

UNESCO Climate Action and Sustainability Research Agenda



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Compiled for the United Kingdom National Commission
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with the Research & Innovation Group

ButCH/*
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Bureau for the Contemporary and Historic (ButCH),
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UNESCO Climate Action and Sustainability Research Agenda

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Cover photo: Hadrian's Wall, Northumberland, England, UK. Photo: Colin Ward

About the United Kingdom National Commission for UNESCO

The UK National Commission for UNESCO (UKNC) supports the UK's contribution to UNESCO and brings the benefits of UNESCO to the UK. We are the central hub for all UNESCO-related matters within the UK. We are an independent not-for-profit organisation, supported by grant funding from the UK government.

Our core functions are: To provide expert, individual policy advice to the UK and devolved governments on UNESCO related issues, to support the UK government's agenda to help UNESCO achieve its core goals, to advise and assist individuals and institutions in the UK and its' Overseas Territories and Crown Dependencies, with accessing UNESCO accreditation and prizes. We also support and enhance the value of the UK's UNESCO sites and projects. For more information see: www.unesco.org.uk

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Introduction

The UNESCO Climate Action and Sustainability Research Agenda (hereafter referred to as the Research Agenda) outlines a 5–10-year agenda for UNESCO sites to act as testbeds, or living laboratories, for climate action and sustainability transitions. Commissioned by the UK National Commission for UNESCO (UKNC), the Research Agenda builds on the findings of the [Sites for Sustainable Development report](#) (Canadian Commission for UNESCO & UKNC, 2022), which demonstrated the value of UNESCO sites as unique platforms to advance [Agenda 2030](#) through integrated, place-based action. It also draws on subsequent initiatives, including the [Local to Global](#) (L2G) programme, and has been led by the [Bureau for the Contemporary and Historic](#) (ButCH) as part of the £1.8 million DCMS/UKNC [Climate Change and UNESCO Heritage](#) (CCUH) project, funded by HM Treasury's Shared Outcomes Fund.

To inform the development of this Research Agenda, ButCH undertook a thorough review of recent evidence and thinking on climate action, sustainability, and nexus approaches. This work was guided by a Research and Innovation Group (R&I Group) composed of leading academics from eight UK universities and UNESCO Chairs; alongside practitioners from English Heritage, Historic England, National Trust, the private sector, and representatives from UNESCO sites and UNESCO itself (see Appendix). This Research Agenda is underpinned by the UNESCO [Climate Action and Sustainability Framework](#) which provides the evidence-base for using UNESCO sites as laboratories for climate action and sustainability research (see Figures 1 and 2 illustrating the Framework's central concepts).

The primary aim of this Research Agenda is to provide strategic direction and a shared foundation for future research efforts at UNESCO sites. It encourages a shift from fragmented or opportunistic projects to more coherent, policy-relevant research that addresses real-world challenges. With its rich history of developing place-based stakeholder networks, UNESCO sites are conducive to collaboration between researchers and those who are managing designated sites.

This work is therefore positioned as a resource that is capable of complementing and aligning with existing and emerging strategies across UNESCO programmes and initiatives: it is designed to sit alongside and support the evolving landscape of UNESCO's international programmes, as well as those by wider partners, offering a practical frame for research that is both locally focussed and globally relevant. It does not duplicate or compete with existing strategies, but instead provides a shared reference point that can be adapted to different site contexts and programme priorities.

In doing so, it helps connect research efforts to broader UNESCO goals, while remaining responsive to the distinct challenges and opportunities within designated sites.

This Research Agenda is intended for researchers, site managers, stakeholders, funding agencies, governments and NGOs who wish to either conduct or contribute to research on climate action and sustainability within and through UNESCO sites. Its relevance may also extend to others seeking models for integrated, place-based research aligned with global challenges.

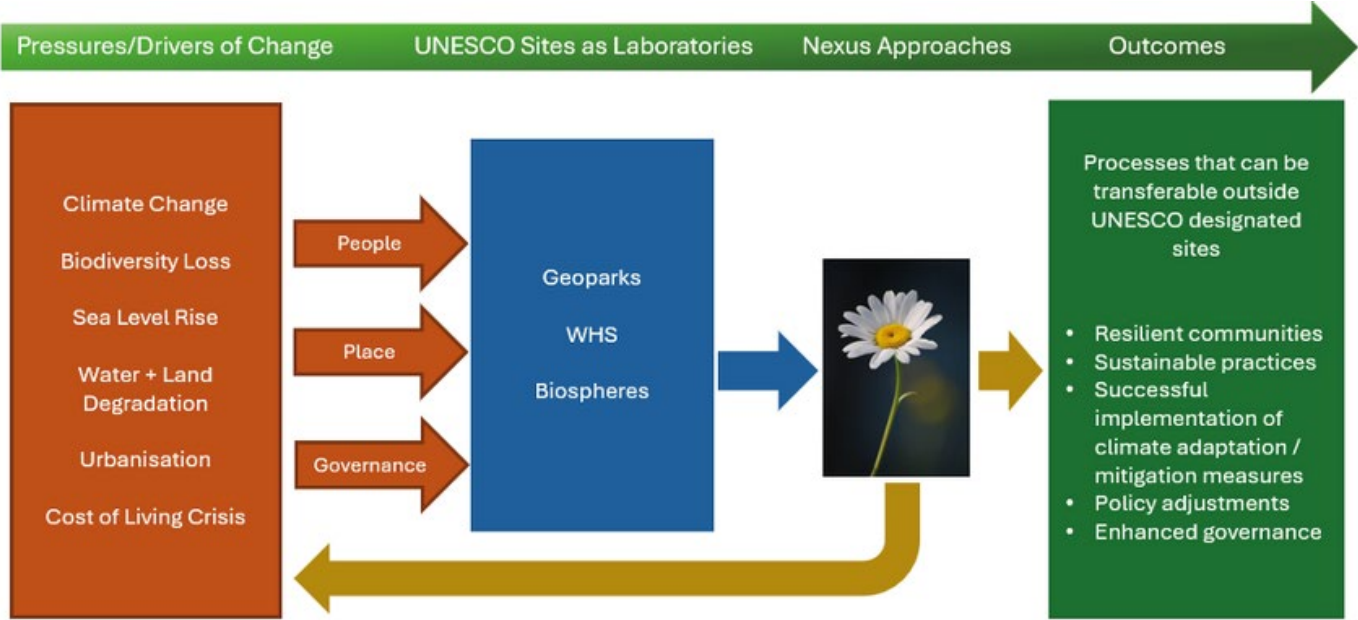


Figure 1. Process diagram showing the relationship between change, UNESCO designation sites and nexus approaches. The daisy is explained below in Figure 2. The feedback loop indicates how research changes our understanding of the pressures/drivers of change.

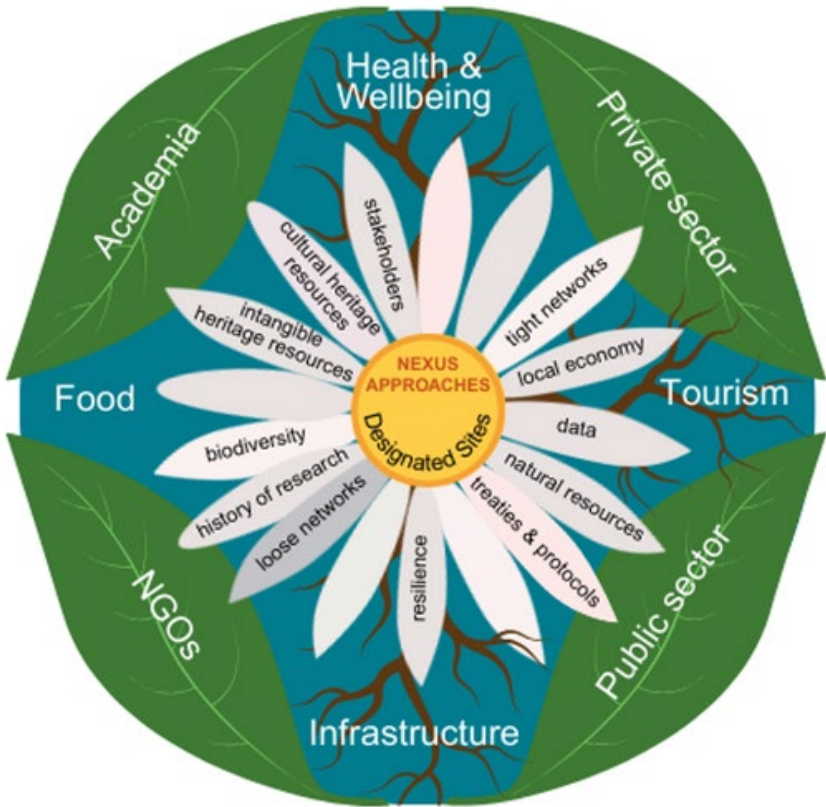


Figure 2. The nexus captures more granular matters (the petals) and wider considerations (the field).

Methodology

The Research Agenda was developed following a research and workshop phase. This phase involved compiling a series of ‘research ideas’ (see Step 1). These ideas are neither exhaustive nor prescriptive; they serve to outline the range and potential of research that could be further explored. The ideas encompass various disciplines and research areas, including science, the social sciences, the arts, humanities, business, and law. Importantly, these research ideas provided the foundation for categorisation under themes, and from these, research objectives, criteria, and principles were formulated.

The approach to creating the Research Agenda followed a three-step process:

Step 1: Collating Research Ideas

As part of the research for the UNESCO Climate Action and Sustainability Framework, ButCH conducted an assessment of existing research; engaged with ongoing research through both the CCUH and L2G projects; and explored research directions with the R&I Group. In addition to describing current understanding, ButCH captured research ideas, aspirations, and directions. These are not gaps in current understanding: the holistic nature of investigating through nexus approaches means that research opportunities are always evolving.

Step 2: Developing the Prioritisation Scheme

As the list of research ideas expanded, ButCH consulted with the R&I Group to develop a Prioritisation Scheme (outlined in the next section). This scheme was built around identifying a series of themes and criteria for ideas that focus on the potential of UNESCO sites as laboratories for research into climate action and sustainability. It also started to explore how research could advance over the next 5–10 years to address both urgent, emerging, and long-term challenges.

Step 3: Applying the Prioritisation Scheme

A workshop with the R&I Group was convened to test and finalise the Prioritisation Scheme. Prior to the workshop, ButCH:

- Examined each of the 111 research ideas generated by the ongoing research and by the R&I Group, and eliminated duplicates
- Refined the research ideas to make them more broadly applicable
- Focused on ideas that were especially suited to UNESCO sites
- Grouped the research ideas under three themes: an Environmental theme, a Governance theme, and a Social theme, which also aligned with the Strategic Research and Innovation Agenda (SRIA) for cultural heritage, see Alliance for Research on Cultural Heritage in Europe (ARCHE) 2025
- Further refined each idea and made a final selection.

At the workshop, the R&I Group was divided into three groups (each working with a specific theme) and asked whether the predetermined set of criteria (see below) could be applied to all the research ideas, and to then sequence and prioritise the research ideas. At this workshop, a fourth theme – Research Infrastructure – emerged which paralleled some of the initial research ideas collated by ButCH in Step 1.

Prioritisation Scheme

The Prioritisation Scheme offers a structure to guide the development, selection, and implementation of research projects aligned with this Research Agenda. It ensures that all research conducted under its auspices reflects a common set of values and makes a meaningful contribution to the Research Agenda's overarching goals.

The Scheme is organised around three interconnected components – Objectives, Essential Criteria, and Research Principles – each with a specific but complementary purpose:

- **Research Agenda Objectives** outline the main ambitions of the Research Agenda. Although individual projects may focus on one or two of these, collectively, all projects should contribute to fulfilling these strategic aims. The Objectives demonstrate the kind of research ecosystem this Research Agenda aims to develop.
- **The Essential Criteria** are non-negotiable requirements that all projects must meet to be considered within the scope of the Research Agenda. They reflect foundational expectations around quality, relevance, and alignment with the values of UNESCO sites. Every project must meet all the Essential Criteria.
- **The Research Principles** provide guiding values and approaches for designing and implementing projects. They emphasise stakeholder collaboration, place-based relevance, interdisciplinarity, and policy alignment. While not all principles may apply equally to every project, they provide a compass for shaping research within a complex and interconnected landscape.

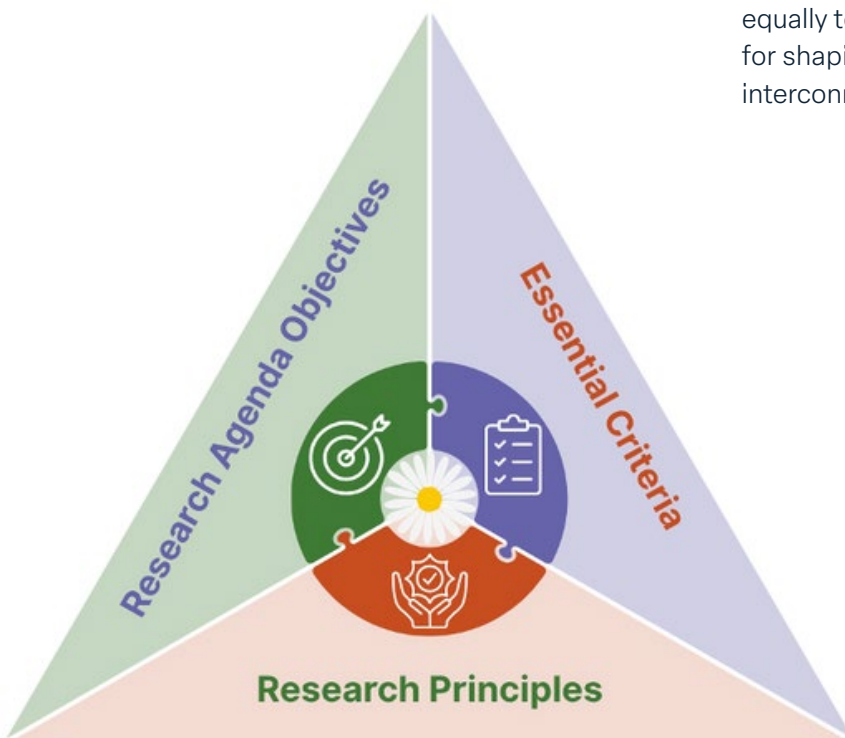


Figure 3. The Prioritisation Scheme with interlocking objectives, criteria and principles. At its heart is the concept of nexus approaches represented by the daisy.

Research Agenda Objectives

Taken as a whole, this Research Agenda will:

1. Draw on nexus approaches for place-based research
2. Balance foundational/blue skies research with testing and implementation
3. Address a range of climate change and compound impacts
4. Speak to a range of sustainability visions
5. Build knowledge and learning over time and across different contexts, disciplines and sectors
6. Build capacity for transformative change at scale
7. Enable a range of approaches and methods, such as: systems thinking; creative practice; critical futures; co-production.

Essential Criteria

Every research project associated with this Research Agenda will:

1. Relate to climate action and sustainability
2. Draw on characteristics of UNESCO sites
3. Foster an integrated approach to landscape
4. Be scalable and transferable: develop the contributions of UNESCO sites to the wider world
5. Build on research and demonstrate a clear place in the innovation cycle including impact, evaluation and feed forward
6. Be inclusive

Research Principles

Projects undertaken under the aegis of this Research Agenda should:

1. Fit with, and contribute towards, other relevant research agendas
2. Articulate disciplinary significance
3. Align with local community needs and/or regional priorities
4. Develop beneficial, long-term collaborations and partnerships at regional, national and international scales
5. Generate high quality, curated datasets that can inform local and regional action
6. Involve, respect and benefit under-heard and under-served groups
7. Leverage multi-scalar approaches

Summary of Research Themes

To facilitate navigation within this research agenda, the ideas are organised into four themes based on UNESCO sites: the Environment, Governance, Society, and Research Infrastructure. There is significant overlap and synergy among these themes, and they should not be viewed as separate ‘work packages’, or be strictly confined by disciplinary boundaries. The first three themes emerged from the research and workshop phases of the project. The final theme, Research Infrastructure, has been included to emphasise the importance of producing research that enhances sectoral and cross-sectoral collaboration, supports work at UNESCO sites, and raises pertinent questions on key topics that might otherwise be overlooked within disciplinary approaches.

The **UNESCO Sites and the Environment** theme focuses on finding innovative solutions to climate action and sustainability challenges. The ideas in this theme demonstrate how the combination of natural and cultural heritage assets at UNESCO sites can help test new, transferable, and scalable risk management strategies. They will progress knowledge and understanding of adaptation, mitigation and resilience techniques and methods. Sub-themes might include coastal environment, carbon reduction and storage, water, and ecological restoration.

The **UNESCO Sites and Governance** theme focuses on understanding how human and more-than-human relationships are structured. The ideas in this theme leverage the complexity of stakeholder networks at UNESCO sites, which makes them well-suited to explore different models of governance. Sub-themes might include policy, cross-designation working, water management, nature conservation, and regional decision-making.

The **UNESCO Sites and Society** theme focuses on increasing social resilience through sustainable development. Ideas in this theme consider how to best utilise UNESCO sites to enable local people and visitors to share cultural traditions and learn new ways of protecting and managing the natural environment sustainably. Sub-themes might include sense of place, sustainable tourism, health and wellbeing, engagement, and inclusive conservation.

The **UNESCO Sites and Research Infrastructure** theme focuses on supporting the social and technological systems required for effective research. Ideas in this theme explore the opportunities and challenges associated with developing these systems for UNESCO sites. There are also recommendations regarding research infrastructure, separate from the research ideas presented below. Sub-themes might include technology and ethics.

Areas of Research Interest

This section presents a set of research ideas identified through the CCUH and L2G initiatives led by UKNC. These ideas are not exhaustive, yet more granular than the overarching research themes and are intended to inspire concrete research projects that can be undertaken in collaboration with UNESCO sites worldwide. They are designed to be flexible and relevant across a wide range of research contexts, supported by diverse partners and funders.

The research ideas are organised to reflect a broad sequencing over the 10-year lifespan of the Research Agenda:

1. **Foundational research**

Projects that focus on establishing baseline data, mapping current conditions, and understanding existing capacities and vulnerabilities.

2. **Experimental and evaluative research**

Projects that expand on this foundation by testing interventions, monitoring impacts, and reviewing methods in real-world environments.

3. **Applied and locally tailored research**

Projects that adapt insights to specific contexts, support community-level innovation, and develop practical tools for site managers and stakeholders.

This progression and categorisation is not rigid, and different sites or partners may enter the cycle at different stages. However, the intention is to support a cumulative and adaptive research trajectory that balances global learning with local application.

Theme: UNESCO Sites and the Environment

Finding innovative solutions to climate action and sustainability challenges

Foundational research

- Mapping examples of successful and unsuccessful heritage adaptation to climate change to identify patterns of maladaptation and conditions for long-term resilience.
- Researching UNESCO designated site management for climate change adaptation. Baseline and monitoring socio-ecological responses to habitat and landscape restoration measures, aiming for high quality datasets that can inform best practice.
- Long-term monitoring of cultural heritage to document and analyse changes.
- Develop climate modelling of past and predicted futures visualising changing landscape. Research on compound climate hazards and vegetation management on built heritage, including species adaptability.

Experimental and evaluative research

- Collecting and analysing quantitative data on costs and benefits of adaptation measures. Research integration of sustainable solutions including innovative materials and technological solutions into sites.
- Exploring UNESCO sites as places to research carbon sequestration. Including how management regimes for soil health affect carbon storage.
- Researching UNESCO site management for carbon reduction.
- Exploring systems dynamics approaches at UNESCO sites to model the nonlinear, complex behaviour of interactions of climate and environmental change on heritage assets.

Applied and locally-tailored research

- Exploring local Intangible Cultural Heritage (ICH) at designated sites as source of inspiration/ knowledge and resilience for sustainability and climate action.
- Foster partnerships between UNESCO sites and surrounding communities to research water security and management, looking at landscape-wide issues of flooding in some areas, drought in others, how to work with water so it can be shared/distributed.
- Research and develop tools to aid environmental understanding and management of UNESCO sites. For example, an Air Quality App.

Theme: UNESCO Sites and Governance

Understanding how human and more-than-human relationships are structured

Foundational research

- Analyse how local UNESCO designations interpret and respond to international, national, and regional climate, biodiversity, and sustainable development policies. Identify challenges, opportunities, and policy feedback loops that enable or hinder effective localisation.
- Examine how institutional arrangements, leadership and management models, and funding mechanisms across designations shape opportunities for collaboration, co-production, and interdisciplinary research.
- Research governance structures at landscape-scale to reduce barriers and enhance opportunities. Explore the affordances and barriers of working across different types of designations (not just UNESCO), including across UNESCO sites and ICH.
- Explore the place of UNESCO designation in heritage capital approaches.

Experimental and evaluative research

- Develop governance models that enable more systemic, inclusive, and adaptive responses to heritage and climate challenges.
- Explore climate adaptation that challenges Outstanding Universal Value or other management priorities.
- Explore strategies to better translate climate and heritage research into policy outcomes at local, national, and international levels. Explore mechanisms (e.g. strategic partnerships, policy fellowships, secondments, translational tools,) that enable researchers to work with UNESCO designations to influence planning, regulation, and strategic decisions. Investigate how designated sites can function not only as laboratories, but also as demonstrators and policy incubators.
- Research and test 'Adaptive Designations' to signal areas where specific project experiments would be taking place (e.g. Adaptive Release/Legislation).
- Explore partnership models with organisations and institutions for advancing climate action and sustainability, e.g. Ironbridge Gorge WHS partnership with University of Birmingham.
- Explore methods for organisational change to advance climate adaptation approaches

Applied and locally-tailored research

- Explore methods of facilitation for local social and democratic infrastructure. Focus on systemic changes: research how to get ground-up organisations, associations, citizens' assemblies to be able to influence policy and create change in mindset locally. Address people feeling disempowered.
- Explore how best to partner local institutions (e.g. schools, community hubs, colleges) with sites to create long-term identity integration, building education, understanding and partnership. Research on how to move beyond the 'day out' to develop programmes that build over time.
- Explore innovative partnerships between designated sites that focus on shared characteristics and interconnected nature and climate-related issues. Research how UNESCO supports/could support networks and connections between and across sites and stakeholder groups.
- Explore how inclusive approaches can help achieve equity and justice from nature restoration and changes in land management for local communities.

Theme: UNESCO Sites and Society

Increasing social resilience through sustainable development

Foundational research

- Investigate exclusion to support marginalised communities using UNESCO sites as places where communities can find meaning and integration through shared histories, cultural resonance, and transnational dialogue. These communities might include migrants and adversely affected groups. Research community resilience to climate change and biodiversity loss.
- Analyse models of different types of land tenure on UNESCO sites to determine most effective climate and sustainability actions.
- Investigate the place of UNESCO sites in strengthening local food security; combining ecology, heritage and supply chain dynamics.
- Research the opportunities and drawbacks of regenerative tourism and scientific tourism at UNESCO sites.

Experimental and evaluative research

- Research ways to work with communities on heritage adaptation that embraces transformation and loss, such as adaptive release – developing criteria to guide what should be preserved, adapted, or allowed to change in response to climate pressures.
- Research and test technological tools like layered mapping and augmented reality to engage the public, e.g. map layers that show how changing environmental factors are affecting hidden heritage; and augmented reality that shows live ecological, climate data and future and historical modelling for that site.
- Research and evaluate the relationship between pedagogy, ecological restoration and climate action. Research and test how UNESCO sites can demonstrate contribution towards green and just transitions through deepening sustainable use of natural resources, e.g. peat restoration, seaweed cultivation, enhancement of local supply chains.
- Research and evaluate impacts of ecotourism and sustainable tourism activities and initiatives at UNESCO sites.
- Systematically assess participatory methods across designations to understand what enables genuine collaboration and shared decision-making. Identify conditions under which co-production strengthens community resilience and inter-generational legacy.

Applied and locally-tailored research

- Explore ways to bring the wealth of indigenous knowledges and practices which is present in management and initiatives at UNESCO sites into the academic literature.
- Apply and evaluate creative research initiatives, including those drawing on ICH, in engagement and education across the whole life course (such as serious play, storytelling, performance and crafts). Research how best to construct and share climate stories by incorporating social histories to enhance local identity, learn from the past and link to the future.
- Research how best to support the connection between a UNESCO site with local climate and sustainability initiatives (e.g. wellbeing, walking, biodiversity, food practices) so that the designated site acts as facilitator/ inspiration. Systematically assess participatory methods across designations to understand what enables genuine collaboration and shared decision-making. Identify conditions under which co-production strengthens community resilience and inter-generational legacy.

Theme: UNESCO Sites and Research Infrastructure

Supporting the social and technological systems required for effective research

Foundational research

- Research on the relationships between UNESCO research infrastructure and other research infrastructure initiatives; particularly the interface between different national and transnational systems.
- Explore diverse audience needs (e.g. policy makers, site staff, public) for data generated by research at UNESCO sites.
- Research on the relationship between UNESCO sites and GLAM institutions (Galleries, Libraries, Archives and Museums) as components of research infrastructure, specifically in relation to data storage and sharing.
- Research the barriers that impede connection between researchers and staff at UNESCO sites. Investigate the research infrastructure needs of Indigenous and local knowledge systems, ensuring appropriate protections.

Experimental and evaluative research

- Research the use and ethics of data systems and technologies, such as Large Language Models. Monitor and evaluate the efficacy of this Research Agenda regarding UNESCO sites as laboratories for nexus approaches to sustainability and climate action.
- Research the creation of 'observatories' formed of networks of UNESCO sites which can collect and curate data for specific research interests, e.g. a coastal climate observatory connecting sites below 10m mean high sea level.

Applied and locally-tailored research

- Foster structured dialogue between UNESCO designations across different geographical, cultural, and political contexts—including Global North/Global South partnerships—to co-develop innovative and culturally grounded approaches to heritage conservation and management in a changing climate.

Recommendations

The research areas outlined in this Research Agenda highlight domains where there is a particularly strong alignment between research needs and the unique characteristics of UNESCO sites. Findings from the UNESCO Climate Action and Sustainability Framework and associated research suggest that UNESCO sites are especially well-positioned to serve as living laboratories for climate action and sustainability research. Their established networks, embedded stakeholder relationships, and recognised international status make them ideal locations for testing, adapting, and disseminating innovative approaches.

While this Research Agenda was initiated by the UKNC, it is intended to support research globally. Some research practices and infrastructures are more developed than others and implementation will vary. Further work is therefore needed to adapt and apply the Research Agenda across different national contexts. These recommendations are proposed for UNESCO bodies, managers, and associates:

Strengthen the role of UNESCO sites in global research:

- Promote all designated sites as valuable laboratories for climate and sustainability research, beyond the thematic areas outlined in this document.
- Encourage researchers to prioritise UNESCO sites when designing work relevant to climate resilience, sustainability, and systems transformation.

Promote ethical and inclusive research practices:

- UNESCO should champion protocols for the co-production, sharing, and stewardship of data – especially in community-engaged and place-based research – ensuring that outcomes are accessible, transparent, and respectful of local knowledge systems.

Improve visibility and connectivity of research:

- Encourage and facilitate the highlighting of associations with UNESCO sites in research outputs, including academic keywords, acknowledgements, and dissemination strategies.
- UNESCO should invest in its research infrastructure to support cross-site learning and international collaboration. This may include:
 - Thematic or interdisciplinary journals
 - Open-access repositories and data platforms
 - International research networks and coordination mechanisms
 - Digital tools and mapping infrastructure
 - Shared facilities or hubs for site-based research.

Support collaborative research infrastructure and capacity:

- UNESCO should support the continuation or evolution of the R&I Group at an international level to advise researchers, refine and evaluate this Research Agenda, and strengthen collaborative knowledge ecosystems.
- Facilitate researcher engagement with designated sites through building and encouraging coordination with site managers, National Commissions, and designation committees at early stages of project design. Encouraging best practice in establishing R&I Groups with National Commissions.

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