IPCC, of the Physical Science Basis of climate change (2021), included the following headline statements (among others):

- “It is unequivocal that human influence has warmed the atmosphere, ocean and land. Widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred.”
- “The scale of recent changes across the climate system as a whole and the present state of many aspects of the climate system are unprecedented over many centuries to many thousands of years.”
- “Human-induced climate change is already affecting many weather and climate extremes in every region across the globe. Evidence of observed changes in extremes such as heatwaves, heavy precipitation, droughts, and tropical cyclones, and, in particular, their attribution to human influence, has strengthened since the Fifth Assessment Report (AR5).”
- “Global surface temperature will continue to increase until at least the mid-century under all emissions scenarios considered. Global warming of 1.5°C and 2°C will be exceeded during the 21st century unless deep reductions in carbon dioxide (CO₂) and other greenhouse gas emissions occur in the coming decades.”
- “Many changes in the climate system become larger in direct relation to increasing global warming. They include increases in the frequency and intensity of hot extremes, marine heatwaves, and heavy precipitation, agricultural and ecological droughts in some regions, and proportion of intense tropical cyclones, as well as reductions in Arctic sea ice, snow cover and permafrost.”
- “Continued global warming is projected to further intensify the global water cycle, including its variability, global monsoon precipitation and the severity of wet and dry events.”

- “Under scenarios with increasing CO₂ emissions, the ocean and land carbon sinks are projected to be less effective at slowing the accumulation of CO₂ in the atmosphere.”
- “Many changes due to past and future greenhouse gas emissions are irreversible for centuries to millennia, especially changes in the ocean, ice sheets and global sea level.”
- “From a physical science perspective, limiting human-induced global warming to a specific level requires limiting cumulative CO₂ emissions, reaching at least Net Zero CO₂ emissions, along with strong reductions in other greenhouse gas emissions. Strong, rapid and sustained reductions in CH₄ [methane] emissions would also limit the warming effect resulting from declining aerosol pollution and would improve air quality.”

Major climate change impacts include:

- Atmospheric CO₂ levels are at their highest for at least two million years.
- Rate of glacial retreat is unmatched for 2,000+ years.
- Last decade warmer than any similar period for c.125,000 years.
- Sea level rise faster than and prior century for 3,000 years.
- Summer Arctic ice coverage smallest in last 1,000 years.
- Ocean warming at its fastest since the last Ice Age.
- Ocean acidity level at its highest in 26,000 years.

The World Meteorological Organization issues a definitive ‘state of the global climate’ report annually. The 2020 Provisional Report on the State of the Global Climate Report included the following headline findings:

- Greenhouse gas emissions continued to increase, in spite of COVID-19.
- The six years 2015-20 have been the warmest six years on record. The highest ever temperature was recorded north of the Arctic Circle (38.0°C).
- The trend in sea-level rise is accelerating.
- Arctic sea-ice minimum was the second lowest on record.
- Antarctic ice-mass loss accelerated around 2005.
- The 2020 North Atlantic hurricane season was exceptionally active.
- Hurricanes, extreme heatwaves, severe droughts and wildfires led to tens of billions of US dollars in economic losses, and many deaths.
- Some 9.8 million people were displaced by floods and other extreme weather impacts in the first half of 2020.
- Disruptions to the agriculture sector by COVID-19 multiplied extreme weather impacts, increasing food insecurity.

Each effect of climate change has multiple impacts or likely consequences. These were outlined by the IPCC in its fourth Assessment Report (AR4) in 2007.

Phenomenon & direction of trend	Agriculture, forestry & ecosystems	Water resources	Human health	Industry, settlement & society
Over most land areas, warmer and fewer cold days and nights, warmer and more frequent hot days and nights	Increased yields in colder environments; decreased yields in warmer environments; increased insect outbreaks	Effects on water resources relying on snowmelt; effects on some water supplies	Reduced human mortality from decreased cold hazards	Reduced energy demand for heating; increased demand for cooling; declining air quality in cities; reduced disruption to transport due to snow, ice; effects on winter tourism
Warm spells/heat waves; frequency increases over most land areas	Reduced yields in warmer regions due to heat stress; increased danger of wildfire	Increased water demand; water quality problems, e.g. algal blooms	Increased risk of heat-related mortality, especially for the elderly, chronically sick, very young and socially isolated	Reduction in quality of life for people in warm areas without appropriate housing; impacts on the elderly, very young and poor
Heavy precipitation events; frequency increases over most areas	Damage to crops; soil erosion; inability to cultivate land due to water logging of soils	Adverse effects on quality of surface and groundwater; contamination of water supply; water scarcity may be relieved	Increased risk of deaths, injuries and infectious, respiratory and skin diseases	Disruption of settlements, commerce, transport and societies due to flooding; pressures on urban and rural infrastructures; loss of property
Area affected by drought increases	Land degradation; lower yields/crop damage and failure; increased livestock deaths; increased risk of wildfire	More widespread water stress	Increased risk of food and water shortage; increased risk of malnutrition; increased risk of water- and food-borne diseases	Water shortage for settlements, industry and societies; reduced hydropower generation potentials; potential for population migration
Intense tropical cyclone activity increases	Damage to crops; wind throw (uprooting) of trees; damage to coral reefs	Power outages causing disruption of public water supply	Increased risk of deaths and injuries by drowning in floods; migration-related health effects	Disruption by flood and high winds; withdrawal of risk coverage in vulnerable areas by private insurers, potential for population migrations, loss of property
Increased incidence of extreme high sea level (excludes tsunamis)	Salinisation of irrigation water, estuaries and freshwater systems	Decreased freshwater availability due to saltwater intrusion	Increased risk of deaths and injuries by drowning in floods; migration-related health effects	Costs of coastal protection versus costs of land-use relocation; potential for movement of populations and infrastructure

Some impacts of climate change are extreme, single events, such as storms or floods. Others are called ‘slow onset events’, which take place gradually over long periods of years or decades. These include rising temperatures, desertification, loss of biodiversity, land and forest degradation, glacial retreat and related impacts, ocean acidification, sea-level rise and salinisation.

In addition to the five-yearly Assessment Reports, IPCC issues special reports dedicated to particular topics.

IPCC 1.5 Degrees Report (2018)

- On the current path of carbon dioxide emissions, temperature is expected to increase by 3 to 5 degrees Celsius by the end of century.
- 1.5°C is possible but requires unprecedented and urgent action.
- There are clear benefits to limiting warming to 1.5°C compared to 2°C: 420 million fewer people being exposed to severe heat waves, survival of some tropical coral reefs, loss of fewer plant and animal species, and the protection of forests and wetland habitats.
- The decisions we make now will define the world we live in and for future generations.

IPCC Special Report on Climate Change and Land (2019)

- Land is a critical resource: agriculture, food production, and deforestation are major drivers of climate change.
- Keeping global warming to well below 2°C can be achieved only by reducing greenhouse gas emissions from all sectors including land and food.

IPCC Special Report on Oceans and the Cryosphere (2019)

- Earth’s oceans and frozen spaces are being hit hard by global warming.

UNEP’s annual Emissions Gap Report provides an important review of emissions and countries’ attempts to reduce emissions. The 2020 Emissions Gap Report (published in 2021) included the following headlines:

- We are currently on track for 3°C of global heating this century.
- A green economic recovery from the pandemic could cut c.25% of emissions predicted in 2030, and get close to 2°C of warming.
- The COVID-19 pandemic is a warning from nature we must act on climate change, nature loss and pollution.
- Governments have largely missed the opportunity to make the recovery a green recovery.

- Net Zero commitments from many countries need to be backed up by policies and action.
- Shipping and aviation sectors need more attention as emissions are growing.
- “Stronger action must include facilitating, encouraging and mandating changes in consumption behaviour by the private sector and individuals.”
- Combined emissions of richest 1% are more than double the combined total of the poorest 50%. High consumers will need to reduce their footprint to stay in line with Paris Agreement targets.

The 2019 Emissions Gap Report highlighted that global emissions need to fall by 7.6% year-on-year from 2020–30 to get on track to 1.5°C of global heating.

Climate change is already thought to be responsible for roughly 150,000 deaths each year.

In 2019, an international report by the Lancet Countdown declared climate change a health emergency, with “dire implications for every aspect of human life” already playing out across the globe today.

The World Health Organisation (WHO) has estimated that, between 2030 and 2050, climate change will result in 250,000 additional deaths every year: 38,000 due to heat exposure of elderly people, 48,000 from diarrhoea, 60,000 from malaria, and 95,000 for child undernourishment.

The World Health Organization issued a Special Report on Health and Climate Change in 2018

- The WHO describes the Paris Agreement as “the strongest health agreement of the century”.
- The WHO estimates tackling climate change would save at least one million lives a year, because tackling climate change would help address the negative impacts of, for example, air quality caused by burning fossil fuels.

The World Health Organization estimates that a shocking seven million people die annually as a consequence of air pollution. Many of these deaths are consequences of using fossil fuels as a source of fuel, both indoors and outdoors. Climate action could help to reduce this number significantly, by moving to fuels and practices that don’t create air pollution.

The World Health Organization (with UNDP, UNEP and UNICEF) has published a Compendium of WHO and other UN guidance on health and environment, as a practical tool including 500 actions to take, across all sectors, and including 39 key messages to communicate to the general public, to promote health and reduce environmental health risks.

The World Health Organization produces accessible factsheets on climate change and climate change impacts.

UNICEF's Children's Climate Risk Index reveals that approximately one billion children live in 33 countries at 'extremely high risk' due to the impacts of climate change. Countries most at risk are mainly in Africa, as well as South and South-east Asia, and Central America. Countries at 'extremely high risk' typically bear little responsibility for climate change.

In September 2021, the editors of 200 health journals issued a joint editorial: "The greatest threat to global public health is the continued failure of world leaders to keep the global temperature rise below 1.5°C and to restore nature. Urgent, society-wide changes must be made and will lead to a fairer and healthier world. We, as editors of health journals, call for governments and other leaders to act, marking 2021 as the year that the world finally changes course."

Climate action makes economic sense, as set out in the New Climate Economy report (2018)

- Bold climate action could deliver US\$26 trillion in economic benefits.
- Switching to a clean economy could lead to over 65 million new low-carbon jobs, higher global GDP growth, increase in female employment, and 700,000 fewer air pollution-related deaths. It also could raise \$2.8 trillion in carbon price revenues and fossil fuel subsidy savings to reinvest in public priorities.

Climate change is already driving a major redistribution of plants and animals, with serious consequences both for people and for nature.

Climate change is recognised as one of five major drivers of biodiversity loss, interacting with the other four: habitat change, pollution, invasive species and over-consumption. Action to address one can, and should, also address the other four drivers.

The vision of the Convention on Biological Diversity is that, by 2050, humanity is "living in harmony with nature". The Global Biodiversity Outlook 5 (GBO-5), published by the UN Convention on Biological

Diversity (CBD), offers “an authoritative overview of the state of nature”. Of twenty targets to conserve biodiversity between 2011-20 (the Aichi Targets), 14 were not achieved, and the remaining six were only partially achieved.

The Global Environmental Outlook (GEO), produced by the UN Environment Programme (UNEP) is an invaluable source of information. The most recent Outlook, GEO 6 (2019) “calls on decision makers to take immediate action to address pressing environmental issues to achieve the Sustainable Development Goals as well as other Internationally Agreed Environment Goals, such as the Paris Agreement.” As well as the Global Environmental Outlook report, there are regional and thematic reports, with a wealth of information on environmental conditions, risks, actions, and actions needed.

FURTHER INFORMATION ON CLIMATE CHANGE AND CLIMATE CHANGE IMPACTS

Climate change and Indigenous peoples

UN Permanent Forum for Indigenous Issues Considers Reports on Climate Change Issues [LINK](#)

Climate Change and Indigenous Peoples (2008) [LINK](#)

UN Department of Social and Economic Affairs, Indigenous Peoples, Climate Change [LINK](#)

UNFCCC, Local Communities and Indigenous Peoples Platform [LINK](#)

Climate change, women and girls

IUCN Gender and Environment Resource Centre [LINK](#)

UNFCCC, gender and climate change [LINK](#)

UN Womenwatch, Women, gender equality and climate change factsheet [LINK](#)

UNDP 2017, Overview of Linkages Between Gender and Climate Change [LINK](#)

Climate change and human migration and displacement

International Organization for Migration (IOM), Migration, Environment and Climate Change [LINK](#)

Information on how people are being displaced and relocating due to climate change impacts can be found on the Migration Data Portal [LINK](#)

Climate change and nature

International Union for the Conservation of Nature, Climate Change [LINK](#)

NASA Global Climate Change, Vital Signs of a Changing Planet [LINK](#)

Other sources

Our World In Data [LINK](#)

Progress with Sustainable Development Goal 13, Take Urgent Action to Combat Climate Change and its Impacts [LINK](#)

UN News, Climate and Environment [LINK](#)

Sustainable Development Goals Tracker [LINK](#)

reducing greenhouse gas emissions: climate mitigation

d

WHAT IS THIS?

WHY IS THIS IMPORTANT?

WHAT THIS MEANS FOR MUSEUMS

MEASURING GREENHOUSE GAS EMISSIONS: TOOLS AND RESOURCES

A WORD ON NET ZERO

WHAT IS THIS?

Climate mitigation means “A human intervention to reduce emissions or enhance the sinks of greenhouse gases.”

WHY IS THIS IMPORTANT?

As climate change is largely caused by changing the composition of the atmosphere, mitigation is fundamental to climate action, both in terms of reducing emissions and enhancing nature’s ability to absorb emissions.

There are six greenhouse gases covered by the Kyoto Protocol: carbon dioxide (CO₂), methane, nitrous oxide and three fluorine gases. The fluorine gases are a lot rarer than carbon dioxide, but are especially powerful greenhouse gases. Although not a greenhouse gas, black carbon (soot) is also responsible for global heating as it absorbs heat.

Climate mitigation can be thought of as consisting of two main activities:

1. Reducing greenhouse gas emissions, either by reducing activity that creates them, increasing efficiency of processes that produce them, or by shifting to alternative fuels that do not produce greenhouse gases.
2. Removing CO₂ and other greenhouse gases from the atmosphere, called Carbon Removal Methods. These include Natural Carbon Removal Methods (enhancing soils, oceans, wetlands, planting trees); Technological approaches (e.g. Carbon Capture and Storage); or hybrid approaches (Climate Engineering/Geoengineering)¹. They include²:
 1. Agroforestry, which combines tree-growing with agriculture.
 2. BECCS: Bioenergy with carbon capture & storage.
 3. Biochar, which creates charcoal from biomass and adds it to soil; it is stable for thousands of years.
 4. Blue carbon, that is, restoring and expanding peatlands and wetlands.
 5. Direct air capture, Direct Air Capture With Carbon Storage (DACCS) involves technology to remove gases from the air and store them in reservoirs or in a stable form.
 6. Enhanced mineralisation, accelerating processes that absorb CO₂ as minerals and rocks (e.g. olivine, basalt) weather into different forms, and/or adding certain minerals to the soil to do so.
 7. Forestation, includes afforestation, reforestation and forest restoration; restoration provides greater biodiversity benefits than monoculture plantations.
 8. Mass timber construction (building using wood-based rather than cement/concrete-based methods).

9. Ocean alkalisation, adding minerals and rocks (e.g. olivine) that increase the formation of stable carbon compounds, and cause the ocean to absorb more CO₂.
10. Soil carbon sequestration, or 'carbon farming', switching to farming methods that support the soil's ability to store carbon, and reduce use of fertilisers.

Typical thematic areas for mitigation activity are:

- **Energy:** reducing greenhouse gas emissions through reduction in energy use, energy efficiency, and using renewable energy sources.
- **Transport:** reducing the volume of transport, distances involved in transportation, and forms of fuel used in transportation.
- **Buildings:** through use of low emissions materials, preservation, reuse and upgrading of existing buildings.
- **Industry:** through the forms of goods and services produced, and energy consumed in their production and distribution.
- **Waste management:** through prevention of waste by reduction in consumption, reduction of waste through reuse.
- **Agriculture, forestry, and other forms of land management:** strengthening nature's ability to absorb carbon, and ensuring agricultural and other management practices support the absorption of greenhouse gases, and prevent their emission into the atmosphere, for example by preventing nitrous oxide emissions resulting from fertiliser use, and reducing dairy animals.

Headline actions for reducing greenhouse gas emissions:

Carbon dioxide: rapidly move away from fossil fuels throughout all activities, including heating, cooling, transport, and visitor travel. Increase efficiency of equipment, although this is not a substitute for using renewable energy sources. Reduce emissions by reducing general consumption: use less and waste less.

Methane and Nitrous oxide: transition towards food use that is based on vegetables rather than meat and dairy products. Ensure food waste does not go to landfill, to avoid methane production through decay processes.

Fluorine gases: reduce reliance on electrical goods including screens. Ensure redundant equipment is safely disposed of to ensure gases do not pollute the atmosphere.

Climate Mitigation: measure, reduce, contribute, report

The UNFCCC's Climate Neutral Now initiative is based on a four-step approach to greenhouse gas reductions:

1. Measure: quantify your emissions, and identify their main sources.
2. Reduce: identify potential reductions, plan and implement actions.
3. Contribute: choose a project that supports sustainable development, and contribute towards it (offset).
4. Report: assess results and revise, communicate and share progress.

Greenhouse gas emissions are measured in three 'Scopes'.

For museums, these would mean:

Direct emissions (known as Scope 1): from onsite combustion of fossil fuels in heating and cooling, and fossil fuels used by fleet vehicles.

Indirect emissions (Scope 2): from purchased electricity and steam, in terms of the emissions produced in the production of that energy.

Optional emissions (Scope 3): Examples include employee business travel and commuting, consumption of goods and services, which includes visitor travel to museums, investments and waste management.

Scope 3 emissions are the most difficult to measure and control, but they typically make up the largest part of emissions for medium or large businesses and organisations, often over 80% of total emissions, so need to be addressed.

WHAT THIS MEANS FOR MUSEUMS:

Scope 1 and 2 emissions are relatively easy to deal with, at least in theory, by rapidly shifting away from fossil fuels in heating, energy and transport, and changing working practices and standards that use these, or that are inefficient. The actions to take are really very clear.

There are 15 categories of Scope 3 emissions, which museums can act on as follows:

Category		Description	Possible activities for museums to implement
1	Purchased goods and services	emissions from the production of products purchased or acquired	purchase less goods and services: consume less, purchase low or, ideally, zero carbon goods and services
2	Capital goods	emissions from the production of capital goods	purchase second-hand capital goods (e.g. vehicles, equipment), purchase less capital goods through greater sharing of resources
3	Fuel and energy-related activities	emissions related to the production of fuels and energy purchased and consumed	switch to renewable energy sources, maximise energy efficiency, consume less energy, change environmental requirements to be more in keeping with Paris Agreement targets, and where environmental controls are absolutely necessary in collections stores and exhibitions, implement them through targeted localisation
4	Upstream transportation and distribution	transportation and distribution of products purchased	purchase less products, reduce transportation emissions by insisting on low or, ideally, zero carbon emissions transport, maximise efficiency of transportation
5	Waste generated in operations	emissions from third-party disposal and treatment of waste generated	consume less to produce less waste, enhance sharing and reuse of resources to minimise waste production
6	Business travel	emissions from the transportation of employees for business-related activities	reduce business travel emission, notably through reducing business travel (not just Business Class, all business travel) and replacing with online meetings
7	Employee commuting	emissions from the transportation of employees between their homes and their worksites	provide employees with support (season ticket loans) to use public transport, encourage and empower employees to work from home
8	Upstream leased assets	emissions from the operation of assets that are leased (e.g. storage in buildings owned by others)	reduce the need for leased assets, by prioritising disposal and or/dispersion of low quality or un-used assets, and greater sharing of assets among partners to reduce the need for storage
9	Downstream transportation and distribution	emissions from transportation and distribution of sold products in vehicles and facilities owned by other.	reduce travel resulting from museum activities, including loans, touring exhibitions, and where travel cannot be reduced, reduce the emissions by choosing low-emissions transportation methods, and through collaboration to ensure the effectiveness of travel itineraries

10	Processing of sold products	emissions from processing of sold intermediate products by third parties subsequent to sale	reduce emissions by reducing the number and impact of touring exhibitions, reduce emissions involved in production of e.g. publications and other merchandise
11	Use of sold products*	emissions from the use of goods and services sold [includes free goods and services]	reduce emissions associated with visitor travel to museums, reduce emissions associated with visitor experience in museums
12	End-of-life treatment of sold products	emissions from the waste disposal and treatment of products sold [or otherwise produced]	reduce emissions from waste from e.g. temporary exhibitions through reducing their production, minimising construction, increasing sharing of resources with other museums and other organisations, and by prioritising easily disposable and biodegradable materials
13	Downstream leased assets	emissions from the operation of assets that are owned by the reporting organisation	reduce the number of assets leased (where there are any)
14	Franchises	emissions from the operation of franchises (e.g. book production or distribution, marketing distribution)	ensure that any franchised operations prioritise sustainable practices in line with Paris Agreement targets
15	Investments	emissions associated with the reporting company's investments (e.g. activity related to endowments, pension funds, bank accounts)	ensure investments of all kinds are directed towards sustainable development, eliminating support and benefit from activities that are socially and environmentally damaging; partnerships and relationships may be considered as a form of investment

(*) Downstream emissions are “Indirect GHG emissions from sold goods and services. Downstream emissions also include emissions from products that are distributed but not sold (i.e., without receiving payment)”, which would include e.g. emissions involved in people travelling to visit museums. https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporting-Standard_041613_2.pdf

MEASURING GREENHOUSE GAS EMISSIONS: TOOLS AND RESOURCES

Producing a full carbon footprint can seem daunting, but there are many tools available to do just this. The most important things to note are that they use a clear and transparent methodology, and that results are reported in a clear and transparent way.

The ‘Corporate Value Chain (Scope 3) Accounting and Reporting Standard’, or ‘Scope 3 Standard’ for short, allows companies to assess their entire value chain emissions impact and identify where to focus reduction activities.

The Scope 3 Standard is accompanied by the [Scope 3 Guidance](#), which gives detailed information on each of the 15 categories.

The [Scope 3 Evaluator tool](#) is a free online tool from the Greenhouse Gas Protocol and Quantis that makes it easier for organisations to measure, report, and reduce emissions throughout their value chain.

The [Climate Toolkit](#) provides guidance notes for museums on many aspects of reducing greenhouse gas emissions, with case studies on how US museums and botanic gardens are already reducing their carbon footprint.

There are a number of initiatives that museums can participate in to make commitments and measure, reduce and offset their emissions in responsible ways:

The UNFCCC [Climate Neutral Now](#) encourages organisations to make a commitment to reduce their greenhouse gas emissions, with a four-step approach: measure, reduce, report and contribute. Over 400 organisations take part. Their participation is formally recognised by the United Nations.

The [Science-based Targets Initiative \(SBTi\)](#) drives ambitious climate action in the private sector by enabling companies [but open to organisations of all kinds] to set science-based emissions-reduction targets.

The [SME Climate Hub](#) is based around a commitment to reduce greenhouse gas emissions by 50% by 2030 and Net Zero by 2050, and to report on a yearly basis. Museums can take part in the SME Climate Hub, and so join the Race to Zero campaign. The SME Climate Hub has a repository of tools to help organisations to measure, reduce and offset their emissions.

[Julie's Bicycle](#) has developed a set of online tools, the 'Creative Green Tools', that cultural organisations can use to calculate their greenhouse gas emissions. The Tools are used by over 3,000 organisations in 50 countries.

The [ICCROM Our Collections Matter Toolkit](#) contains many tools that can help collections-based organisations plan and deliver sustainable development action, including climate mitigation activities.

CiMAM (International Committee for Museums and Collections of Modern Art) has developed a [Toolkit on Environmental Sustainability in the Museum Practice](#).

Ki Culture have developed a set of '[Ki Books](#)' dedicated to particular sustainability themes, including waste reduction and energy.

A WORD ON NET ZERO

Many organisations are declaring their intention to become 'Net Zero', meaning that they intend to balance their emissions with offsets. Few large organisations will easily become 'Zero Emissions', at least in the short term, meaning that they will have to balance remaining emissions with offsets to achieve Net Zero. Net Zero, used properly, means that any emissions arising from an organisation's operations after it has made ambitious attempts to reduce emissions are offset by supporting activity elsewhere that reduces greenhouse gases, by buying offsets or certified emissions removals. This can be very positive, so long as genuine attempts are being made to reduce emissions, and not just to buy your way to [false] innocence through offsets, or purchasing low-quality or unethical offsets, which only undermine climate action. Net Zero claims need to be backed up by plans to be credible, and they should be transparent.

Oxford Principles for Net Zero Aligned Carbon Offsetting

[The Oxford Principles for Net Zero Aligned Carbon Offsetting](#) (Oxford Offsetting Principles for short) were developed in 2020 as a set of best-practice guidelines on how to use offsetting in ways that genuinely support climate action.

The principles are as follows, in summary form:

1. Cut emissions, use high quality offsets, and regularly revise offsetting strategy as best practice evolves. Crucially, organisations should prioritise reducing their emissions, to minimise the need for offsets in the first place, using offsets that are verifiable and correctly accounted for, by being part of certified schemes (such as the Certified Emissions Reduction scheme).
2. Shift to carbon removal offsetting, rather than emissions reduction offsetting.
3. Shift to long-lived carbon storage, so that offsets cannot be easily reversed.
4. Support the development of Net Zero aligned offsetting, by using long-term agreements, forming alliances for offsetting with peers, and supporting the restoration of natural and seminatural ecosystems above and beyond offsetting but as a responsibility in its own right.

The [UN High Level Champions and Oxford Net Zero](#) have developed a toolkit to help ensure that Net Zero claims are credible, and to make appropriate Net Zero plans. These are the 'guard rails' of Net Zero. The toolkit is based around six questions:

1. Is it about now? There should be a focus on action right now, to a 50% reduction in emissions by 2030.
2. Is there a plan? There should be a plan of immediate actions and in the next five years.
3. Is it fast enough? Plans should help get to Net Zero emissions before 2050, and as fast as possible.
4. Can you see progress? Progress should be reported publicly, at least annually, and for all of Scopes 1-3 emissions.
5. What does it cover? The commitment to Net Zero should cover all three Scopes of emissions.
6. Is it just offsetting? Reduction of emissions should be the priority, and offsetting does not substitute or delay decarbonisation.

¹ <https://www.eesi.org/articles/view/carbon-removal-strategies-a-broad-overview>

² The American University has a website that explains the various Carbon Removal Methods, and their pros and cons, in a series of factsheets. <https://www.american.edu/sis/centers/carbon-removal/>

coping with change: climate adaptation and resilience

e

WHAT IS THIS?

WHY IS THIS IMPORTANT?

PRINCIPLES OF ADAPTATION

HOW CAN MUSEUMS SUPPORT CLIMATE ADAPTATION AND RESILIENCE?

THE CLIMATE ADAPTATION CYCLE

FURTHER INFORMATION, CASE STUDIES AND RESOURCES

WHAT IS THIS?

Adaptation refers to adjustments in ecological, social, or economic systems in response to actual or expected climatic stimuli and their effects or impacts. It refers to changes in processes, practices, and structures to moderate potential damages or to benefit from opportunities associated with climate change. In simple terms, countries and communities need to develop adaptation solution and implement action to respond to the impacts of climate change that are already happening, as well as prepare for future impacts.

Adaptation solutions take many shapes and forms, depending on the unique context of a community, business, organisation, country or region. There is no 'one-size-fits-all-solution'—adaptation can range from building flood defences, setting up early warning systems for cyclones and switching to drought-resistant crops, to redesigning communication systems, business operations and government policies. Many nations and communities are already taking steps to build resilient societies and economies, but considerably greater action and ambition will be needed to cost-effectively manage the risks, both now and in the future.

WHY IS THIS IMPORTANT?

Successful adaptation not only depends on governments but also on the active and sustained engagement of stakeholders including national, regional, multilateral and international organisations, the public and private sectors, civil society and other relevant stakeholders, as well as effective management of knowledge. Adaptation to the impacts of climate change may be undertaken across various regions, and sectors, and at various levels.

The IPCC considers three main clusters of adaptation options: structural and physical options, social options and institutional options, and has made a number of suggestions for possible actions for each.

1. Structural/physical options

- Engineered and built environment, e.g. coastal defences, flood defences, adjusting electricity grids.
- Technological, e.g. new crop varieties, water-saving technologies, cooling systems, renewable energy technologies, biofuels.
- Ecosystem-based, e.g. restoring wetlands, peatlands, planting trees, changing land-use.
- Services, e.g. food banks, public water services, social security schemes.

2. Social options

- Educational, e.g. awareness-raising, including adaptation in schools programmes, ensuring gender equality in education, sharing local and traditional knowledge that can support adaptation, exhibitions and public information programmes.
- Informational, e.g. early warning systems, information on climate scenarios, access to climate data, information on community adaptation programmes.
- Behavioural, e.g. moving home, abandoning high risk areas, soil and water conservation, green livelihoods.

3. Institutional options

- Economic, e.g. taxes and subsidies supporting adaptation, water tariffs, insurance.
- Laws and regulations, e.g. land zoning for house-building, building standards, laws to support adaptation and reduce disaster risk, protected areas.
- Government policies and programmes, e.g. national and regional adaptation plans, city-level plans.

PRINCIPLES OF ADAPTATION

DEFRA (2010) developed a set of principles for successful climate adaptation:

Sustainable

Consider the long-term impact of adaptation actions.

Proportionate and integrated

Climate impacts should be assessed as part of normal risk management processes.

Collaborative and open

We need to work together to identify and understand climate change impacts and agree actions.

Effective

Actions should take account of wider societal challenges, be context specific, implementable, and enforceable, and flexible to respond to future climate scenarios and socio-economic changes.

Efficient

The costs, benefits, risks and timing of adaptation actions should be fully considered.

Equitable

Action to adapt to climate change should help to reduce wider inequalities and ensure that individuals or groups do not bear a disproportionate share of costs or risks.³

While these principles were developed to support the adaptation of communities and towns, they can also be considered by single institutions such as museums, or to help shape the adaptation of the museum sector, so that adaptation of the sector can be as successful as possible.

HOW CAN MUSEUMS SUPPORT CLIMATE ADAPTATION AND RESILIENCE?

Museums can consider climate adaptation and resilience in terms of:

1. Adaptation and resilience of museums themselves, so they are less at risk of damage or losses due to climate impacts.
2. Supporting adaptation and resilience of people, communities and natural places associated with museums, for example the town or region in which a museum is located.
3. Supporting adaptation and resilience farther afield, for example through partnerships that mobilise or develop resources that assist with adaptation and resilience.

The following seven key activities can help focus efforts on climate adaptation drawing on museums.

1. **Protect and safeguard cultural and natural heritage, both in museums and more generally, in way that contribute to climate adaptation, and that adapt themselves.**
 - Ensure collections are kept in buildings that are secure from serious climate impacts, both in the present and under future climate scenarios.
 - Use risk-based approaches to management of cultural and natural heritage, actively managing risk rather than simply trying to prevent/reduce losses as a result of disasters.
 - Ensure collections develop in ways that respond to a changing climate – and a changing society – in terms of whose culture and heritage feature in collections.
 - Collect people's experiences and knowledge, and share information, on local technologies, and/or technologies people are aware of from elsewhere that could contribute meaningfully to climate adaptation.
 - Ensure that communities that are forced to relocate as a consequence of climate impacts are able to access their own heritage, whether by relocation or other means.
 - Ensure that lessons are learnt from both successful and unsuccessful examples of protecting and safeguarding cultural and natural heritage in a changing climate, and shared widely.
 - Ensure cultural and natural heritage are utilised and mobilised so that people can draw on them in adaptation efforts, to accelerate adaptation.
 - Ensure collections are a useful infrastructure for understanding traditional technologies relating to climate adaptation.

- Prioritise collections development to incorporate heritage linked to threats, risks and adaptation options, taking a forward-facing (resourcing and empowering) rather than backward-looking (documenting) approach.
- Ensure collections develop so that they continue to be a research-useful infrastructure, in the context of a changing climate, and that they and information associated with them is readily and freely available worldwide.
- Ensure collections-care approaches and standards adapt to a changing climate, notably in terms of reducing their energy and resource requirements, and that they acknowledge changing sources of risk in a changing climate.
- Ensure unused or low-quality collections, that consume energy and other resources, are made more use of, or disposed of.

2. Support educational programmes that address climate adaptation and resilience

- Incorporate climate adaptation into museum educational, awareness-raising and other public-facing programmes.
- Use collections, exhibitions and events as a basis for education and public awareness on adaptation options.
- Promote the understanding and development of local regulations, national laws and international agreements (such as the Paris Agreement).
- Ensure people have awareness and information to help with the uptake of renewable energy sources, and energy efficiency, and the importance of moving away from fossil fuel use.
- Empower people to understand land rights, including Indigenous land rights, nationally and internationally.
- Ensure that people are aware of climate impacts facing their community and other communities, and of current or necessary actions to reduce the effect of these impacts.
- Empower people to understand how their personal choices can reduce their exposure to climate impacts (e.g. in terms of where they live).
- Empower people to take part in democratic processes, understand their rights and how climate change impacts on them, peaceful protest and to make demands of their representatives and governments.
- Ensure people have relevant information to support uptake of climate-adapted farming and crops, and to conserve soil and water effectively.
- Ensure people have access to relevant social and information networks for shared adaptation actions and initiatives.

- Support education and awareness-raising initiatives on vaccination programmes.
- Provide people with practical skills and knowledge to contribute to e.g. biodiversity conservation, planting and plant care, support for conservation, and implementing green infrastructure at home.

3. Promote cultural participation for all, to support adaptation across society

- Ensure that information on adaptation reaches everyone in forms that are appropriate, relevant and suited to their circumstances, prioritising those most at risk from climate impacts, and those whose participation is most needed in mitigation and adaptation.
- Support and provide information on urban upgrading programmes.
- Empower people to understand and make use of weather and climate reports, forecasts and scenarios.
- Empower people to participate in community-based climate adaptation, and local community planning and development.
- Empower people to understand, support and participate in landscape and watershed management, coastal management, ecosystem-based management and sustainable forest management.
- Play a role in providing public health information relating to climate change impacts (e.g. extreme heat or cold).
- Provide information on how to access public services.
- Empower all people to know about, care about and have opportunities to participate in climate adaptation.
- Support the sharing of local and traditional knowledge, notably linked to climate adaptation.
- Share information widely as part of a distributed network to promote climate adaptation everywhere.
- Ensure that displaced people, including migrants and refugees, are welcomed and provided with relevant and appropriate cultural activities, to combat and reduce marginalisation and stigmatisation.
- Ensure that displaced people, including migrants and refugees, are able to access their own heritage and to contribute to the cultural life of the community.

4. Support sustainable tourism, adapting tourism practices

- The growth of mass-tourism is a recent phenomenon. Adapt tourism activities to support local tourism rather than international tourism.
- Discourage mass tourism, which generates vast greenhouse gas emissions, and empower people to be responsible tourists.
- Empower people to draw on and share local knowledge and practices that can help adapt to climate change and its impacts.

5. Support research for climate adaptation

- Support research using collections to explore adaptation options, exploring historic aspects of e.g. water, flooding, land use.
- Develop collections as a research-useful infrastructure, in the context of a changing climate.
- Ensure that collections and collections information are well networked and information available in other countries that can make use of data and specimens to support mitigation and adaptation to climate change, e.g. managing biodiversity.

6. Direct internal leadership, management and operations to climate adaptation

- Ensure staff have necessary knowledge, attitudes and skills to support climate adaptation.
- Adopt and promote policies and standards for climate mitigation and adaptation.
- Adapt museum buildings and building systems to keep pace with climate change.
- Take up financial incentives that support mitigation and adaptation.
- Ensure buildings and other resources are suitably insured against current and projected climate impacts.

7. Direct external leadership, collaboration and partnerships towards climate adaptation, as part of sustainable development

- Collaborate with agencies and researchers working on these topics, and provide opportunities for them to interface with the public.
- Foster an inclusive approach to adaptation that incorporates community concerns and aspirations, as a basis of community-based adaptation.
- Support adaptation, disaster planning and preparedness through supporting the development of plans, public participation in such developments, and communication of these plans to the whole of the community.
- Play a key part in early warning and response systems related to climate change and related health impacts: ensure people have information on the climate impacts that may affect them and their property, and information on how to act to reduce their exposure and vulnerability to climate impacts.
- Use collections and public-facing activities to support ecological restoration and biodiversity conservation.
- Play a part in community-based natural resource management.
- Ensure that collections information related to climate-related

hazards and vulnerability is effectively mobilised and incorporated into mapping activities.

THE CLIMATE ADAPTATION CYCLE

The UNFCCC uses a model for an adaptation cycle with four stages. The stages are summarised below, and actions for museums are suggested for each stage, in terms of how museum can support this stage in their community, and what this stage means for museums themselves.

1. Assess impacts, vulnerability and risks

An initial assessment is needed of the ways that climate change is affecting or will affect human societies, habitations and nature, for example by altering water or food availability, temperature and extreme weather. This stage, and all stages, should involve a wide range of stakeholders and groups, to share knowledge and guidance, and collaborate effectively.

How museums can contribute to this stage in their community:

- Use museums, collections and events to empower people to understand how climate change is affecting or will affect human societies, habitations and nature, including their own community and more widely, to build people's knowledge, awareness, attitudes and skills.
- Ensure people have opportunities to share their own views and experiences in impact assessment.
- Empower everyone to participate in these activities, notably marginalised/under-served groups and communities.

What this means for museums themselves:

- Understand the climate risks facing your museum and community, involve a wide range of people and groups in assessing these risks, both to the museum itself and to the functions they support in society.
- Understand what functions and services will be required by your community and stakeholders as the climate alters in your location, and the community transforms.
- Understand how your current approaches to engaging with people as individuals, social groups and communities may need to change in order to support climate adaptation effectively.

2. Plan for adaptation

This stage helps to identify possible adaptation activities and measures, their costs and benefits, pros and cons. This stage can help ensure effective co-ordination, and ensure that decisions don't have unwanted

consequences that hamper sustainable development.

How museums can contribute to this stage in their community:

- Ensure people have opportunities to input into and follow the adaptation planning process, for example by providing information, ongoing opportunities to participate in planning activities, and opportunities to contribute to consultations and reviews of planned adaptation measures.
- Ensure that the voices of marginalised/under-served groups and communities are heard in adaptation planning processes, and use diverse methods to involve people in planning for adaptation, reaching all social groups.
- Ensure adaptation measures are assessed openly and transparently, to ensure that adaptation measures follow sustainable development approaches and don't create new risks or disadvantage already disadvantaged groups.

What this means for museums themselves:

- Understand what possible actions could be taken to ensure your museum can adapt to climate change in an ongoing way, either by increasing its resilience, by transforming, or by relocating. Understand the limits to adaptation.
- Understand what relationships are required to plan adaptation measures effectively.
- Understand how your possible actions will better contribute to sustainable development, and reduce your negative impacts as you improve your ability to face climate change.

3. Implement adaptation measures

Adaptation measures may be implemented locally through projects, in partnership through effective policies and relationships, or naturally. Climate adaptation measures may be implemented as part of other developments. This stage helps to strengthen the ability of all partners to face the challenges of climate change.

How museums can contribute to this stage in their community:

- Museums can support the initiation and implementation of adaptation-related projects.
- They can help people be aware of active climate adaptation projects, and direct people towards opportunities for involvement in adaptation.
- They can undertake active educational and awareness raising programmes that empower people to understand, value and

participate in adaptation themselves.

What this means for museums themselves:

- Museums can take part in adaptation projects by adapting their own practices through staff training and altering their practices through changing standards.
- Museums can adapt their operations – whether incrementally or in transformative ways - so that they are better suited to changing climate conditions, and their services and collections (not necessarily their current buildings) are more resilient.
- Museums can collaborate with other sectors and actors to develop new adaptation activities that build the community’s collective capacity to face climate change.

4. Monitor and evaluate adaptation

Monitoring and evaluation can be undertaken throughout adaptation, and knowledge and information shared to ensure continuous learning and stakeholder inclusion and involvement, and to ensure continuous improvement in achieving adaptation aims through effective processes and relationships.

How museums can contribute to this stage in their community:

- Museums can align their processes, activities and relationships with other sustainable development actors and stakeholders, and with local adaptation objectives, to ensure they provide relevant and appropriate activities, and ensure effective collation and flow of information, vertically, horizontally and transversally.
- Museums can help gather information to contribute to the ongoing evaluation of adaptation initiatives.
- Museums can share knowledge and information from adaptation projects with a wide range of stakeholders, to raise awareness and invite the sharing of perspectives.
- Museums may ask:
 - To what extent are people – individually and collectively – able to access information on local adaptation objectives?
 - To what extent are minorities – individually and collectively – able to access information on local adaptation objectives?
 - To what extent are people empowered to benefit from local adaptation objectives?
 - To what extent are people empowered to contribute to the development of local adaptation objectives?
 - To what extent are people empowered to contribute to the implementation of local adaptation objectives?

- How many people and communities are more resilient to climate impacts, and how?
- Museums should be clear on the purposes of monitoring and evaluation, so that it goes beyond fulfilling reporting obligations to funders, but plays a part in adaptation. There is a growing tendency for initiatives to seek to ‘demonstrate changes in behaviour’, but while this may be an intended outcome, it should not be seen as an end in itself, as it does not fulfil a human rights-based approach (as discussed later).

Reasons for monitoring and evaluation of climate change adaptation efforts may include:

Assessing adaptation processes

1. Monitoring the integration of adaptation into planning processes.
2. Monitoring the implementation of adaptation programmes, projects or actions.
3. Monitoring the implementation of the National Adaptation Plan (NAP) process.
4. Tracking which adaptation activities are taking place at national or sub-national level.

Assessing adaptation outcomes

5. Assessing the results of adaptation projects or actions.
6. Assessing the results of a programme or portfolio of adaptation projects.
7. Assessing whether vulnerability has been reduced as a result of adaptation programmes, projects or actions
8. Assessing progress towards adaptation goals, targets or intended outcomes at national level.
9. Assessing whether resilience to climate change has been improved at national level.

What this means for museums themselves:

- Museums can monitor and evaluate their own contribution to adaptation efforts, to ensure ongoing improvement and effectiveness.
- Museums can consult with the wider community and stakeholders, to ensure that they are contributing effectively to adaptation efforts.
- Museums can consult with the wider community and stakeholders, to better understand what they require of the museum to support their collective sustainable development processes, for longer term or more transformational forms of adaptation.

The four-stage cycle helps to raise awareness and ambition, provide space for inclusive participation, share information, knowledge and

guidance, strengthen capacities among partners and stakeholders, facilitate sharing of support, and engage a wide range of stakeholders. All museums should reflect on their roles in facilitating effective climate adaptation, and plan activity accordingly.

FURTHER READING, CASE STUDIES AND RESOURCES

The EU's [Urban Adaptation Support Tool](#) (UAST) is a powerful tool that aims to assist cities, town and local authorities to develop, implement and monitor climate change adaptation plans. Museums can use the tool for more detailed planning and implementation than in the simple framework above.

The project [Culture and Climate Change: Scenarios](#) asked how arts and humanities can contribute to people's engagement with a future consistent with the goal of the Paris Agreement.

The Louvre, in Paris, is situated right next to the River Seine, which has a long history of flooding. [When the Louvre announced that it was moving collections to a collections conservation and research centre far from the River, it was major news](#), showing how museum decisions have a resonance beyond the museum themselves.

In California, wildfires are one of the most visible impacts of climate change, which prolongs the fire season and causes more intense fires. When a wildfire burned in Brentwood, California, thousands of people had to leave their homes. [The Getty Center \(a campus of the J Paul Getty Museum\) was not threatened](#), as it had been designed to be resilient to fire and climate impacts.

[Cultural Adaptations](#) is an action-research project seeking to find creative, innovative and place-based methods to adapt to climate change, in Scotland, Ireland, Sweden and Belgium.

There are numerous resources linked to adaptation and resilience, notably: [The UNFCCC Adaptation Knowledge Portal](#) has a searchable database containing hundreds of case studies and tools that can be used to develop adaptation activities.

[PreventionWeb Knowledge Base](#) is a collation of thousands of practical tools, guidelines and reports on Disaster Risk Reduction, including climate adaptation.

The [ICCROM Our Collections Matter Toolkit](#) contains many tools that can help collections-based organisations plan and deliver sustainable development action, including climate adaptation activities.

Climate Adaptation Platforms

Many countries have their own climate adaptation platforms, which are databases and repositories of case studies, plans, tools and other resources to help aid and accelerate climate adaptation in their contexts. Some English-language examples include the following:

- Climate Adaptation Platform (worldwide) is a key source of information [LINK](#)
- Climate-ADAPT (European Union) [LINK](#)
- Canada's Climate Change Adaptation Platform (Canada) [LINK](#)
- Climate Change Adaptation Resource Center (ARC-Ex) (USA) [LINK](#)
- Climate Change in Australia (Australia) [LINK](#)
- The Green Book (South Africa) [LINK](#)

A longer list of climate adaptation platforms can be found on the [weADAPT website](#).

³ The headings come from DEFRA (2010). Measuring Adaptation to Climate Change: a proposed approach, <https://webarchive.nationalarchives.gov.uk/ukgwa/20130402151656/http://archive.defra.gov.uk/environment/climate/documents/100219-measuring-adapt.pdf>; the definitions are modified from those presented by Adaptation Scotland, <https://adaptationscotland.org.uk/what-adaptation/principles-good-adaptation>

disaster risk reduction (drr) and ‘build back better’ for climate action



WHAT IS THIS?

WHY IS THIS IMPORTANT?

THE TEN ESSENTIALS OF RESILIENCE

WHAT DOES THIS MEAN FOR MUSEUMS?

FURTHER READING AND INFORMATION

WHAT IS THIS?

Disaster Risk Reduction is an ongoing process that works to reduce the likelihood and impact of disruptions, whether from natural or social hazards.

WHY IS THIS IMPORTANT?

Disaster Risk Reduction works to ensure that, after a disaster, the recovery is directed to preventing the likelihood of recurrence. Disaster Risk Reduction aims to strengthen capacities and resilience, and to reduce hazards, exposure to hazards, and vulnerability to hazards. Disaster Risk Reduction is closely connected with climate adaptation, although it extends across all forms of hazards.

THE TEN ESSENTIALS OF RESILIENCE

The Ten Essentials of Resilience is a widely used framework that aims to localise Disaster Risk Reduction. The Ten Essentials are:

1. **Organise for disaster resilience.** Disaster Risk Management and Disaster Risk Reduction requires an all-of-society approach: working effectively with partners and including the public in planning and decisions.
2. **Identify, understand, and use current and future risk scenarios.** Disaster risk scenarios are planning tools that identify hazards, exposure and vulnerabilities in towns, sectors, and in cultural and natural heritage.
3. **Strengthen financial capacity for resilience.** Disasters can have a serious economic impact, and developing resilience over time – in institutions, communities, towns and in nature – requires appropriate investment.
4. **Pursue resilient urban development and design.** Hazards don't necessarily lead to disasters, where buildings and towns have been planned with resilience in mind.
5. **Safeguard natural buffers to enhance the protective functions** offered by natural ecosystems. Natural ecosystems can help reduce disaster risks, for example by reducing the impact of extreme weather events such as floods and storms.
6. **Strengthen institutional capacity for resilience.** Many types of organisation and stakeholders in a town can play an important role in Disaster Risk Reduction of the town as a whole.
7. **Understand and strengthen societal capacity for resilience.** Education, training and public awareness programmes are critical if people are to be able to contribute to the collective effort of creating resilient towns, protecting nature, and indeed their own property and, in some situations, their lives.

8. Increase infrastructure resilience. Towns should have a strategy and plan for the protection, update and maintenance of critical infrastructure.
9. Ensure effective preparedness and disaster response. Create and regularly update disaster preparedness and response plans, which can help save lives and property, and contribute to resilience and post-disaster recovery.
10. Expedite recovery and Build Back Better. The 'Build Back Better' approach is to ensure that recovery and reconstruction strategies are aligned with long-term Disaster Risk Reduction plans, and other plans, to improve the quality of towns for sustainable development.

WHAT DOES THIS MEAN FOR MUSEUMS?

Museums can use Disaster Risk Reduction approaches to strengthen their own resilience to climate impacts, and also to contribute to resilience-building in the wider world, for the benefit of society and the natural environment.

Museums can play a key role in supporting people, communities, the whole of society and nature, to prevent and adapt to climate impacts.

They can ensure their buildings are secure and adaptable; that people have the necessary knowledge, attitudes and skills to be prepared to face climate impacts; that they do not contribute to disaster risk; and that they work closely in partnership with a range of other sectors to reduce disaster risk and cope with disaster situations effectively, and rebuild to be stronger and more adaptable.

They have important parts to play before, during and after disaster situations.

FURTHER READING AND INFORMATION

See 'Museums and Disaster Risk Reduction: building resilience in museums, society and nature' (2020) [LINK](#)

Disaster Risk Reduction and climate adaptation are closely related. The guide 'Toward Resilience A Guide to Disaster Risk Reduction and Climate Change Adaptation' sets out ten common-sense principles that integrate the two approaches. [LINK](#)

PreventionWeb Knowledge Base is a collation of thousands of practical tools, guidelines and reports on Disaster Risk Reduction, including climate adaptation. [LINK](#)

human rights and climate change

g

WHAT IS THIS?

WHY IS THIS IMPORTANT?

WHAT DOES THIS MEAN FOR MUSEUMS?

FURTHER READING AND INFORMATION

WHAT IS THIS?

Human rights are the rights each of us have just for being human. They are protected under international law, and written into countries' constitutions and laws in different ways.

WHY IS IT IMPORTANT?

Climate change negatively impacts on many human rights, for example: the right to life, liberty and security of person, right to health, right to participate in cultural life, right to benefit from scientific advancement, right to education, right to information, right to a standard of living adequate for the health and well-being of themselves and of their families, right to take part in public affairs, right of assembly and association, right to take part in environmental decision-making, and the right to development.

Social groups are affected differently. Typically, those who are already at risk or marginalised/under-served suffer more from climate impacts. Attention to these different impacts has been noted many times by the Human Rights Council of the United Nations, disproportionately affecting the rights of older people, small-scale farmers, disabled people, women and girls, migrants and displaced people, Indigenous peoples, and ethnic minorities, among other groups. Because of this situation, human rights should be integrated into climate change mitigation and adaptation plans. The OHCHR provides detailed information on how these groups are impacted by climate change.

The right to development (1986) acknowledges that people are entitled to expect an improvement in conditions over time in their social and environmental conditions. Some aspects – that the individual is the central subject, participant and beneficiary, and that people must be fully involved in their own development – are particularly important to consider.

The Aarhus Convention

The Aarhus Convention (1998) establishes three rights relating to the environment:

- The right of access to environmental information, on the state of the environment and in relation to human health.
- The right of public participation in environmental decision-making, to enable the public to comment on projects, plans and programmes relating to the environment, and that their comments are taken into account in decision-making.
- The right of access to justice, the right to challenge decisions that have not taken the previous two rights or environmental law into consideration.

Museums can provide many opportunities for people to attain the first two rights, and help empower people to assert the third right by raising awareness of complaint mechanisms, and how to make use of democratic processes.

Environmental rights

Environmental rights are any rights that depend on a particular environmental standard in some way. The UN Environment Programme has noted that “Human rights and the environment are intertwined; human rights cannot be enjoyed without a safe, clean and healthy environment; and sustainable environmental governance cannot exist without the establishment of and respect for human rights.”

The right to a healthy environment

The right to a healthy environment, called the R2HE for short, is inferred through many of the rights in the Universal Declaration of Human Rights, and has been included in many official declarations and agreements since 1972. Over 150 countries (156 out of 193) have a constitutional right to a healthy environment (the UK and US are notable exceptions).

Increasingly, the case for the right to a healthy environment is being made loudly at the United Nations.

Court cases are being brought against countries and governments by groups of citizens, on the basis that their inaction is an abuse of their human rights.

The UN Human Rights Council recognised “that having a clean, healthy and sustainable environment is indeed a human right” in October 2021.

WHAT DOES THIS MEAN FOR MUSEUMS?

Museums should help people understand their own rights relating to the environment and sustainable development, using approaches from the right to development.

They should also help people understand how climate change affects other people’s rights, and how people’s life choices impact upon the lives of others.

The right to a healthy environment is an emerging human right, that museums could play an important role in helping people understand, and demand, their right to a healthy environment.

Museums should acknowledge that their carbon footprint and other greenhouse gas emissions contribute to the erosion of people’s

rights, notably those from poor or vulnerable/marginalised/under-served groups, and act concretely and rapidly to reduce these, at least in line with Paris Agreement targets.

Museums deny people their rights when they hold their cultural heritage without their permission, notably Indigenous peoples and formerly colonised countries. This is an assault on their rights, notably their rights to own property, to participate in cultural life, and the right of access to and enjoyment of cultural heritage. Museums should return such cultural heritage so that people can enjoy and use it as tools and resources for their development and to adapt to climate change.

Museums also deny people their rights when they develop top-down or instrumentalist approaches that see people as passive recipients of, or subjects to, the aims or intentions of museums themselves: this is fundamentally opposed to a rights-based approach, as outlined above. The interests and participation of people as individuals with their own capacities, thoughts and concerns should be seen as central to all museum activity.

Museums should acknowledge that, as long-term institutions, they are implicated in intergenerational equity, both in terms of the cultural resources they hold in trust for current and future generations, and the totality of the resources they consume over time – both in the past and the future. A museum that has existed for a long time and has consumed lots of resources over that time has, arguably, an even greater responsibility to act swiftly to lessen the burden it creates for future generations.

Museums should empower people to make use of democratic processes – the right of peaceful assembly, and to make use of their representatives and politicians – to address human rights abuses related to climate change, and other matters.

The right to development is relevant to museums, who should acknowledge people as active agents and as individuals, not simply as members of more or less homogeneous ‘audiences’.

FURTHER READING AND INFORMATION

OHCHR (2015). Understanding Human Rights and Climate Change. Submission of the Office of the High Commissioner for Human Rights to COP21.

OHCHR (2016). Frequently asked questions on the Right to Development.

UNEP (2015). Climate Change and Human Rights (UNEP. Columbia University, Sabin Center for Climate Change Law).

The Special Rapporteur on the Environment’s 2019 report focussed on climate change and human rights.

The Special Rapporteur on Social and Cultural Rights’ 2020 report focussed on climate change and cultural rights.

The OHCHR has identified ten key messages on climate change and human rights.

The OHCHR has issued a publication, ‘Frequently Asked Questions on Human Rights and Climate Change’.

OHCHR has noted the importance of taking a rights-based approach to climate action. The preamble of the Paris Agreement also notes the importance of a human rights-based approach to climate action.

See sections on

Climate justice (section h) [JUMP](#)

Just transition (section i) [JUMP](#)

Common But Differentiated Responsibilities (section j) [JUMP](#)

climate justice

h

WHAT IS THIS?

WHY IS THIS IMPORTANT?

WHAT DOES THIS MEAN FOR MUSEUMS?

FURTHER READING AND INFORMATION

WHAT IS THIS?

Climate justice is a commonly used term, but it has specific usage in the IPCC process.

Climate justice has been defined by the IPCC as “Justice that links development and human rights to achieve a human-centred approach to addressing climate change, safeguarding the rights of the most vulnerable people and sharing the burdens and benefits of climate change and its impacts equitably and fairly.”

Climate justice has the following aspects:

Distributive justice

Justice in the allocation of economic and non-economic costs and benefits across society.

Inter-generational justice

Justice in the distribution of economic and non-economic costs and benefits across generations.

Procedural justice

Justice in the way outcomes are brought about including who participates and is heard in the processes of decision-making.

Social justice

Just or fair relations within society that seek to address the distribution of wealth, access to resources, opportunity, and support according to principles of justice and fairness.

WHY IS IT IMPORTANT?

Climate change has vastly unequal impacts on different groups of people, with a double inequality in that those least responsible are most severely impacted. Climate action has to acknowledge this inequality, address inequality to tackle climate change, and ensure that climate action doesn't further disadvantage those already disadvantaged.

More information on climate justice can be found at The Mary Robinson Foundation – Climate Justice, which has developed a set of Principles of Climate Justice, which emphasise the importance of respecting and protecting human rights; sharing benefits and burdens equitably; inclusive, transparent and participatory decision-making; gender equality; the importance of education, and of partnerships.

WHAT DOES THIS MEAN FOR MUSEUMS?

Museums will need to be of relevance to the whole of society in order to meet the needs of everyone. This means attending to the needs, aspirations and concerns of local communities and other stakeholders.

Museums should address their human rights abuses – the dispossession of property and opportunity – so people have the resources they

need to meet and address the challenge faced by climate change.

The right to development is an important consideration that museums can pay more attention towards, as a basis for people's 'active, free and meaningful' participation in climate change matters.

Addressing their own greenhouse gas emissions is a crucial step to securing climate justice. Large institutions continuing to consume vast quantities of resources is an abuse of human rights.

Empowering people to participate in climate action through education, awareness, access to information, public participation and international co-operation is crucial for securing climate justice, for individuals, communities and all of humanity.

FURTHER READING AND INFORMATION

The Grantham Institute (UCL) [provides an online database, Climate Change Laws of the World](#), including legislation, litigation and policies, and also publishes an annual [snapshot of Climate Change litigation](#).

The Sabin Center for Climate Change Law provides an [online database of climate change litigation](#).

UNEP also publishes an annual [Global Climate Litigation Report](#).

See sections on

Human rights and climate change (section g) [JUMP](#)

Just transition (section i) [JUMP](#)

Common But Differentiated Responsibilities (section j) [JUMP](#)

Action for Climate Empowerment (section k) [JUMP](#)

Education for Sustainable Development (section l) [JUMP](#)

just transition



WHAT IS THIS?

WHY IS THIS IMPORTANT?

WHAT DOES THIS MEAN FOR MUSEUMS?

FURTHER READING AND INFORMATION

WHAT IS THIS?

The Paris Agreement recognises “the imperatives of a just transition of the workforce and the creation of decent work and quality jobs” in the implementation of climate action (Paris Agreement 2015, Preamble).

“A just transition for all towards an environmentally sustainable economy ... needs to be well managed and contribute to the goals of decent work for all, social inclusion and the eradication of poverty.”

ILO, 2016

WHY IS IT IMPORTANT?

Climate action has to also be fair, to follow the principle of sustainable development. There are many ways to act on climate change that are really very unfair: dispossessing people of land, or depriving them of food to produce biofuel, for example.

Those opposed to climate action often claim that it threatens jobs, as an argument to continue mining and burning fossil fuels. This is not sustainable development, and any jobs created are likely to be ‘stranded’ in the relatively short term, as those industries are phased out. Just transition means transforming to a zero-carbon future (climate action) in ways that are fair and inclusive.

IISD has noted that “Energy transitions are about people: the ones who make the decisions and the ones affected by those decisions. A ‘just transition’ approach ensures that the affected people are considered by those making decisions.”

The Grantham Institute has developed ‘Climate Change and the Just Transition: A guide for investor action’, which is a good introduction and overview of just transition.

The International Labour Organization has developed ‘Guidelines for a just transition towards environmentally sustainable economies and societies for all’ (2015).

B Corp and the Just Transition Centre have produced a guide for businesses (but which can be applied to all kinds of organisation, including museums), ‘Just Transition: A Business Guide’ (2018). The guide presents a simple, three-stage process and model for just transition, and a set of principles, covering rights, dialogue with workers and their representatives, anticipating how the transition to net-zero emissions will affect jobs and people, choosing pathways to green jobs, protecting people from job losses, and retraining and education.

WHAT DOES THIS MEAN FOR MUSEUMS?

All of the aforementioned points, guides and frameworks should be applied to the museum sector just as they should to other sectors, and museums can help prepare people for the transitions they will face, both their own workers, and their communities.

For museum funders and regulators

Museum funders and regulators must ensure that just transition principles are embedded into funding opportunities, skills-development programmes, and regulations relating to museums (national accreditation/recognition schemes, policy requirements etc.). Museums can support just transition across their supply chains by supporting human rights and sustainable development, moving away from cheap but socially and environmentally damaging goods and services.

Governments and authorities directing and funding programmes related to particular sectors (e.g. agriculture, manufacturing, buildings, energy, transport) should incorporate the importance of public education, training, public access to information, public awareness, public participation and international co-operation in supporting just transition, and recognise the role that formal, non-formal and informal educational institutions and organisations – including museums – play in supporting Action for Climate Empowerment and just transition.

Museum standards around environmental conditions involve the consumption of lots of resources and energy. This runs the risk of leaving people in ‘stranded professions’ or with ‘stranded skills’, as the need for stricter use of energy and resources becomes a reality. Either the standards need to change, or the technologies that require them.

For museums themselves

Museums may consider themselves as investors, through their pensions, banking, sponsorships and partnerships. They should invest in ways that support climate justice and a just transition to a sustainable future, and rapidly turn away from activities that do the opposite, that destroy lives and livelihoods, and that continue to ‘lock in’ unsustainable investment, practices and approaches.

For the people and communities museums support and work with

Museums can help create the strong social mandate referred to in the principles outlined above, through consultations, meetings and other types of public event.

Museums can ensure that everyone they work with – visitors, school groups, community members, and employees – has the information, attitudes and skills to be part of the just transition, supporting them to

take up green energy and technology, for example.

Museums can help support the transition to green jobs by supporting education, training, public awareness, public access to information, public participation and international co-operation on just transition, and emerging technologies and new practices, especially in relation to agriculture, manufacturing, buildings, transport and energy sectors wherever possible, as these sectors require the greatest transformation.

FURTHER READING AND INFORMATION

UNFCCC (2020). Just Transition of the Workforce, and the Creation of Decent Work and Quality Jobs. UNFCCC.

Smith, S. (2017). Just Transition: a report for the OECD Just Transition Centre

See sections on

Human rights and climate change (section g) [JUMP](#)

Climate justice (section h) [JUMP](#)

Common But Differentiated Responsibilities (section j) [JUMP](#)

Action for Climate Empowerment (section k) [JUMP](#)

common but differentiated responsibilities

j

WHAT IS THIS?

WHY IS THIS IMPORTANT?

HOW DOES THIS RELATE TO MUSEUMS?

WHAT IS THIS?

The UNFCCC, Paris Agreement, and Agenda 2030 and the SDGs, all note the principle of 'Common But Differentiated Responsibilities' to address climate change. This is a recognition that 1. countries bear unequal responsibility for causing climate change, 2. that countries have benefited unequally from centuries of exploitation of the environment and other countries, often through imperialism or colonialism, and 3. that countries that have undergone most economic development should support other countries to undergo economic development in ways that do not further damage the climate, and adapt to climate change.

WHY IS IT IMPORTANT?

The principle of 'Common But Differentiated Responsibilities' is important in that it helps ensure that countries can develop economically but in ways that do not rely on dirty fuels, which will cause further climate change. High-income countries committed to provide financial support to developing countries as signatories to the Paris Agreement, to support the uptake of reliable and green sources of energy, and to adapt to climate change impacts.

HOW DOES THIS RELATE TO MUSEUMS?

Museums in high-income countries were generally built with money that came from industrial development. Large cities typically have large museums. The largest cities typically have the largest museums. This is a form of inequality, where wealth flowed to the centres of power, and was used to develop public institutions. However, inequality is not only a reflection of past actions, but recreated and perpetuated through decisions made now, for example through the industrial activity supported through museums' investments and pension funds. This is very far from a rights-based situation (where everyone has equal rights and access to their cultural resources, and to a steadily better future for all).

- Museums in large economies have a special – moral – responsibility to support their own country and other countries to reduce greenhouse gas emissions at least in line with science-based targets, and prepare for climate impacts.
- Large museums are more responsible for climate change than small ones. They should act even faster than others.
- Large museums should support small museums to mitigate and adapt to climate change, through sharing equipment, personnel, skills, knowledge and other resources.

- Small museums should expect support from large museums.
- Museums in developing countries should receive support from museums in high-income countries, through sharing of equipment, personnel, skills, knowledge and other resources.
- Museums in high-income countries should educate people about the imbalance of wealth worldwide, and the need to support developing countries.
- Museums should raise awareness of how overseas aid is spent, to build public support for overseas development assistance.
- Museums should be aware of how their investments – pension funds and endowments – and sponsorship relationships are either supporting a sustainable future or causing further social and environmental destruction, and invest in ways that support the transition to a green economy.

See sections on

Human rights and climate change (section g) [JUMP](#)

Climate justice (section h) [JUMP](#)

Just transition (section i) [JUMP](#)

action for climate empowerment

k

WHAT IS THIS?

WHY IS THIS IMPORTANT?

WHAT DOES THIS MEAN FOR MUSEUMS?

THE SIX ELEMENTS OF ACTION FOR CLIMATE EMPOWERMENT

WHAT IS THIS?

As mentioned earlier, the UNFCCC includes an Article (Article 6) on the importance of public education, training of staff, public access to information, public awareness, public participation and international co-operation on climate change matters. More or less the same content was included in the Paris Agreement (Article 12), although international co-operation was included elsewhere in the Agreement. This is now known as Action for Climate Empowerment, or ACE for short.

WHY IS THIS IMPORTANT?

Action for Climate Empowerment is the clearest connection between the work of museums and the UNFCCC and Paris Agreement, that is, their main opportunity to support the goals of these agendas, in addition to reducing greenhouse gas emissions resulting or related to their activities. Museums are specifically named as key sites for supporting Action for Climate Empowerment, among a range of others, in the Work Programme for the Paris Agreement.

WHAT DOES THIS MEAN FOR MUSEUMS?

Action for Climate Empowerment is made up of six elements, which are recognised as all being essential, and as being of equal importance in climate empowerment.

THE SIX ELEMENTS OF ACTION FOR CLIMATE EMPOWERMENT

The United Nations says	What does this mean for museums?
<p>EDUCATION: Education seeks to achieve profound, long-term changes in understanding, particularly among young people. It involves developing educational curricula, training of trainers and teachers and adequate pedagogies. The results of a successful programme would ultimately be a population whose deep-seated appreciation of the climate challenge leads to greater national action and commitment.</p>	<p>Incorporate education on climate change in programmes wherever possible, using appropriate pedagogies that promote not only knowledge but attitudes and skills to address climate change. Education is not restricted to schools, but is lifelong.</p>
<p>TRAINING: Training programmes seek to spread specific practical skills that can have an immediate practical application. Examples include the ability to gather and interpret climate data, conduct inventories of national emissions, and identify climate-friendly technologies. Training is about learning by doing – individuals, communities and organisations can all benefit from ongoing learning.</p>	<p>Museums should support workers – their own and others – to address climate change through their work. Creating opportunities for learning by doing, linked to global challenges and local circumstances, empowers people to adapt to climate change and contribute to climate action. Museums can also ensure that their staff are familiar with the aims of the UNFCCC, Paris Agreement, ACE and the SDGs, to embed them into their public-facing activities, and internal operations.</p>
<p>PUBLIC AWARENESS: Many governments and non-governmental organisations (NGOs), intergovernmental organisations and UN agencies have already launched major public awareness programmes. But there remains an enormous unmet need for more outreach. Creating a successful outreach programme that truly changes behaviour involves targeted and systematic communications.</p>	<p>Museums can communicate climate change, its impacts on people and nature, and actions to address climate change to their audiences and across their communication methods. Awareness has to not just focus on problems, but raise awareness of sources of information, support, partnerships, and positive steps being taken to address and adapt to climate change. Museums can raise awareness of climate change, its impacts and climate actions happening elsewhere in the world, using their exhibitions, collections and partnerships as a platform for this.</p>
<p>PUBLIC ACCESS TO INFORMATION: Programmes to engage citizens and CSOs in addressing climate change can be improved by ensuring that information is freely available. This is crucial in order to develop and implement effective policies and to engage people actively in implementing these policies. Technologies such as databases and the internet facilitate the provision of climate information, data and statistics to all citizens.</p>	<p>Museums are knowledge-resources, with vast amounts of information contained in and with collections. They can share this information widely, and also empower people to draw on the huge quantities of information available on the internet, to curate their own climate knowledge to support climate action, and for people to share and collectively learn from one another to make informed decisions. Transparent access to information and progress (and inaction) by governments to address climate change, locally, nationally and globally, would help support climate awareness and action. People also need access to information on initiatives they can take part in, on actions they can take, and information on how to take those actions themselves.</p>
<p>PUBLIC PARTICIPATION: By ensuring that people can participate effectively in climate change decision-making and implement climate mitigation and adaptation activities, governments should seek to integrate civil society perspectives and mobilise the general public. In some places, this will prompt profound changes to how political leaders and civil servants are accustomed to working and encourage people to be more attentive to policy-making.</p>	<p>Public participation goes beyond people consuming information or activities produced by museums. Museums can create opportunities for different sectors, different stakeholders, and the public to interact. This can help develop, shape and deliver more effective policies and related actions. Empowering people to contribute to the development of their community and its transformation is a human right.</p>
<p>INTERNATIONAL CO-OPERATION: International cooperation and exchange can play a major role in strengthening ACE efforts. Many governments and relevant stakeholders need access to expertise and financial and technical resources so they can develop their own climate change programmes. All countries can benefit from sharing success stories, exchanging personnel and strengthening institutional capacity.</p>	<p>Museums can support and promote international co-operation, between museums, different sectors, communities, and staff in different countries, to develop joint programmes and create synergies. International co-operation is important for addressing the imbalance between Global North and Global South countries.</p>

'The United Nations says' text taken from Action for Climate Empowerment Guidelines, UNESCO and UNFCCC (2016).

See sections on

Just transition (section i) [JUMP](#)

Education for Sustainable Development (section l) [JUMP](#)

Additional learning approaches (section m) [JUMP](#)

Towards positive relationships with nature (section n) [JUMP](#)

education for sustainable development



WHAT IS THIS?

WHY IS THIS IMPORTANT?

LEARNING OBJECTIVES FOR SDG 13

WHAT DOES THIS MEAN FOR MUSEUMS?

FURTHER READING AND INFORMATION

WHAT IS THIS?

Education for Sustainable Development (ESD) is a well-developed pedagogy that can be used by museums throughout their educational activities, for all ages. ESD “empowers learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society, for present and future generations, while respecting cultural diversity. It is about lifelong learning, and is an integral part of quality education. ESD is holistic and transformational education which addresses learning content and outcomes, pedagogy and the learning environment. It achieves its purpose by transforming society.” (Roadmap for Implementing the Global Action Programme on Education for Sustainable Development, UNESCO, 2014)

WHY IS IT IMPORTANT?

Effective climate education should be rooted in well-developed and informed pedagogies, to ensure that people have opportunities to develop their knowledge, attitudes and skills, to be empowered to take part in climate action, individually and collectively. The Education for Sustainable Development ‘Roadmap’ to 2030 from UNESCO notes:

“For our very own survival, we must learn to live together sustainably on this planet. We must change the way we think and act as individuals and societies. So, in turn, education must change to create a peaceful and sustainable world for the survival and prosperity of current and future generations.”

ESD can help people reduce their personal and collective climate impacts and to adapt to climate change. ESD is explicitly included as an SDG target within SDG 4 (Quality lifelong education), as SDG 4.7.

ESD and Global Citizenship Education (a related approach that is also incorporated into SDG 4.7) use a model based on three domains (dimensions/aspects) of learning: cognitive, socio-emotional and behavioural. This equates to knowledge; attitudes, feelings and values; and practical skills or, more simply, ‘heads, hearts and hands’. To be effective, education should cover all three domains. It is not enough for people to know about problems and challenges: they need to care about them and be empowered to be part of the solution.

‘Education for Sustainable Development: Learning Objectives’ (UNESCO, 2017), is an especially important document, outlining suggested learning objectives for the three domains of learning for each of the

SDGs. The learning objectives for SDG 13 (take urgent climate action) are below, although climate change relates to all SDGs.

LEARNING OBJECTIVES FOR SDG 13

Cognitive learning objectives

1. The learner understands the greenhouse effect as a natural phenomenon caused by an insulating layer of greenhouse gases.
2. The learner understands the current climate change as an anthropogenic phenomenon resulting from increased greenhouse gas emissions.
3. The learner knows which human activities – on a global, national, local and individual level – contribute most to climate change.
4. The learner knows about the main ecological, social, cultural and economic consequences of climate change locally, nationally and globally and understands how these can themselves become catalysing, reinforcing factors for climate change.
5. The learner knows about prevention, mitigation and adaptation strategies at different levels (global to individual) and for different contexts and their connections with disaster response and disaster risk reduction.

Socio-emotional learning objectives

1. The learner is able to explain ecosystem dynamics and the environmental, social, economic and ethical impact of climate change.
2. The learner is able to encourage others to protect the climate.
3. The learner is able to collaborate with others and to develop commonly agreed-upon strategies to deal with climate change.
4. The learner is able to understand their personal impact on the world's climate, from a local to a global perspective.
5. The learner is able to recognise that the protection of the global climate is an essential task for everyone and that we need to completely re-evaluate our worldview and everyday behaviours in light of this.

Behavioural learning objectives

1. The learner is able to evaluate whether their private and job activities are climate friendly and – where not – to revise them.
2. The learner is able to act in favour of people threatened by climate change.
3. The learner is able to anticipate, estimate and assess the impact of personal, local and national decisions or activities on other people and world regions.

4. The learner is able to promote climate-protecting public policies.
5. The learner is able to support climate-friendly economic activities.

The learning objectives are based around the following core competencies (paraphrased from the Learning Objectives guide):

Systems thinking competency: the abilities to recognise and understand relationships in complex systems, and to deal with uncertainty.

Anticipatory competency: the ability to understand and evaluate multiple possible, probable and desirable futures; to create one's own visions for the future; and to deal with risks and changes.

Normative competency: the ability to understand and reflect on our own values and attitudes that underpin our beliefs and actions; and to understand competing values and how they relate to sustainable development.

Strategic competency: the ability to collectively develop and implement innovative actions at the local and wider levels.

Collaboration competency: the ability to learn from, understand and respect others; and work effectively with others to solve problems together.

Critical thinking competency: the ability to question norms, practices and opinions; to reflect on own one's values, perceptions and actions; and to take a position in sustainable development.

Self-awareness competency: the ability to reflect on our role in the local community and (global) society; to continually evaluate our own actions, feelings and desires.

Integrated problem-solving competency: the ability to apply different problem-solving frameworks to complex sustainability problems, bringing together the other competencies.

WHAT DOES THIS MEAN FOR MUSEUMS?

Use Education for Sustainable Development, and Global Citizenship Education, as a pedagogical basis for educational and learning programmes, in the development of activities for schools, lifelong learners, in exhibition planning, and in staff training and development.

Ensure that museum educators, exhibition content developers and other communicators are themselves effective agents for Education for Sustainable Development and Global Citizenship Education, and have well-developed ESD competencies.

Connect the three-domain model of learning – thinking, feeling and doing – with activities relating to Action for Climate Empowerment, to support their impact and effectiveness.

Make use of the many resources available, notably from UNESCO, and peer-reviewed learning resources to find good-quality resources.

Share experiences and developments in education and learning practice, to support other museums.

Support the ESD 2030 objectives and initiative (links below), addressing the five priority action areas:

1. Advance policy to support and embed Education for Sustainable Development
2. Transform learning environments so they support Education for Sustainable Development
3. Build the capacities of educators to support Education for Sustainable Development
4. Empower and mobilise young people
5. Accelerate local-level actions that design and create sustainable futures

FURTHER READING AND INFORMATION

Bremerhaven Declaration [LINK](#)

Berlin Declaration [LINK](#)

UNESCO ESD 2030 Toolbox [LINK](#)

UNESCO 2016. Education 2030 and Framework for Action, UNESCO [LINK](#)

UNESCO 2019. Teaching and Learning Transformative Engagement, UNESCO [LINK](#)

Global Citizenship Education Clearing House, an online repository of learning resources [LINK](#)

UNESCO Portal for Education for Sustainable Development [LINK](#)

The Climate Interpreter, a portal from the US National Network for Oceanographic and Climate Change Interpretation and US National Science Foundation [LINK](#)

TROPICSU, Teaching Resources to Integrate Climate Topics Across The Curricula, Across the Globe, including lesson plans, links to resources, games, readings and visualisations, with resources available in multiple languages [LINK](#)

CLEAN Network (Climate Literacy and Energy Awareness Network), a curated and peer-reviewed collection of high-quality tools to promote climate education [LINK](#)

Climate Outreach has many good-quality resources on climate change communication [LINK](#)

The Wild Center (Adirondacks, New York State) provides a freely available toolkit and guidance on how to organise Youth Climate Summits [LINK](#)

Many of these resources are included in the ICCROM Our Collections Matter Toolkit, which aligns them to particular SDG targets [LINK](#)

See sections on

Action for Climate Empowerment (section k) [JUMP](#)

Additional learning approaches (section m) [JUMP](#)

Towards positive relationships with nature (section n) [JUMP](#)

additional learning approaches



WHAT ARE THESE?

WHY ARE THESE IMPORTANT?

WHAT DO THESE PEDAGOGIES MEAN FOR MUSEUMS?

WHAT ARE THESE?

In addition to Education for Sustainable Development and Global Citizenship education, there are a number of learning and educational initiatives and approaches that complement the aims of Education for Sustainable Development and Global Citizenship Education.

WHY ARE THESE IMPORTANT?

Different pedagogies, initiatives and approaches will be more or less relevant in different settings. They can be drawn on, modified and localised to provide locally appropriate educational opportunities. Some, for example more science-based approaches, will be better suited for science and natural history museums, for example, but any kind of museum can draw on different approaches to provide high-quality learning experiences.

Ocean Literacy

UNESCO's [Ocean Literacy for All](#) initiative aims to promote the conservation, restoration and sustainable use of our oceans. This includes an Ocean Literacy Portal, to help educators find good-quality resources on Ocean Literacy and to provide tools and approaches to transform ocean knowledge into action.

Climate Literacy

There are several different definitions of climate literacy. Earthday.org defines a climate literate person as “a critical thinker who understands complex relationships of multiple variables of the climate system and acts in the best interest of long-term global health. These individuals make informed and thoughtful decisions based on science, economic and social factors to have the least impact on the climate system including a person’s carbon, water and land footprint.”

There are a number of Climate Literacy initiatives worldwide, including:

- [Climate Literacy \(EU\)](#), with e-learning modules.
- Earthday.org has a [Climate Literacy and Environmental Education campaign](#), to promote climate literacy and its inclusion in schools,
- [Climate Literacy: the essential principles of climate science](#), developed by NOAA and AAAS in the US, available in both English and Spanish.
- [Carbon Literacy Project](#), based in Manchester (UK), is based around a model of a day’s carbon literacy training for individuals, organisations or students.
- ‘[Mind the Climate Literacy Gap](#)’ (2019) sets out eight principles for embedding climate literacy in education and across communities.

Futures Literacy

UNESCO's [Futures Literacy](#) initiative aims to empower people to engage constructively with futures thinking. Future Literacy is “the skill that allows people to better understand the role of the future in what they see and do. Being futures literate empowers the imagination, enhances our ability to prepare, recover and invent as changes occur... This is not just about understanding how to prepare for potential crises or plan how to overcome grand challenges or realise the important goals of Agenda 2030. It is about moving beyond a dependency on the illusion of certainty and the fragilities this creates.” The project website includes a variety of videos, publications and tools.

Human Rights Education

Everyone has a right to education, as included in the Universal Declaration of Human Rights (Article 26), and that “Education shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms. It shall promote understanding, tolerance and friendship among all nations, racial or religious groups, and shall further the activities of the United Nations for the maintenance of peace.” Human Rights Education “includes any learning, education, training or information efforts aimed at building a universal culture of human rights”.

There are lots of resources available on human rights education and approaches. [A selection](#) can be found on the OHCHR website.

WHAT DO THESE PEDAGOGIES MEAN FOR MUSEUMS?

Educational, awareness-raising and participatory programmes relating to climate change can incorporate each and/or all of these learning approaches. In particular, museums should adopt rights-based approaches, in terms of ensuring that they respect people’s individual and collective rights, they protect the rights of minorities against interference from others, and they fulfil their obligations to furthering human rights and a rights-based society: the framework of respect rights, protect rights and fulfil rights.

See sections on

Action for Climate Empowerment (section k) [JUMP](#)

Education for Sustainable Development (section l) [JUMP](#)

Towards positive relationships with nature (section n) [JUMP](#)

towards positive relationships with nature

n

WHAT IS THIS?

WHY IS IT IMPORTANT?

WHAT DOES THIS MEAN FOR MUSEUMS?

WHAT IS THIS?

'Making peace with nature' was a headline from a major UN report in 2021. A harmonious relationship with nature would preserve habitats and ecosystems, support human wellbeing and health, and help nature play a role in addressing a range of human-caused problems, including climate change.

WHY IS THIS IMPORTANT?

Museums often present nature in scientific ways, but there is good evidence that this, alone, is not enough to support a positive relationship with nature. American sociologist Stephen Kellert, formerly of Yale University, undertook a series of studies from the 1970s, exploring people's attitudes to nature, as broadly conceived. He identified nine basic values of nature, set out below.

Value	Definition	Function
Utilitarian	Practical and material exploitation of nature	Physical sustenance/security
Naturalistic ¹	Direct experience and exploration of nature	Curiosity discovery, recreation
Ecologistic-Scientific	Systematic study of structure, function and relationship in nature	Knowledge, understanding, observational skills
Aesthetic ²	Physical appeal and beauty of nature	Inspiration, harmony, security
Symbolic ³	Use of nature for language and thought	Communication, mental development
Humanistic ⁴	Strong emotional attachment and 'love' for aspects of nature	Bonding, sharing, co-operation, companionship
Moralistic ⁵	Spiritual reverence and ethical concern for nature	Order, meaning, kinship, altruism
Dominionistic	Mastery, physical control, dominance over nature	Mechanical skills, physical prowess
Negativistic	Fear, aversion, alienation from nature	Security, protection, safety, awe

Adapted from Kellert, S. R. (1996). *The Value of Life: biological diversity and human society*. Island Press, Washington DC.

Based on large-scale, global studies, Kellert and colleagues proposed that these values are more or less universal, but their relative importance is widely different, between different countries, age groups, based on gender, and based on occupation. The strength of the approach is that it enables those working with groups of people with different values or in situations of conflict to better understand one another's viewpoints, and so address or work through points of tension or conflict. Classic examples would be whether or not Wolves should be allowed to exist in certain areas, because of conflict between conservationists and farmers; whether nature should be preserved for its own sake or because of its usefulness to people (the 'Amazon may hold cure for cancer' argument); or whether jobs or the environment should be prioritised in decision-making regarding climate change.

Nature connectedness research is an applied psychology field, that aims to understand the causes and benefits of a strong connection with nature, and to develop effective interventions that can build a stronger connection with nature. Miles Richardson and colleagues at the University of Derby took Kellert's original nine attitudes/values to nature, and explored how related activities were linked to a strong connection with nature. Attitudes, values and activities related to a strong connection to nature are referred to as 'pathways to nature connectedness'. The five positive pathways are:

Contact – The act of engaging with nature through the senses for pleasure e.g. listening to birdsong, smelling wild flowers, watching the sunset. (see 1 in table above)

Beauty – Engagement with the aesthetic qualities of nature, e.g. appreciating natural scenery or engaging with nature through the arts. (see 2 in table above)

Meaning – Using nature or natural symbolism (e.g. language and metaphors) to represent an idea, thinking about the meaning of nature and signs of nature, e.g. the first swallow of summer. (see 3 in table above)

Emotion – An emotional bond with, and love for nature e.g. talking about, and reflecting on your feelings about nature. (see 4 in table above)

Compassion – Extending the self to include nature, leading to a moral and ethical concern for nature e.g. making ethical product choices, being concerned with animal welfare. (see 5 in table above)

An important point to note here is that the Ecologic-Scientific value/attitude was not found to contribute to a strong relationship with nature, although, as mentioned above, nature is often presented and interpreted in museums from these viewpoints.

Taking this work further, the following interventions have been suggested as fostering the pathways to nature connectedness:

Contact – get out and engage with nature. Use your senses to take a fresh look at trees, touch the bark, smell the pine needles, listen to the wind through the leaves.

Meaning – consider what nature means to you. What’s your favourite local tree and why? It’s good to have meaning in our lives.

Compassion – think about what you could do for nature. Why not make a home for nature?

Emotion – find happiness and wonder in nature. Note the good things in nature, the joy they can bring.

Beauty – take time to appreciate beauty in nature and try to capture it through art or in words.

WHAT DOES THIS MEAN FOR MUSEUMS?

Museums can draw on the findings of nature connectedness research to critically assess how they are promoting a strong connection with nature through their educational and awareness-raising programmes; and how they communicate the environment, climate, and people’s relationships with (and impacts on) climate and the environment. This is not to say that scientific research is not important – it is a fundamental part of understanding and communicating our world – but that efforts to foster a sustainable culture and society need to be built on more than scientific facts and evidence.

Museums can use the typology and pathways set out above to empower people to talk about how they relate to nature.

Museums can support cultural participation for all by reflecting and incorporating diverse values and attitudes to nature, and explore the values and attitudes in different social groups and cultures, as a way of exploring sustainable alternatives to Western consumerism and capitalism.

See sections on

Action for Climate Empowerment (section k) [JUMP](#)

Education for Sustainable Development (section l) [JUMP](#)

Additional learning approaches (section m) [JUMP](#)

nature-based solutions

0

WHAT IS THIS?

WHY IS IT IMPORTANT?

WHAT DOES THIS MEAN FOR MUSEUMS?

FURTHER READING AND INFORMATION

WHAT ARE THESE?

Nature-based Solutions (NbS) are “actions to address societal challenges through the protection, sustainable management and restoration of ecosystems, benefiting both biodiversity and human well-being” (IUCN).

WHY IS THIS IMPORTANT?

Nature-based Solutions are often proposed as a powerful tool for addressing climate change. The claims need to be understood properly in order for them to make sense, both to avoid ‘greenwash’, and to ensure that nature-based solutions are being used in ways that are genuinely good for both nature and people. The concept of Nature-based Solutions has many critics, as NbS are often spoken about as a ‘magic bullet’, when deep, real cuts in emissions are needed. Nature-based Solutions also cast nature in the role as a simple solution to human-caused problems, while the deeper problem is the unsustainable relationship between humans (at least some of them) and nature. There can be no full ‘solution’ without addressing the roots of the problem – over-consumption, wastefulness, burning of fossil fuels and release of other greenhouse gases, and the destruction of nature.

‘Nature-based Solutions’ mean roughly the same as ‘ecosystem services’ (although that only relates to the benefits people derive from nature), or ‘green and blue infrastructure’.

Restoring ecosystems – such as wetlands, peatlands, forests, seas and oceans – can be a means of strengthening nature-based solutions. This is one of the ways that the three Rio Conventions – the UNFCCC on climate, UNCCD on combating desertification, and CBD for biodiversity – interact with one another.

While Nature-based Solutions are perhaps most often thought of as tree-planting for climate mitigation, there are a wide range of NbS that can contribute to both climate mitigation and climate adaptation. Also, done badly, tree-planting can be very damaging for nature (the wrong trees in the wrong place for the wrong reasons).

The International Union for the Conservation of Nature has developed a [Gold Standard for Nature-based Solutions](#), as a set of guidelines to help ensure Nature-based Solutions are applied in positive ways that address sustainable development challenges in a holistic way.

Oxford Net Zero has a webpage [outlining how Nature-based Solutions \(NbS\) can contribute to climate action](#), and how offsets should be used

in ethical and responsible ways to ensure that climate action is, in fact, action, and not greenwash. The benefits of Nature-based Solutions approaches regarding forests, peatlands, coastal and marine areas, agriculture and urban areas are explored.

The Oxford University-based [Nature-based Solutions Initiative website](#) includes case studies and an evidence platform. The Initiative has developed four guidelines to use regarding Nature-based Solutions (paraphrased below):

1. NbS are not a substitute for the rapid phase-out of fossil fuels and must not delay urgent action to decarbonise our economies.
2. NbS involve the protection, restoration and/or management of a wide range of natural and human-altered landscapes.
3. NbS are designed, implemented, managed and monitored by or in partnership with Indigenous peoples and local communities through a process that fully respects and champions local rights and knowledge, and generates local benefits.
4. NbS support or enhance biodiversity, that is, the diversity of life from the level of the gene to the level of the ecosystem.

WHAT DOES THIS MEAN FOR MUSEUMS?

Museums can help people understand Nature-based Solutions and to help them think critically about the (often overblown) claims of what they are, and what they are able to do.

They can support Nature-based Solutions in their own grounds, in their local community, and by working in partnership. They can help build support – financial and otherwise – for supporting and restoring Nature-based Solutions farther afield, and empowering people to support these initiatives.

Museums can empower people to take part in initiatives linked to Nature-based Solutions, and broader conservation of biodiversity, and ensure that their own operations and activities are contributing to these efforts. Among the most important initiatives are:

- International Decade of Ocean Science for Sustainable Development (2021–30).
- International Decade of Ecosystem Restoration (2021–30).
- Post-2020 Framework of Action in Support of the Convention on Biological Diversity.

FURTHER READING AND INFORMATION

Oppla is the EU repository of case studies on Nature-based Solutions in the EU and in Brazil.

Nature for Climate “promotes the critical role that nature plays in restoring balance to our climate”, and how Nature-based Solutions could provide 30% of the emissions reductions needed to meet the Paris Agreement target.

The Natural Climate Solutions World Atlas “is designed to help us all understand nature’s role in mitigating climate change through 16 ‘pathways’, activities that enhance the protection, restoration, and management of natural and working lands.”

Ecosystem-based Disaster Risk Reduction (Eco-DRR) means “the sustainable management, conservation and restoration of ecosystems to provide services that reduce disaster risk by mitigating hazards and by increasing livelihood resilience”.

Seddon, N. and others (2021). Getting the message right on nature-based solutions to climate change. Global Change Biology, 27(8), 1518-1546,

Museum Collections and Biodiversity Conservation (2019) explores how biodiversity researchers, biodiversity managers and museum curators consider the potential of museum collections to address the conservation of biodiversity, and manage climate impacts.

See sections on

Reducing greenhouse gas emissions: climate mitigation (section d) [JUMP](#)

Coping with change: climate adaptation and resilience (section e) [JUMP](#)

Disaster Risk Reduction and ‘Build Back Better’ (section f) [JUMP](#)

Towards positive relationships with nature (section n) [JUMP](#)

heritage as part of the problem - and part of the solution

p

HERITAGE AS FUTURE-MAKING

HOW DOES THIS RELATE TO MUSEUMS?

FURTHER READING AND INFORMATION

Discussions on the relationship between climate change and heritage typically fall into two categories: discussions on how heritage is threatened by climate change, and discussions on how heritage can contribute to climate action. Such a categorisation omits further relationships, notably how heritage – or heritage management practices and use of heritage – contributes negatively towards climate change.

In fact, heritage and heritage management practices contribute both positively and negatively to climate change. As with any discussion on sustainable development, the aim of activity should be to enhance positive contributions (social, environmental and economic) at the same time as reducing negative impacts. That is how change happens. The scale and rate of such change are the measures of sustainable development activity.

Using a principle of prioritisation, the most negative climate impacts (largest/most severe/longest-lasting) have to be dealt with first, and these are typically either human rights abuses or environmentally harmful practices that contribute to climate change or pollute the environment.

It makes little sense to preserve heritage within museums in such a way as to damage heritage outside museums' walls: that is a zero-sum game.

Well-established heritage practices that are known to be environmentally harmful are not justified in human rights terms, or sustainable development terms. There is no 'get out of jail free' card because a particular object needs a particular environment, or because a technique has been used for a long time: climate change does not care.

Sector organisations and accrediting bodies that set standards that require particular environmental conditions or use of particular harmful materials have a leadership role to play, and a social and moral obligation, to ensure that they are not disempowering people or organisations from playing their role in climate action. As climate impacts bite harder, it is very likely that actions to reduce emissions that are currently voluntary will become legal requirements, and a carbon tax may be brought in. Sector organisations have to ensure that they support those they work with to be part of the just transition, and not stranded with sector regulations that do not fit with legal requirements.

HERITAGE AS FUTURE-MAKING

Farida Shaheed, former Special Rapporteur on Cultural Rights, reported to the UN Human Rights Council in 2011 that:

"cultural heritage is also to be understood as resources enabling the cultural identification and development processes of individuals and communities which they, implicitly or explicitly, wish to transmit to future generations."

Rodney Harrison developed an approach to heritage thinking that is aligned with such a forward-looking perspective:

“heritage is not a passive process of simply preserving things from the past that remain, but an active process of assembling a series of objects, places and practices that we choose to hold up as a mirror to the present, associated with a particular set of values that we wish to take with us into the future. Thinking of heritage as a creative engagement with the past in the present focuses our attention on our ability to take an active and informed role in the production of our own ‘tomorrow’”.

(Harrison, R. (2013). *Heritage: critical approaches*. Routledge, London, p.4)

The Heritage Futures research programme set out to explore how heritage practices, broadly defined, contribute to the making of future worlds. From 2015 to 2019, an interdisciplinary, international team of 16 researchers (led by Principal Investigator Rodney Harrison) collaborated with 25 international partner organisations and many others to investigate heritage and heritage-like practices in a broad range of fields and contexts, and to explore the potential for innovation and creative exchange within and across them.

The research programme explored ideas relating to heritage as the building blocks of the future, in the sense that decisions (or inaction) taken now have a consequence on what alternative futures are possible. Actions taken now also resource future worlds that we cannot envisage.

The project identified four challenges that those working with heritage have to negotiate:

Profusion: What should we preserve for the future, in a world of ‘too much stuff’?

We live in a society that produces more and more stuff, and we can’t preserve everything. What should we pass on to the future generations, and why?

Diversity: how can we ensure the future is full of possibility and variety?

The future is uncertain. Diversity, in nature and in cultural traditions, can help people and nature cope with that uncertainty.

Transformation: How do we preserve the importance of a place or thing, when we can’t prevent it from changing over time?

Change is inevitable, so we can’t always prevent places or things that are important from changing. We could think of heritage as being something that is not fixed, but as being like a relationship that changes over time.

Uncertainty: What do we mean when we say ‘forever’?

What should we pass on to future generations, when we can’t be sure what they will want or need?

HOW DOES THIS RELATE TO MUSEUMS?

Museums should critically question why they retain the material they do, what for, and for whom, and for what ultimate purpose.

They should question how their decisions (or avoidance of decisions) now support – or impede – the kind of futures people might want and need. Unclear notions of ‘for posterity’ or ‘forever’ should be critically evaluated.

Museums are part of the world as it exists today, and different futures will require different institutions and organisations. Radically different futures will surely require radically different institutions, organisations and practices. Museums should ask whether they are transforming at a sufficient pace or scale of change, to be part of a sustainable future (or, indeed, if they are even heading in the right direction).

Future-making can be implemented across museum functions and activities, and can engage constructively with projected climate change scenarios and accompanying social changes.

Museums can consider that their actions are not simply the documenting of the past or the present, but activities that have the potential to resource communities and society to shape their own futures, in the context of a changing world.

Future-making can be drawn upon in both climate mitigation and climate adaptation actions, working with local communities, international partners, and connecting local and global dimensions.

Future-making has strong potential as an antidote to the pervading helplessness and hopelessness that often accompanies climate change awareness-raising activities, but focuses on empowerment to face the challenges of climate change, reduce its impacts, and create the futures that people want to inhabit.

FURTHER READING AND INFORMATION

You can explore the open-access book [Heritage Futures: comparative approaches to natural and cultural heritage practice \(2020\)](#).

See sections on

Reimagining Museums for Climate Action: inspiring radical action in and with museums (section q) [JUMP](#)

**reimagining museums
for climate action:
inspiring radical climate action
in and with museums**

q

‘Reimagining Museums for Climate Action’ was launched as an international design and ideas competition on 18 May 2020, International Museums Day. It challenged designers, architects, academics, artists, poets, philosophers, writers, museum professionals, Indigenous groups, community groups and the public at large to radically (re)imagine and (re)design the museum as an institution, to help bring about more equitable and sustainable futures in the climate change era.

The Reimagine section of the Museums for Climate Action [website](#) features 79 of the concepts that were submitted to the competition. The website aims to inspire and support museums to consider how they could take more radical climate action, and to consider what, if anything, is preventing them from enacting these ideas now.

The competition generated a great range of options and possible routes to transform museums to meet the needs of climate action. Eight of the concepts were invited to develop their ideas into exhibits, which were shown in Glasgow Science Centre ahead of and during COP26.

Weathering With Us (Singapore) imagines a new kind of contemplative museum space where climate action is materialised in the very structure and experience of the building [LINK](#)

Existances (Brazil) shows the power of collective knowledge in the fight against climate change, imagining a network of micro-museums embedded in and responding to the diverse lifeworlds of indigenous communities [LINK](#)

Elephant in the Room (USA) offers a fantastical story in which a stuffed elephant comes to life and forces museums and wider society to confront their role in climate change [LINK](#)

Museum of Open Windows (UK) repurposes the existing global infrastructure of museums to support inter-community collaboration and citizen research on climate change and climate action [LINK](#)

Dundee Museum of Transport (UK) asks how a traditional museum might evolve to address the contemporary challenge of sustainable travel in an inclusive way [LINK](#)

Story:Web (UK) mobilises existing museum collections to empower people to curate their own climate stories, experiences and networks on a global scale, connecting the masses of online information available, with the opportunities of the internet to network and share climate stories and collaborate to create desired futures [LINK](#)

[A Series of Collective, Non-Statistical Evidence](#) (Indonesia) applies familiar museum practices of collecting, display and participation to community settings, to present and discuss personal experiences of climate change [LINK](#)

[Natural Future Museums](#) (Brazil) asks what it would mean to confer museum status on existing Indigenous lands in forests and other places that play a key role in climate action [LINK](#)

The eight exhibits reflect a wide range of approaches that address various points regarding climate mitigation, such as [Weathering With Us](#) with its enhanced mineralisation, and strengthening carbon sinks, such as [Natural Futures Museums](#); and adaptation, from supporting people to adapt to incoming green vehicles ([Dundee Museum of Transport](#)), to supporting networks for community-led climate adaptation ([Museum of Open Windows](#); [Story:Web](#); [A Series of Collective, Non-Statistical Evidence](#)) and hyper-local adaptation ([Existences](#)).

[A further 71 concepts are featured on the Museums for Climate Action website](#), to provide a rich source of information and inspiration that can help museums to explore how they might be able to change to better support climate action. Some of the common themes of the concepts are included below, although this list is not exhaustive, and readers are encouraged to browse the concepts on the website.

[Museum practices may themselves stimulate community climate action](#)
For example, [Muserealism: Think Like a Museum](#) applies traditional museum practices of collecting and preserving to people's own lives, to explore how people can regard their own possessions as treasured museum pieces.

[Museums could facilitate community dialogue for climate action](#)
[Exhibiting Perspective](#) establishes a process for people to explore and contribute to a reimagining of their city, using a decentred type of museum experience, and inclusive participation methods.

[Museums could incorporate Indigenous knowledge and perspectives into practices and programmes](#)
[OPUS](#) prioritised 'ways of doing' over preservation of objects, drawing on Indigenous knowledge and philosophy.

Reusing buildings as a form of museum could contribute to climate action
Terrestreum takes an abandoned airfield and converts it into a place where plants and trees grow, and people interact with them: the focus moves from consumption of heritage, to production of a green future.

Museums may generate renewable energy as a form of climate action
E-WERK Luckenwalde is a contemporary arts centre based in a disused coal-fired power station, and generates green electricity that it sells back to the national grid in Germany, as a kind of 'art power'. The centre is a hub for creative activity to address climate change.

Museums could promote the green and circular economy, and restoration of nature

Aquify integrates a museum in a water treatment centre, so that people not only experience climate change as a topic: the museum physically contributes to efficient use of natural resources.

Museums could be built from renewable materials or materials that trap carbon

After the Anthropocene imagines a type of museum based on a traditional Indonesian building called a bale. The 'walls' are living bamboo, while the gathering space is a place for dialogue and the valuing of traditional knowledge and perspectives.

Museums could be thought of as being for plants and animals, rather than people

Living Museum uses old building materials to create space for biodiversity in New York as a catalogue of, and monument, to the city's nature. The 'building' preserves, rather than destroys, nature.

Museums could help create the networks for people to create, share and network their own stories and experiences

The Global Dialogue Museum collects and shares people's experiences and concerns about climate change, which are shared globally as a network, to unleash the power of global dialogue.

Museums may help people explore and imagine alternative futures, and backcast to explore pathways for transformation

Carbon Ruins is a speculative museum set in 2053. Climate change has been addressed, and visitors are invited to backcast to imagine the trajectory that enabled society to make the transformations required for a future aligned to the Paris Agreement.

Museums could be mobile

B.O.A.T (Barge of Arts and Technology) tours around, as a research station and agora for public education and participation.

Museum space could form a resource for climate action

The Green Room Initiative gives a proportion of museum space over to climate action, proportionate to the scale of greenhouse gas emissions of the country, and the need for climate action.

Responsible tourism could support climate action

747km on Foot takes people on a long walking or cycling journey from St. Petersburg to Moscow, encouraging a form of 'slow tourism'.

**current opportunities
to take part
in climate action**

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Climate action is more effective when it is taken together, when organisations work in partnership rather than in competition, and where organisations from different sectors work together to lever the strengths of each to create additional public value. Taking part in these can empower museums and those affected by their activities to participate in achieving the goals of these initiatives, and of the Paris Agreement and Agenda 2030.

Education for Sustainable Development: Towards achieving the SDGs (ESD for 2030) “aims to increase the contribution of education to building a more just and sustainable world.” Museums can draw on the tools and approaches available through this initiative, and collaborate on large-scale events such as the World’s Largest Lesson.

The UN Decade of Ecosystem Restoration (2021-30) “aims to massively scale up the restoration of degraded and destroyed ecosystems as a proven measure to fight the climate crisis and enhance food security, water supply and biodiversity.”

The UN Decade of Ocean Science for Sustainable Development (2021-30) “The Ocean Decade will strengthen the international cooperation needed to develop the scientific research and innovative technologies that can connect ocean science with the needs of society... The Ocean Decade requires the engagement of many different stakeholders to create new ideas, solutions, partnerships and applications, these include: scientists, governments, academics, policy makers, business, industry and civil society.”

Keep abreast of sustainable development challenges and opportunities, to empower people to know, care and act about our present, and our future.

Information can be found at:

UN News [LINK](#)

UN Climate Change News [LINK](#)

UN Global Compact is the largest corporate sustainability initiative in the world. Museums can participate, or use the Ten Principles around which the Global Compact is based, as a simple framework for climate action that is undertaken in ways that are also in line with climate justice [LINK](#)

how does this story end?

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Climate change is a massive challenge that has been a hundred years in the making. There is not a hundred years to undo the damage, but more like ten years.

Institutions, such as museums, can play an important part, but it is not the same part that they have been playing, as that has also led us to this crisis point.

This Toolbox has set out some practical tools and approaches to ramp up climate action. The scale of the challenge can't be over-estimated, and the danger is that the complacency that has led us to this point will lead us past the point of no return. Those in privileged positions – including museums – will not necessarily realise they are even close to or past these crisis points until it is too late. Those who have least – the poor, marginalised, under-served, minorities, Indigenous peoples – will pay the price of inaction by governments, and by institutions including museums. The need for action is great, but the appetite and commitment to support the transformation needs to be even greater. Museums present tremendous opportunities to support climate action, both by empowering all of society to meet the challenge, and by rapidly decarbonising their buildings, energy and practices. That is how the story will have a different ending.

So, what will you do next?

ADDITIONAL RESOURCES

Further resources are provided on the [Museums for Climate Action](#) website.



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