

Julie's Bicycle
SUSTAINING CREATIVITY



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**ARTS COUNCIL
ENGLAND**

Museums

ENVIRONMENTAL FRAMEWORK

2017

EXPLORE THE PAST

EXPLORE THE FUTURE

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Introduction

All this begs the question, ‘what is the purpose of heritage?’

Many museums are already reframing environmental action as an opportunity to create more resilient and happier organisations, for them and the communities they serve. Responses have been diverse and creative, reflecting the uniqueness of their buildings and collections.

“

Never before has it been so important to cherish our world and embody, in our museums, good stewardship into the future. This framework captures the **collaborative and creative commitment** of museums all over the country.

Alison Tickell

Director, Julie’s Bicycle

Museums are unique platforms for learning, debate and ideas. They help us to understand our heritage and values, to interpret our present and to imagine our future. They bring together the big stories of human cultures, and the values which shape them.

Climate change, environmental degradation and the resulting social inequities cause economic and political instability. This is the biggest story of our times. It is resulting in incalculable losses to our shared and unique natural and cultural heritage. This requires stewardship of a different order altogether.

The Museums' Environmental Framework has been developed for this context and with the good will and expertise of a range of museum representatives. Building on a growing body of environmental practice and leadership in the museums' sector and the broader arts and culture sector, it aims to support UK museums in developing environmental practice and inspire them to use their unique role to foster environmental values, understanding and action with their audiences and communities, by providing:

- **an overview of different levels of environmental practice across 12 key themes** helping museums to better understand their current environmental practice and inform environmental thinking and action;
- **examples of environmental practice** demonstrating how museums are adopting environmental practice within their own operations, promoting environmental values and fostering environmental understanding with their audiences and communities;
- **a summary of legal, funding and other requirements and standards** for museums relating to environmental ambition and practice, from emissions reporting to environmental standards for buildings, and;
- **an overview of environmental guidance, tools and networks** available to help museums in developing and sharing their environmental practice.

The framework has been developed by Julie's Bicycle with the support of Arts Council England and in consultation with sector organisations, including: Happy Museum Project; Museum Development Network; Museums Galleries Scotland; Museums, Archives and Libraries Division Welsh Government; Northern Ireland Museums Council and; Sustainable Exhibitions for Museums.



Environmental sustainability in the museum sector

Why DOES IT MATTER?

- Aligns to the values and mission of museums
- Demonstrates civic responsibility in addressing the environmental crises with which we are faced today
- Reduces environmental impacts
- Contributes to local, regional, national and global environmental goals and targets
- Builds resilience by reducing costs, accessing new funding and investment and adapting to climate change
- Generates new opportunities for creative practice and engaging with visitors and audiences
- Contributes to peoples' health and wellbeing
- Promotes positive environmental action and behaviour
- Enables the shifting of cultural values and perceptions on climate change and environmental issues

Who DOES IT MATTER TO?



SOCIETY AS A WHOLE



TRUSTEES, BOARD,
MANAGEMENT, WORKFORCE



FUNDERS, INVESTORS &
SPONSORS



VISITORS & AUDIENCES



LOCAL COMMUNITIES



ARTISTS, EXHIBITORS &
COLLABORATORS



ACADEMICS, SCIENTISTS,
RESEARCHERS AND STUDENTS



SUPPLIERS & SERVICE
PROVIDERS



THE WIDER ARTS & CULTURAL
SECTOR



POLICYMAKERS,
ADMINISTRATORS &
AUTHORITIES



What DOES IT LOOK LIKE?

- Aligning environmental values and stewardship with museum **values and mission**
- Embedding environmental sustainability in **governance and management**
- **Commitment** to environmental improvement and action
- **Understanding** environmental impacts and measuring what matters
- **Communicating and engaging internally** on environmental impacts and action
- **Communicating and engaging externally** on environmental impacts and action
- **Engaging visitors and audiences** on environmental values, understanding and action
- Taking action to make **buildings and sites** more environmentally sustainable
- Developing environmentally sustainable practice for **collections care and exhibitions**
- Embedding environmental sustainability in **commercial services**
- Integrating environmental sustainability in **financial and investment decision-making and fundraising**
- Developing environmental **collaboration and partnerships**



Museums present a wonderful opportunity to not only connect people with the past, but to connect with the present and to shape our collective future.

Henry McGhie

Head of Collections & Curator of Zoology,
Manchester Museum, University of Manchester

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1 Values & mission

MAKING INITIAL PROGRESS	WELL ON THE WAY	BEST PRACTICE	LEADING THE WAY: BEST PRACTICE+
Recognition of the natural environment as part of cultural heritage to preserve	Leadership or management level* starting to explore how environmental values and stewardship align with values and mission	Clear understanding on leadership or management level on how environmental values and stewardship align with values and mission	Environmental values and stewardship an integral part of values and mission
Recognition that climate change is a cultural issue			

*Museums have different governance and management structures depending on e.g. size and legal status. Leadership and management is a catch-all term here for the fora and individuals with governance and executive authority e.g. governing body, board of trustees, CEO, director, senior management team.

2 Governance & management

MAKING INITIAL PROGRESS	WELL ON THE WAY	BEST PRACTICE	LEADING THE WAY: BEST PRACTICE+
One/a few people driving environmental action through their own personal commitment on a voluntary basis	Some environmental roles and responsibilities <ul style="list-style-type: none"> mainly operations-focused/ across a number of departments or activities not including leadership or management / including leadership or management 	Environmental roles and responsibilities <ul style="list-style-type: none"> across all levels and departments or activities led by or reporting into leadership or management recognised e.g. in contracts, job descriptions 	Appointed environmental lead/ champion on leadership or management level
		Time allocated for environmental work within existing roles or part/full time role in place	Leadership or management literate in systems thinking and circular economy, managing uncertainty, complexity and paradox
		Environmental sustainability part of performance management e.g. personal objectives, performance reviews	Leadership or management speaking up and out publicly on environmental sustainability
Informal/ad hoc environmental meetings taking place	Regular environmental meetings <ul style="list-style-type: none"> not including leadership or management / including leadership or management 	Environmental sustainability integrated in governance and management meetings, fora and reporting processes and structures	Environmental principles and values applied to all key decision-making
	Some environmental training opportunities for those interested	Environmental training for people with relevant roles and responsibilities	Environmental sustainability used as a route to developing skills integral to staff development

3 Commitment

MAKING INITIAL PROGRESS	WELL ON THE WAY	BEST PRACTICE	LEADING THE WAY: BEST PRACTICE+
Environmental policy under development	Environmental policy in place <ul style="list-style-type: none"> mainly operations-focused/ covers most or all relevant areas of activity not signed off / signed off by leadership or management 	Environmental policy in place <ul style="list-style-type: none"> covers all relevant areas of museum activity signed off by leadership or management regularly reviewed publicly communicated and available 	Environmental sustainability an integral part of overall strategy and planning Environmental commitment and values publicly communicated and available
Environmental plan/strategy under development	Environmental plan or strategy defined <ul style="list-style-type: none"> mainly operations-focused/ covers most or all relevant areas of activity not signed off / signed off by leadership or management with no specific, measurable targets / with some specific, measurable targets 	Environmental plan or strategy in place or part of broader plan or strategy <ul style="list-style-type: none"> covers all relevant areas of museum activity signed off by leadership or management regularly reviewed and updated with a range of specific, measurable targets resourced and covered in budget planning publicly communicated and available 	Ambitions defined in line with global, national, regional goals or targets e.g. Sustainable Development Goals, UK carbon reduction targets Environmental trends intelligence informing environmental strategy Environmental performance an integral part of strategic review

4 Understanding

MAKING INITIAL PROGRESS	WELL ON THE WAY	BEST PRACTICE	LEADING THE WAY: BEST PRACTICE+
Starting to report on annual environmental impacts, e.g. energy, water, waste	Annual data on range of environmental impacts, e.g. energy, water, waste, vehicle fleet, touring transport, business travel - and resulting carbon footprint	Established annual reporting on range of environmental impacts, e.g. energy, water, waste, materials, business travel, visitor travel, touring - and resulting carbon footprint	Environmental risks and value understood e.g. climate change risk assessments, biodiversity audits, natural capital valuation
Starting to monitor and measure some impacts on a more regular basis, e.g. monthly energy use	Regular monitoring and measurement and more indepth analysis of one impact	Regular monitoring and measurement and more indepth analysis of a range of impacts	Environmental impacts/ performance a core indicator of organisational health and resilience along with other indicators / metrics — financial, artistic, social etc.
	Initial audit or assessment done, e.g. U-values test, energy audit, waste audit	Relevant audits and assessments done, e.g. thermal performance, flood risk assessment	
	Data used to some extent to inform planning and action and track progress	Key indicators in place, informing objectives, targets and action and used to track progress	

5 Internal communication & engagement

MAKING INITIAL PROGRESS	WELL ON THE WAY	BEST PRACTICE	LEADING THE WAY: BEST PRACTICE+
Initial internal environmental communication measures e.g. occasional environmental updates in newsletters, environmental policy emailed to employees and volunteers	Some/a range of internal environmental communication measures e.g. <ul style="list-style-type: none"> • environmental newsletters • environmental briefings for new employees and volunteers 	Wide range of internal environmental communication measures, tailored to different groups e.g. management, volunteers	Environmental sustainability an integral part of broader internal communications
		Resource/budget allocated	Museum's environmental commitment and practice widely known and recognised across the organisation
Initial engagement of workforce in developing and/or supporting museum environmental initiatives e.g. workforce environmental survey, green week	Some/a range of opportunities for people to get involved in developing and/or supporting museum environmental initiatives e.g. <ul style="list-style-type: none"> • environmental working groups • switch-off campaign 	Wide range of opportunities for people to get involved in developing and/or supporting museum environmental initiatives	Engagement also supports people in taking environmental action outside work
		Resource/budget allocated for internal environmental engagement activities	

6 External communication & engagement

MAKING INITIAL PROGRESS	WELL ON THE WAY	BEST PRACTICE	LEADING THE WAY: BEST PRACTICE+
Initial external environmental communication measures e.g. environmental policy on website	Some or a range of external environmental communication measures e.g. <ul style="list-style-type: none"> • environmental policy on website • environmental briefings for exhibitors • carbon footprint in annual reports 	Mapping done of external stakeholders and environmental issues of concern to them	Environmental sustainability an integral part of broader external communication
		Resource/budget allocated	
Some engagement of external stakeholders in developing and/or supporting museum environmental initiatives e.g. visitor environmental surveys	Some/a range of opportunities for external stakeholders to get involved in developing and/or supporting museum environmental initiatives e.g. <ul style="list-style-type: none"> • sustainable transport campaign • community involvement in food growing 	Wide range of external environmental communication measures for key groups e.g. visitors, sponsors, community groups	Museum's environmental achievements recognised e.g. through awards, media profile
		Wide range of opportunities for external stakeholders to get involved in developing and/or supporting museum environmental initiatives	Engagement also supports people in taking environmental action in their personal lives
		Resource/budget allocated	

7 Visitor & audience engagement

MAKING INITIAL PROGRESS	WELL ON THE WAY	BEST PRACTICE	LEADING THE WAY: BEST PRACTICE+
Initial measures to engage visitors and audiences on climate change and environmental themes in exhibitions and/or learning and outreach	Some to a range of measures to engage visitors and audiences on climate change and environmental themes in exhibitions and/or learning and outreach	Climate change and environmental themes embedded in exhibition and event programming and learning and outreach planning	Creative and learning policy framed in an environmental sustainability context
			Environmental sustainability an integral part of exhibitions programming and learning and outreach activities
		Comprehensive range of measures to engage visitors and audiences on climate change and environmental themes in both exhibitions and learning and outreach	Assessment and evidence of the difference visitor and audience engagement on climate change and environmental themes makes

8 Buildings & sites

MAKING INITIAL PROGRESS	WELL ON THE WAY	BEST PRACTICE	LEADING THE WAY: BEST PRACTICE+
<p>Initial steps being taken to reduce the environmental impacts of building(s) and/or site(s) e.g. energy efficient lighting</p> <p>or</p> <p>For museums which have little or direct control over building/site, initial discussions with authority / landlord on taking steps to reduce environmental impacts</p>	<p>Some to a range of measures to reduce environmental impacts depending on the size, nature and location of building(s) and/or site(s), e.g.</p> <ul style="list-style-type: none"> • energy saving: natural and energy efficient lighting, passive cooling, insulation • waste: reducing, reusing and recycling • water: leak prevention programme • nature and biodiversity: green roof, food growing, beekeeping • transport: using or promoting zero/low carbon transport options for fleet, visitor and business travel • integrating environmental sustainability in procurement of building services, supplies and equipment 	<p>Comprehensive range of measures to make building(s) and/or site(s) more environmentally sustainable, e.g.</p> <ul style="list-style-type: none"> • combining a mix of high, low and no-tech environmental solutions, training, systems, materials, etc. • energy source: on-site generation, renewable energy supply • using healthy, non-toxic materials • rainwater harvesting, greywater recycling, sustainable urban drainage • avoiding noise, air and soil pollution • protecting or enhancing ecosystems, habitats, wildlife etc. • investing in low or zero carbon vehicles • proofing buildings and sites against floods and extreme weather 	<p>Environmental sustainability an integral part of building(s) and/or site(s) operation, maintenance, management, planning and strategy and considered essential to long term resilience</p> <p>Building(s) and/or site(s) a reflection of the museum's environmental values and commitment which enable it to fulfil its mission, creating financial, social and cultural value, within the planet's capacity to support us</p> <p>Building(s) and/or site(s) create quantifiable environmental benefits and value e.g. feeding surplus renewable energy to grid, providing space for community energy generation and food growing, enhancing local wildlife, supporting wellbeing and community regeneration</p>

9 Collections & exhibitions

MAKING INITIAL PROGRESS	WELL ON THE WAY	BEST PRACTICE	LEADING THE WAY: BEST PRACTICE+
Initial steps being taken to make collections care and storage, loans and exhibitions more environmentally sustainable e.g. installing LED lighting in exhibition spaces	<p>Some to a range of measures to make collections care and storage, loans and exhibitions more environmentally sustainable e.g.</p> <ul style="list-style-type: none"> • avoiding blanket conditions • rearranging storage and exhibition spaces to use naturally cooler and warmer zones more efficiently • adopting a more passive approach to environmental conditioning, e.g. using natural cooling, high thermal mass materials, insulation, local control using microclimates • consolidating loan shipments • using sustainably sourced display materials and/or reusable displays • reusing or recycling waste materials and packaging from exhibitions 	<p>Comprehensive range of measures to make collections care and storage, loans and exhibitions more environmentally sustainable covering e.g.</p> <ul style="list-style-type: none"> • energy use and impacts integrated across collections care, storage and loan policy and practice • integrating environmental sustainability into conservation practice (materials and methods) • integrating environmental sustainability in exhibition design (materials, waste, energy) • integrating environmental sustainability into planning and design for touring exhibitions and loans (materials, waste, energy, transport) • assessing flood risks for collections and storage 	<p>Environmental sustainability an integral part of collection care, conservation and management strategies and practice and considered essential to long term resilience</p> <p>Application of circular economy principles (replacing the “take, make, dispose” model with one which designs out waste and maximises resource value) and biophilic design (design based on nature and natural processes) to exhibition creative process, design and production</p> <p>Contemporary collecting programme to acquire material that can be used to tell compelling stories around climate change/migration/conservation of the natural environment</p>

10 Commercial services

MAKING INITIAL PROGRESS	WELL ON THE WAY	BEST PRACTICE	LEADING THE WAY: BEST PRACTICE+
Environmental criteria applied to selection of some commercial products and services	<p>Environmental procurement practice in place for some commercial products and services e.g.</p> <ul style="list-style-type: none"> • publications printed in the UK on sustainably sourced paper, using vegetable-based inks • local, organic, sustainably made or sourced retail products • providing/requiring caterers to provide some local, organic, seasonal, fair trade products 	Environmental sustainability an integral part of procurement and contracting for main commercial products and services e.g. publications, retail, catering, event production and services	<p>Environmental sustainability an integral part of commercial services development, planning and provision</p> <p>Environmental sustainability part of positioning and marketing of commercial services provided by the museum e.g. events</p>
Initial steps being taken to make commercial services – catering, events, film location - more environmentally sustainable e.g. food waste recycling	<p>Some to a range of measures to make commercial services more environmentally sustainable e.g.</p> <ul style="list-style-type: none"> • recycling/composting food waste • on-site food growing for catering • using low/zero carbon sources of temporary power for outdoor events or location filming or replacing temporary power with mains power • developing environmental terms and conditions for incoming events or film productions 	<p>Comprehensive range of measures to make commercial products and services more environmentally sustainable e.g.</p> <ul style="list-style-type: none"> • water conservation, waste prevention, reuse and recycling measures for catering • avoiding diesel generators for events and location filming • using/promoting sustainable transport and travel for catering and events • developing environmental action with key service-providers, incoming events, etc. 	<p>Environmental values, commitment and action shared and developed with commercial partners, suppliers, and customers</p> <p>Museum's initiatives leading suppliers or service providers to develop new environmentally sustainable products or services</p>

11 Finances, investment & fundraising

MAKING INITIAL PROGRESS	WELL ON THE WAY	BEST PRACTICE	LEADING THE WAY: BEST PRACTICE+
Initial steps being taken to integrate environmental sustainability into financial and investment planning and decision-making and fundraising activities e.g. reviewing options for switching to banking services which do not invest in fossil fuels or have more ethical investment policies	<p>Some to a range of measures to integrate environmental sustainability into financial and investment planning and decision-making and fundraising activities e.g.</p> <ul style="list-style-type: none"> • integrating energy efficiency and carbon emissions into building development or refurbishment plans • switching to banking services which do not invest in fossil fuels or have more ethical investment policies 	<p>Environmental sustainability integrated into financial and investment planning and decision-making and fundraising activities e.g.</p> <ul style="list-style-type: none"> • environmental principles integrated across investment planning, decision-making and life cycle of investment projects • divestment criteria applied in choosing financial services e.g. banking, pension • ethical sponsorship, partnership and fundraising policy defined, applied and evaluated 	Environmental sustainability an integral part of financial and investment planning and decision-making and fundraising activities

12 Collaborations & partnership

MAKING INITIAL PROGRESS	WELL ON THE WAY	BEST PRACTICE	LEADING THE WAY: BEST PRACTICE+
Initial steps being taken to share and exchange environmental learning and practice e.g. with other museums, local community groups working on environmental issues and find out existing environmental collaborations and partnerships	Some steps taken to actively share and exchange environmental learning and practice e.g. with other museums, cultural organisations, local groups, local authorities	Actively sharing environmental learning and practice through a range of groups, networks, events etc. and engaged in peer-to-peer learning	Developing or leading groups, networks, events to share and exchange environmental learning and practice
			Actively supporting peers to develop their environmental practice
	Getting involved in existing environmental collaborations and partnerships e.g. local environmental or community group, sector networks, business partnerships	Actively supporting and developing environmental collaboration and partnerships	Actively supporting authorities or policy-makers in achieving local, regional, city goals and targets
			Acting as a focal point and safe space for its community to debate, explore and engage on environmental issues



As a sector with **stewardship and community** at our heart, we have a responsibility to understand what is happening to our planet, take positive environmental action and engage with our communities in this process.

Kaye Hardyman

Museum Development North West

Examples

The **California Academy of Science** has committed to becoming zero carbon by 2025 and has become the first major museum to announce plans to divest from fossil fuels. In 2018, the academy will launch Planet Vision, a two-year project which aims to reach 200 million museum-goers with food, water and energy solutions. The **Climate Museum in New York** was launched in 2017 to serve as a hub for climate engagement and leadership and act as a public space where people can learn about climate change, face fears, share solutions,

and commit to action. **Rio's Museum of Tomorrow** is a sustainable new building and museum focusing on ideas rather than objects, ecology rather than technology. The **Biotopia Museum of Life in Munich**, a reinvention and expansion of the Museum of Man and Nature, aims to explore, question and reconfigure the relationship between humans and other living species, using a groundbreaking new concept that will lead the classical natural history museum into the future.

Environmental stewardship and sustainability are embedded in the **National Trust's** values and strategy. Its broad understanding of 'environment' ranges from cultural and artistic to natural heritage. Its strategic objectives to 2025 include restoring a healthier, more beautiful natural environment, reducing energy use by 20% and sourcing 50% of energy from renewables by 2020/21 against a 2009 baseline. The Trust had achieved an 8% energy use reduction in 2016/17 despite significant growth in visitor numbers and opening hours. 18 projects have been completed under the Trust's Renewable Energy Investment Programme, and a further 20 projects are due to go online in 2017. An advocate of positive environmental change, the Trust is also co-founder of Fit for the Future, a network of organisations working together since 2013 to become climate-friendly, adaptive and resilient.

The 3-year long restoration project at **Mount Stewart**, a National Trust property in Northern Ireland, saw many environmental improvements including installation of rainwater harvesting, a biomass boiler as the heat source for humidity control and LED lighting throughout the mansion, as well as switching to green tariff electricity supply.

Tyne and Wear Archives and Museums (TWAM) Initiatives range from staff engagement schemes such as Green Office Week and Waste Free Lunch to the Discovery Museum's Play & Invent programme (which features skill-sharing, design and construction with a focus on reusable and recyclable materials) to a sustainable transport campaign for audiences delivered as part of the work of

Newcastle Gateshead Cultural Venues (NGCV). TWAM brings this experience to its work as a sector support organisation. Its Make Carbon History project, delivered in 2013 through the Arts Council England-funded Museum Development North East Programme, enabled 15 local museums to develop their environmental policy and reduce their carbon footprint. Two years after its implementation, the programme had already contributed to an 18% carbon emissions reduction and £56,000 annual reduction in operating costs. TWAM is also a member of NGCV, a cultural partnership aimed at sharing best practice and developing joint sustainability projects.

Scotland's museums are working to become more environmentally sustainable, in order to continue to protect and promote Scotland's heritage. **Green Museums Scotland** will enable participating museums to embark on a major carbon reduction project spanning across the Highlands, cutting long term costs and offering a new range of programming that will help them develop increased relevance in their communities, thereby contributing to their financial and social sustainability. Through capital works, this project will deliver improved environmental conditions and reduced operating costs for 20 museums. A **Community Culture Change Programme** aims to establish these museums as leaders within their communities in developing knowledge about climate change, and use their collections to empower employees and volunteers to make more sustainable decisions for their organisations.



Reading Museum's 'Where's Reading Heading?', a Happy Museum project, looked at the past, present and future development of Reading. It used the museum's collection to provoke debate about how Reading would sustain a growing population and build a successful low carbon economy whilst 'Narrowing the Gaps' between different sectors in its communities. The vision of the project was for Reading Museum to become a trusted advocate and influential agency through which communities are active in shaping public policies that advance wellbeing within a sustainable environment.

Highlights included new partnerships with iMUSE (engaging with museums using IT), Reading International Solidarity Centre (RISC), Reading 2050 and environmental groups, and supporting Nature Nurture's Heritage Lottery Fund application for a 'Wild Town'.

Ceredigion Museum's Hadau project, also a Happy Museum project, built on the museum's sense of place in the community and respect for the heritage of Ceredigion to explore how past techniques in land management can be utilised in current farming and woodland practices.

The project promoted social enterprise through traditional crafts through a collaboration between Ceredigion Museum and Tircoed, an organisation that works to improve the quality of life for rural communities in Wales. The museum worked with the local farming community to collect information about the agricultural tools and methods that would have been used to make objects in the collection. Local community consultation fed into a series of workshops both at the museum and in the woodlands. Woodland resources were utilised to develop the personal, social and vocational skills of local young people. Ceredigion also worked with Tircoed's commercial arm, 'Wisewood Wales', to build products for sale in the museum shop.

Manchester Museum has a wide range of permanent and temporary exhibitions which encourage visitors to explore their attitudes and values about nature. The Living Worlds Gallery encourages visitors to explore the natural world and their relationship to nature. 'After the Bees' and 'Extinction or Survival' explore themes of loss and the impact of humans on the natural environment.

Other initiatives include the 'Nature and Me' project, a series of films of local people with a wide variety of connections to nature, and themed 'Big Saturday' events for families on a range of nature themes. 2016's Climate Control was a six-month long series of exhibitions and events exploring what kind of future people hope for and how to make it a reality, including opportunities to rebuild a model Manchester. Climate Control was carried out in partnership with the Tyndall Centre and the Global Development Institute, as part of Climate Lab, an experimental programme led by the Manchester Climate Change Agency to test ways to engage stakeholders in developing the city's climate change strategy.

The museum is organising a conference on climate change and museums in 2018 and is also involved in international sustainability initiatives, including participating in United Nations climate dialogues and supporting the Tokyo Protocol work in advocating for science centres and museums role in supporting the achievement of the Sustainable Development Goals.

Leeds Museums and Galleries have addressed issues of environmental concern through their community engagement programmes. Examples include working with local people at Temple Newsam on issues of fuel poverty – looking at energy usage, tariffs and changing providers in order to support people on low incomes – and a gardening project at Armley Mills in partnership with Hyde Park Source promoting gardening as a way of tackling mental health issues as well as improving the green space for all visitors to enjoy.

Examples of how collections and exhibitions staff work to make Leeds Museums and Galleries' exhibitions more sustainable include reusing display materials and packaging, working with local communities to produce displays, developing specifications for reusable crates, and exploring environmental and climate change issues using their natural history collection.

In 2012, **National Museums Northern Ireland** in partnership with the Centre for Environmental Data and Recording (CEDaR) launched a series of biodiversity courses aimed at building capacity within local communities and supporting the recording of high quality information. Popular with local naturalists, environmental scientists and conservation consultants, more than 850 people have attended one of the 64 training courses organised since then.



Museum in the Park, a museum service provided through a partnership between Stroud District Council (SDC) and the Stroud District (Cowle) Museum Trust, has undertaken a range of measures to reduce its environmental impact. This includes introducing rainwater harvesting and on-site composting, installing energy efficient office lighting and LED spot lighting in all the galleries, the latter funded

under SDC's Carbon Management Plan. In 2016, a grant from the South West Museum Development Programme enabled the Museum to replace all existing display case lighting with LEDs. Towards the end of 2016 the museum also completed the Walled Garden Project which has brought a lost and hidden garden back to life, offering the community new learning and public programming opportunities. Environmental sustainability is also integrated in its forward plan 2013-18, informed by and linking to Stroud District Council's long-established environmental programme and certified Eco-Management System and Audit Scheme (EMAS).

The **University of Manchester's Whitworth Gallery** has a long-established environmental programme which extends across its activities – from building and park operations, procurement and transport to programming, exhibitions, learning and outreach – which it communicates on its website. It provides a wide range of opportunities for employees, visitors and local communities to get involved in its environmental initiatives. All gallery staff have committed to two days of sustainability work per year within the gallery environment, and the Whitworth is the only UK gallery to have created the dedicated posts of Cultural Park Keeper and Landscape and Sustainability Technician as part of its remit to raise awareness, educate and inspire its many and diverse visitors in all things 'green'.

The Whitworth has adopted a more passive approach to environmental conditioning for its collections. The building operates now with no powered cooling, rare for such a building. Air-conditioning and active chilling were removed from the galleries and stores, and replaced with mechanical ventilation and a conservation heating approach to regulate relative humidity. In addition, the galleries and stores are conditioned by the passive effects of the thermal mass of the ground slab, new roof insulation, the use of lime plaster, and promenades which wrap around the building providing an environmental buffer zone.

The Whitworth broadened the environmental parameters of temperature and relative humidity traditionally used for the storage and display of collections, with wide dead-bands of 30-70% relative humidity and 16-28° C temperature. In addition, the gallery makes significant use of local microclimates through cases and sealed framing techniques, which do not require any energy use, to provide stable display conditions.

Oriel y Parc gallery and visitor centre in Pembrokeshire was built using locally and sustainably sourced materials, including untreated Welsh Oak sourced through a partnership dedicated to sustainable woodlands management. The building uses orientation and thermal mass to make the most of solar gain for passive heating.

Other features include a grass and sedum roof, design to maximise the use of natural ventilation and light and a rainwater collection system which helps to reduce both the pressure on local water resources and flooding risks. A ground source heat pump extracts heat from the ground which is used for building heating. Solar thermal panels are used for hot water heating and electricity supply is supplemented by solar photovoltaic panels.

Middlesbrough Institute of Modern Art has taken a collaborative and creative approach to its exhibition-making. Re-deployment, recycling or re-use of exhibition structures or materials is designed into the process. In addition, resources are increasingly sourced or produced locally, to reduce transport costs and support the local economy. This takes place in collaboration with the community, including Percy Scrap Store and allotment schemes, as well as Teeside University departments and student bodies.

Examples include working with Collective Works to design a modular, re-usable system for collection displays and donating furniture made for an exhibition addressing the 'refugee crisis' to local charities at its end. An edible garden located between the museum and Middlesbrough's Central Library has also been developed in collaboration with local charities. This initiative has a particular focus on environmental enhancement, pollution neutralising planting, biodiversity projects and teaching self-sufficiency in food.



Cape Farewell is an international non-for-profit which brings creatives, scientists and informers together to stimulate a cultural narrative that will engage and inspire a sustainable and vibrant future society. As part of its **U-N-F-O-L-D** touring exhibition, artist Sam Collins worked to reduce the exhibition's carbon footprint. The exhibition materials and displays were transported by ship rather than plane, producing 25% less emissions. The artworks were fitted with a

GPS tracking device, to measure distances travelled and resulting carbon emissions. This data was then used during the exhibition, to raise awareness on the environmental impacts of touring. The transport crates were also used as part of the display, reducing materials use.

Ironbridge Gorge Museum Trust is working towards its ambition of making Ironbridge Gorge World Heritage Site the greenest inhabited World Heritage Site. A Green Tourism Business Scheme Gold Award holder, its actions range from practical measures on energy saving and waste avoidance to food growing and working with catering teams and event clients to develop environmental understanding and practice. The museum employs a Ranger to maintain, conserve and develop the natural resources. It works closely on a number of environmental programmes with local schools and community groups, including community recycling projects and award-winning environmental education work with schools, and in partnership with other charities and businesses in the region such as the Shropshire Wildlife Trust and the Business Environmental Support Scheme for Telford.

Summary of requirements

What are museums being required, asked or recommended to do on environmental sustainability?		Key information
The Paris Agreement on climate change, agreed by 195 nations, entered into force and ratified by the UK in November 2016	National governments define how they will contribute to meeting the commitment to holding the increase in global average temperature to well below 2° C above pre-industrial levels and aim for 1.5° C — but all sectors of society have a role to play. For businesses this means defining targets in line with climate science and taking action to rapidly reduce emissions from reducing energy use, transport and waste to and shifting away from fossil fuel-based energy, transport and materials.	United Nations Framework Convention on Climate Change – The Paris Agreement >
United Nations Sustainable Development Goals (SDGs) — adopted in September 2015	<p>A set of global goals for people and planet — the goals and related targets to 2030 include a number of specific environmental goals and targets:</p> <ul style="list-style-type: none"> • Goal 7 Clean energy — targets e.g. include increasing the share of renewable energy, and doubling the rate of energy efficiency improvement • Goal 12 Sustainable consumption and production — targets e.g. include waste prevention, recycling and reuse, sustainable procurement, and reducing chemicals' use the use of chemicals and their release to air, water and soil • Goal 13 Climate action — targets e.g. include strengthening resilience and adaptive capacity to climate-related hazards • Goal 17 Partnerships for the goals — working in partnership to mobilise and share knowledge, expertise, etc. to support achievement of the SDGs 	Sustainable Development Goals 2015 >
		SDG Compass — guidance for business understanding and action on the SDGs >
Tokyo Protocol on the Role of Science Centres and Science Museums Worldwide in Support of the United Nations SDGs	<p>Sets out a range of actions for Science Centres and Science Museums which are parties party to the protocol including:</p> <ul style="list-style-type: none"> • expand public awareness of and engagement in actions to achieve the SDGs • undertake actions with local communities relating to the SDGs • develop partnerships and collaborations towards achieving the SDGs • support advancement in the number, capabilities and efforts of science centres 	Introduction to the Tokyo Protocol by the Science Centre World Summit >

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UK Climate Change Act (2008)	National greenhouse gas emissions reporting enables the government to track its progress against its legally binding target of an 80% reduction in greenhouse gas emissions by 2050, compared with 1990 - reporting is mandatory for some organisations including museums under local authority control in England must measure and report GHG emissions from estates and operations	Environmental Reporting Guidelines: Including mandatory greenhouse gas emissions reporting guidance, DEFRA, 2013 >
Climate Change (Scotland) Act 2009 (Part 4) and Climate Change (Duties of Public Bodies: Reporting Requirements) (Scotland) Order 2015	Public bodies, incl. National Galleries and National Museums of Scotland, must act to contribute to delivery of the Act's emissions reduction targets and are required to report on: <ul style="list-style-type: none"> • climate change governance, management and strategy • emissions (energy, water, vehicle fleet and business travel) • targets and projects • climate change risk assessment and management and adaptation • procurement 	Guidance on duties on public bodies relating to climate change under the Act >
		Guidance, workbook and video on duties on reporting >
		Sustainable Scotland Network E-Learning Module on Climate Change >
Wellbeing of Future Generations (Wales) Act 2015 — improving social, economic, environmental and cultural wellbeing of Wales	Public bodies in Wales, incl. National Museum of Wales, required to: <ul style="list-style-type: none"> • set and publish wellbeing objectives in line with 7 wellbeing goals • take action to meet them • report annually on progress in meeting them <p>Goals incl. a low carbon society recognising environmental limits, resource efficiency, acting on climate change and maintaining and enhancing biodiversity and ecosystems</p> <p>46 national indicators to measure progress towards achieving goals e.g. renewable energy generation capacity, non-recycled waste volumes per person, GHG emissions within Wales</p>	Wellbeing of Future Generations (Wales) Act 2015, The Essentials >
		How to measure a nation's progress? National indicators for Wales, 2016 >

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Accreditation Scheme for Museums and Galleries in the United Kingdom — <i>under review, revised standard expected in 2019</i>	Environmental sustainability is a matter for the governing body . Accredited museums must be guided by a policy statement about its approach to environmental sustainability appropriate to its statement of purpose. Approach should reflect and guide the collections care and conservation policy and plan .	Accreditation Scheme for Museums and Galleries in the United Kingdom >
		Collections Trust Resources >
Arts Council England National Portfolio Organisation (NPO) and Major Partner Museums (MPMs) funding agreement environmental requirements 2015-18 and 2018-22	<p>2015-18 funding agreements include a requirement to:</p> <ul style="list-style-type: none"> • submit annual data on environmental impacts depending on their activities, e.g. energy, water, waste, touring, business travel • provide an environmental policy and action plan <p>2018-22 funding agreements also include the requirement to submit annual environmental data and provide an environmental policy and action plan.</p> <p>Band 3 organisations will also have to define environmental impact reduction objectives and report on progress in achieving these objectives.</p>	Overview of Arts Council England NPO and MPM environmental sustainability requirements 2015-18 >
		The National Portfolio Investment Programme – 2018-22, Relationship Framework >
		Overview of Arts Council England NPO and MPM environmental programme and support provided by Julie’s Bicycle 2015-18 >
Creative Scotland funded network, Environment Connecting Theme, in line with its duties under the Climate Change Act Scotland	<p>Creative Scotland reviews how its funded network, including museums, are embedding climate change and environmental sustainability in particular</p> <ul style="list-style-type: none"> • systems in place to measure carbon emissions • policies or plans for environmental sustainability incl. reducing emissions • board or staff member responsible for or actively championing environmental issues • opportunities taken to influence others 	Creative Scotland Environment Connecting Theme overview and resources >
Creative Scotland Regularly Funded Organisation (RFO) requirements 2015-18	RFOs required to measure and report carbon emissions annually	Creative Carbon Scotland carbon reporting guidance, tools and resources >

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Carbon Reduction Commitment Energy Efficiency Scheme (CRC) — <i>will end after 2018-19 compliance year</i>	Organisations using > 6,000 MWh of electricity on settled half hourly meters, incl. larger museums e.g. National Museum Wales and some museums under local authority control, required to provide annual report on energy use and CO₂ emissions and each year buy allowances per tonne of CO₂ emitted	CRC Energy Efficiency Scheme guidance for participants in phase 2, Environment Agency, 2015 >
Energy Savings and Opportunities Scheme (ESOS) Regulations 2014	Large organisations with > 250 employees, turnover > €50m and annual balance sheet total of €43m, incl. large museums and heritage organisations which meet criteria, must <ul style="list-style-type: none"> • measure total energy consumption — buildings, transport • conduct audits to identify energy saving opportunities 	Complying with the Energy Savings Opportunity Scheme, Environment Agency, 2016 >
Energy Performance Certificates (EPCs)	If renting or selling a building or for new buildings EPC assessment required to establish A-G rating of building energy performance and CO₂ emissions , display if total useful floor area >500m ² and frequently visited by public	DECC guidance on energy performance certificates >
Display Energy Certificates (DECs)	If total useful floor area >250m ² and building frequently visited by public, DEC assessment required to establish A-G rating of building energy performance and CO₂ emissions which must be publicly displayed	Guide to display energy certificates and advisory reports for public buildings, DECC, 2015 >

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BS EN 16883:2017 Conservation of cultural heritage. Guidelines for improving the energy performance of historic buildings	Guidelines for improving the energy performance of historic buildings and reducing greenhouse gas emissions while respecting their heritage significance, designed for use by building owners, authorities and professionals involved in conservation and refurbishment of historic buildings	BS EN 16883:2017 Conservation of cultural heritage. Guidelines for improving the energy performance of historic buildings >
Publicly Available Specification 198 on managing environmental conditions for cultural collections	Sets out a framework for specifying environmental conditions and managing the museum environment with reference to collection needs, intended use, expected lifetime and energy economy based on i.a. evaluating sensitivity of collections in response to temperature, relative humidity, light and pollution and thinking holistically and putting in place an environmental strategy appropriate for collections, taking expected lifetime into account	PAS 198: 2012 Specification for managing environmental conditions for cultural collections >
National Museum Director's Council (NMDC) Guiding principles for reducing museums' carbon footprint	<ul style="list-style-type: none"> • Develop policy and practice for loan requirements, storage and display conditions, building design and air conditioning, to reduce carbon footprints while ensuring collection care • Avoid blanket conditions and determine conditions by requirements of individual objects or groups of objects and local climate e.g. for hygroscopic materials a stable temperature in the range of 16 - 25°C and stable relative humidity (RH) in the range of 40-60% • Avoid/minimise air-conditioning and favour passive methods and lower energy solutions • Explore and use natural and sustainable environmental controls e.g. buildings with high thermal mass, high thermal insulation, low air exchange, local control using microclimates 	Guiding principles for reducing museums' carbon footprint, National Museum Director's Council, 2009 >
PD 5454:2012 Guide for the storage and exhibition of archival materials	Recommendations for the storage and exhibition of documents, including books and other library materials which recognises i.a. need for a different approach to environmental management which allows for environmental fluctuations to occur within recommended parameters, such as can occur with seasonal changes, instead of a tight level of stability and control being recommended around set points for temperature and relative humidity	PD 5454:2012 Guide for the storage and exhibition of archival materials >

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<p>Local planning and authority requirements for construction, site and building development projects - relating to the sustainable development and environmental principles on which national planning framework and policy are based e.g. climate-resilience, low-carbon economy, conserving natural environment, reducing pollution</p>	<p>Requirements relating to climate change and resilience, pollution prevention and reduction and conserving and enhancing the natural environment may be set by planning and local authorities for construction, site and building development projects e.g. on-site renewable energy generation targets or the achievement of Buildings Research Establishment Environmental Assessment Methodology (BREEAM) rating</p>	England's national planning policy and framework overview >
		Scotland's national planning framework and policy overview >
		Welsh planning act and policy overview >
		Northern Irish planning portal >
	<p>Requirements on nature and biodiversity protection generally apply for projects in both urban and rural areas and are set by planning and local authorities given their duty to consider nature and biodiversity protection in line with national and local biodiversity strategies and plans for implementing international and EU commitments - requirements will depend on the nature, location and type of a site, its landscape and the species and wildlife to which it is home and whether or not it is in a designated site such as Sites of Special Scientific Interest (SSSI), Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Area of Outstanding Natural Beauty (AONB)</p>	Ecology and the built environment, covering i.a. protected species legislation >
		Scottish natural heritage guidance for planners and developers on i.a. protected animals, biodiversity and protected areas >
		Welsh Natural Recovery Plan >
		Northern Irish biodiversity checklist for proposed development projects >

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Building Regulations including requirements for specific aspects of building design and construction	Building regulations in the 4 countries of the UK set out in particular a range of requirements relating to energy performance and greenhouse gas emissions , including e.g. energy efficiency requirements and target CO ₂ emissions rates. A range of Approved Documents provide guidance for how the building regulations can be satisfied in common building situations including notably Part L: Conservation of fuel and power	Building Regulations England >
		Designing Buildings Wiki overview of English Building Regulations documents >
		Scottish Government overview of Building Regulations and guidance on the Building Standards system, Building Warrants and completion certificates >
		Designing Buildings Wiki overview of Scottish Building Warrants and guidance >
		Welsh Government overview of Building Regulations >
		Welsh Building Regulations overview >
		Northern Ireland Building Regulations >

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Arts Council England Large and Small Capital Grants programme	Applications must address how investment will contribute to environmental sustainability, e.g. using low or zero carbon technologies, and refer to recognised environmental assessment methods such as BREEAM	Capital: large grants >
	<ul style="list-style-type: none"> • sustainability as a core consideration in building design • renewable energy generation • whole-life costs in selection of materials, plant and equipment • sourcing environmentally sustainable materials and goods • sustainable construction practices 	Capital: small grants >
	Organisations expected to understand energy use before the project and measure reduction in energy use and carbon footprint as part of evaluation. Recognised environmental assessment method such as BREEAM should be used and minimum “very good” rating expected	Fit for the Future: Investing in Environmentally Sustainable Buildings, Julie’s Bicycle, 2015 >
Sustainable buildings assessment methods and standards	Buildings Research Establishment Environmental Assessment Method (BREEAM) for assessing and rating environmental sustainability in building design, construction and operation, for new builds, major fit-outs and refurbishments, covers a range of topics e.g. energy, water, waste, air quality, materials, transport, biodiversity	BREEAM technical standards - New Construction, In Use and Refurbishment and Fit-Out buildings >
	Royal Institution of Chartered Surveyors (RICS) SKA Rating – environmental assessment and rating method, benchmark and standard for non-domestic fit-outs, led and owned by, incl. >100 good practice measures covering energy and CO₂ emissions, waste, water, materials, pollution, wellbeing and transport	About the SKA rating >
	WELL Building Standard™ (WELL) covers 7 areas across building design and operations and how they impact and influence human behaviours related to health and wellbeing – air, water, nourishment, light, fitness, comfort, mind and innovation	Introduction to the WELL standard >

Tools, guidance & resources

Julie's Bicycle

Free online environmental reporting & carbon calculator tools

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Fit for the Future: Investing in Environmentally Sustainable Buildings

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Renewable Energy & Green Electricity Factsheet

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Paper & the Environment Factsheet

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Print & the Environment Factsheet

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Practical Guide: Team Engagement

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Practical Guide: Communicating sustainability

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Practical Guide: Water Management for Buildings

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Practical Guide: Waste Management for Buildings

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Practical Guide: Productions and Exhibitions

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Carbon footprinting tools & guidance

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Green Arts Portal

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National Trust

Building Design Guides

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Green Energy Guides

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Happy Museum Environmental guidance & case studies

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Association of Independent Museums – AIM

Energy action group

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Advocacy Toolkit: evidencing social & environmental impacts of museums

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Sustainable Exhibitions for Museums

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Rural Museums Network ‘turning green’ webpages

[Go to resource](#) >

Heritage Lottery Fund Reducing Environmental Impacts: Good Practice Guide

[Go to resource](#) >

Historic England range of resources on energy efficiency and historic buildings

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Historic Environment Scotland

Improving Energy Efficiency in Traditional Buildings

[Go to resource](#) >

Museum Development North West

Preserve the Past, Protect the Future:
A green guide for museums highlighting case studies from museums across the North West

[Go to resource](#) >

Museums & Art Galleries Survival Strategies: A guide for reducing operating costs and improving sustainability

[Go to resource](#) >

Arup U-Values guide, Heat Loss Calculator Tool and Data Checklist

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Fit for the Future network on energy efficiency and generation projects in the heritage sector

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Society for the Protection of Ancient Buildings energy efficiency research

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Museum Freecycle UK

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About

Julie's Bicycle is a charity that aims to inspire the creative and cultural sector to take action on climate change and environmental sustainability, as a sector uniquely placed to transform the conversation around our environment and translate it into action.

Julie's Bicycle
SUSTAINING CREATIVITY

LEFT Ice Watch Paris Olafur Eliasson and Minik Rosing, on the occasion of COP 21: United Nations Conference on Climate Change, 2015

Founded in 2007, we work with over 2,000 organisations, across the UK and internationally to develop the skills and ambition to act and use their creativity to influence one another, audiences and the wider movement. We focus on strategic interventions rooted in practical actions, working across the cultural infrastructure – with artists, theatres, museums, galleries, festivals, producers, funders and policy makers to make the case for sustainability through optimism and agency.

Julie's Bicycle provides open access environmental calculators for creative organisations to monitor their impacts. We provide a support service of resources, events, research, webinars and facilitated dialogues giving creative organisations practical actions to transition to sustainability and removing barriers to action. We have a thriving consultancy practice and a certification scheme that recognises and grades organisations based on their commitment, understanding and improvement.

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