

GLOBAL CENTRE ON BIODIVERSITY FOR CLIMATE

Research Strategy

Global Centre on Biodiversity for Climate

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Department for Environment Food & Rural Affairs

DAI

UK International Development
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GLOBAL CENTRE ON BIODIVERSITY FOR CLIMATE

Foreword

The Global Centre on Biodiversity for Climate (GCBC) sits at the heart of Defra's activities. GCBC reflects the departments' ambition to restore and enhance the natural environment, strengthen resilience to climate and nature-related risks, support sustainable use of natural resources, and ensure that evidence informs practical decisions for people, economies and ecosystems, all of which relies on working with partners both nationally and internationally.

Defra is a department of growth, of national security and resilience, and of science, and these dimensions are brought together in GCBC. Biodiversity underpins the food, water, land and ecosystem services on which economies depend. Its loss compounds climate vulnerability, poverty, instability and exposure to shocks. Through GCBC, Defra is investing in research that helps countries understand and manage these interdependencies to ultimately improve the resilience of their natural systems.

As one of the UK Government departments delivering ODA-funded research and development, Defra has an important role in ensuring that UK investment is strategic, high quality and positioned for use. GCBC demonstrates this by supporting equitable partnerships, interdisciplinary research and evidence synthesis across ODA-eligible countries, helping to ensure that research is not only scientifically rigorous, but relevant to policy, delivery and investment decisions.

This Research Strategy sets out how GCBC will focus its investments over the coming years. It identifies the evidence gaps that matter most at the biodiversity-climate-poverty nexus and explains how GCBC will support research that can inform transformative change. In doing so, GCBC reinforces Defra's distinctive contribution: using world-class science to protect nature, strengthen resilience, support sustainable development and deliver lasting benefits for people and planet.

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Contents

What is GCBC?	1
The Research Challenge: Understanding transformative change	2
What this means for our research	3
Our Research Agenda	4
GCBC Research Scope	5
Our Investment Strategy	7
Geographic Scope	8



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What is GCBC?

The Global Centre on Biodiversity for Climate (GCBC) is an Official Development Assistance (ODA) research programme funded by the UK Department for Environment, Food and Rural Affairs (Defra). Its aim is to generate evidence on how the protection, restoration and sustainable use of biodiversity can strengthen climate resilience and reduce poverty.

Through a global network of researchers, practitioners and communities, GCBC seeks to advance understanding of the interconnected challenges of biodiversity loss, climate change and poverty, while ensuring that research findings inform policy and practice at national and international scales.

This Research Strategy sets out GCBC's research approach, key areas of research interest and investment strategy. It should be read alongside GCBC's Theory of Change, which accompanies this document and sets out the programme's underpinning assumptions, pathways to impact and intended outcomes.

The programme contributes to the UK's international commitments on nature and climate, including the Kunming-Montreal Global Biodiversity Framework, the Paris Agreement, and the Sustainable Development Goals. GCBC is part of the UK Government's portfolio of ODA research on Climate Food and Nature and sits within the UK's International Climate Finance portfolio.



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2. The Research Challenge: Understanding transformative change

The evidence base on the relationships between biodiversity, climate and poverty has grown substantially over the past decade. Globally, healthy ecosystems underpin food and water security, regulate the climate, reduce exposure to natural hazards, and sustain the livelihoods of hundreds of millions of people across the Global South.

The 2019 IPBES Global Assessment[1] identifies climate change as one of the major direct drivers of biodiversity loss, alongside changes in land and sea use, direct exploitation, pollution and invasive alien species. Biodiversity loss and climate change are therefore interacting challenges that disproportionately affect those with the fewest resources available to adapt.

What remains much less well understood is how to shift the systems driving these outcomes. While conservation practice has generated important local successes over recent decades, global biodiversity decline and ecosystem degradation have continued.

The 2024 IPBES Transformative Change Assessment[2] frames this challenge by differentiating between incremental and transformative responses. Incremental approaches work within existing systems, improving project design, strengthening monitoring, and increasing finance flows.

Transformative approaches address the underlying drivers: the governance failures, power asymmetries, cultural disconnections and economic structures that reproduce biodiversity loss across contexts. However, evidence on how transformative, systems-level change can be achieved in practice, and under what conditions it delivers equitable and lasting outcomes, remains limited.

The importance of integrated approaches is reinforced by the 2024 IPBES Nexus Assessment[3] . It finds that biodiversity loss, climate change, food security, water availability and health are deeply interconnected, with responses focused on a single outcome at the expense of others systematically underperforming.

Climate change interacts with these pressures by altering temperatures, rainfall patterns, extreme weather exposure and the resilience of ecosystems and livelihoods. Evidence to better understand these interdependencies, and how policies and investments can generate positive outcomes across the nexus, remains an important evidence gap, particularly in ODA-eligible countries.

1 *IPBES (2019). Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (pp. 1-1082). Brondízio, E. S., Settele, J., Díaz, S., and Ngo, H. T. (eds). IPBES secretariat, Bonn, Germany. DOI: https://doi.org/10.5281/zenodo.3831673*

2 *IPBES (2024). Thematic Assessment Report on the Underlying Causes of Biodiversity Loss and the Determinants of Transformative Change and Options for Achieving the 2050 Vision for Biodiversity of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. O'Brien, K., Garibaldi, L., and Agrawal, A. (eds.). IPBES secretariat, Bonn, Germany. DOI: https://doi.org/10.5281/zenodo.11382215*

3 *IPBES (2024). Thematic Assessment Report on the Interlinkages among Biodiversity, Water, Food and Health of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Harrison, P. A., McElwee, P. D., and van Huysen, T. L. (eds.). IPBES secretariat, Bonn, Germany. DOI: https://doi.org/10.5281/zenodo.13850054*



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What this means for our research

GCBC funds research that tackles inherently interdisciplinary challenges. Individual components of projects may be grounded in single disciplines such as ecology, political science, economics, or anthropology, but are expected to contribute a broader, systems-level understanding of the mechanisms, enabling conditions and structural barriers that determine outcomes at the biodiversity-climate-poverty nexus.

This is aligned with the UK's Global Research and Technology Development (GRTD) approach[4], which reflects a strategic shift towards mission-driven investments that address shared global challenges, generating global public goods such as new evidence, scientific advances and understanding of what works, that can be adopted across countries and systems.

GCBC contributes to this through co-created, interdisciplinary research that connects disciplinary findings to wider systemic challenges, synthesises evidence across methodological and epistemological approaches, and is designed for use by governments and practitioners.

It also requires explicit consideration of the positioning of evidence for use. Research that remains within academic channels rarely drives transformative change. Through its Research Grant Calls and programme-level synthesis, GCBC contributes to bridging this divide, ensuring that useful evidence is generated and that it reaches the policy and decision-making processes, and practitioner networks, where it can have most effect.

GCBC operates as a virtual centre within the wider research landscape: convening researchers, practitioners, communities and policymakers across a dispersed global network, synthesising evidence from across its portfolio and beyond. This connective role links disciplinary research to systems-level insight, and local evidence to global policy.

4 *HMG Government (2026). Global Research and Technology Development approach paper. Foreign, Commonwealth & Development Office, UK. Global Research and Technology Development approach paper 2026 - GOV.UK*




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3. Our Research Agenda

GCBC funds research relevant to the multi-scalar challenges linking biodiversity loss, climate change and poverty. This includes understanding how local and regional socio-ecological systems and practices (e.g. farming, natural resource use, conservation and restoration), interact with wider structures that enable or constrain them (e.g. governance, finance, political economy).

The GCBC research agenda therefore brings these systems together, spanning the following three interacting levels:

Practices, livelihoods and delivery systems:

How biodiversity is used, managed and restored in practice (e.g. farming, forestry, fisheries, restoration, conservation, enterprise) and the incentives and trade-offs associated with these activities.

Socio-ecological systems and outcomes:

How these practices interact with ecosystems, livelihoods, and resilience, including who benefits, who bears risks, and how communities experience and respond to change.

Knowledge, structural and enabling systems:

The governance, finance, markets and knowledge systems (Indigenous, local, scientific) that shape what evidence is generated and used for decision-making, and what outcomes are considered legitimate or possible.

GCBC recognises that research that connects across levels is of particular value, as it generates evidence that is both contextually grounded and structurally informed, and more likely to yield insights relevant beyond a single setting.

Each Research Grant Call is supported by a dedicated Theme Paper, which defines the specific research priorities and questions for that call. Applicants should refer to the relevant Theme Paper when developing proposals for a Grant Call.

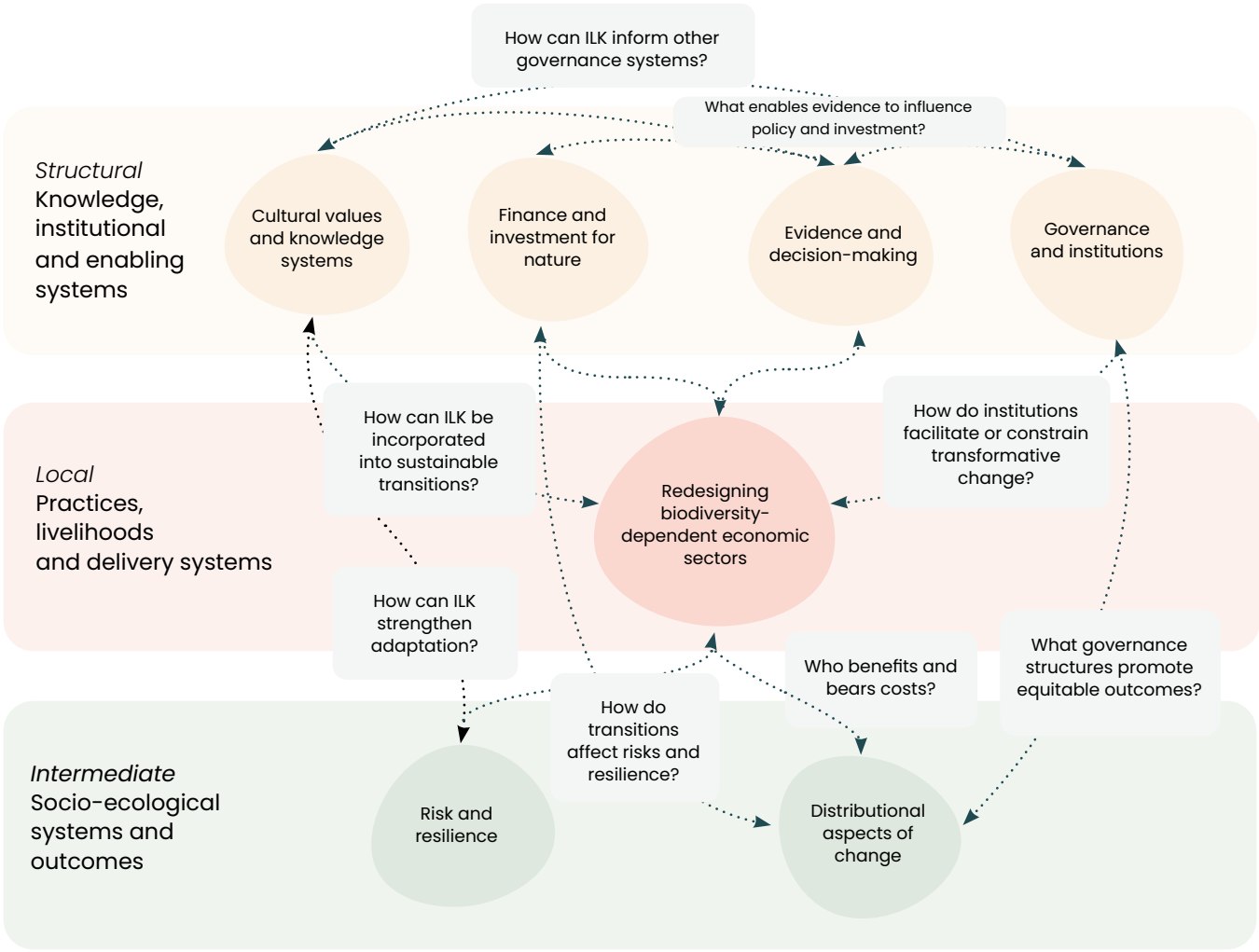


Figure 1. Illustrative relationships between system levels and GCBC research areas, with example questions to support cross-thematic learning and evidence generation.

GCBC Research Scope

Biodiversity, climate, and poverty are central to all areas of GCBC-funded research. This section sets out the broad research space that GCBC expects to operate in over the lifetime of the programme, including the challenges and evidence needs that Research Grant Calls are likely to focus on, individually or in combination.

It is not intended as a fixed or exhaustive list, and projects are not expected to align with a single area. Some of the most significant opportunities for future GCBC research are likely to sit at the intersections between these areas, where challenges interact.

Figure 1 above illustrates examples of cross-cutting questions that connect these research areas.

The following page presents GCBC's seven current research themes, which underpin and guide research priorities and activity.

Priorities within these broad areas are reviewed periodically, drawing on portfolio learning, expert scientific input and emerging research needs, to ensure GCBC's research priorities remain current, responsive and grounded in the evolving evidence landscape.

1 Redesigning biodiversity-dependent economic sectors

Vital economic sectors such as farming, fishing, forestry, aquaculture, energy production, and mineral extraction are nature-dependent whilst also shaping ecosystem conditions themselves. As these economic systems rapidly transition in response to global change, significant risks are emerging. Research is therefore required to realise opportunities to redesign these production systems to strengthen climate, biodiversity, economic and social resilience. This includes nature-based solutions to strengthen ecosystem and climate resilience, reduce dependence on harmful or illegal economies, and deliver climate, biodiversity and poverty benefits.

2 Risk and resilience

Healthy ecosystems reduce climate risks and provide food security and livelihoods for communities, yet evidence linking biodiversity to multi-hazard resilience remains limited. There is a need to better understand the risk pathways through which ecosystem degradation translates into poverty, welfare and climate consequences, as well as the compounding risks created by the interaction of climate and land-use change.

3 Distributional impacts of environmental change and inventions

Ecosystem degradation and climate change impose disproportionate impacts on those most dependent on natural systems. Concurrently, conservation interventions can risk reinforcing inequality when distributional dimensions such as gender, indigeneity and other dimensions of social and economic difference are not explicitly considered.

4 Governance and institutions

Governance failures such as fragmented mandates, inequitable rights regimes, and weak enforcement remain a key barrier to effective action. However, evidence on implementing change effectively is limited. This includes limited understanding of the political economy of land-use decisions and incentives and the conditions under which diverse knowledge systems, including Indigenous and local knowledge (ILK), are legitimately integrated into governance and decision-making.

5 Finance and investment for nature-positive development

Nature finance is expanding, but evidence on the ecological effectiveness, social integrity and long-term viability of financial instruments continues to remain thin. There is a need to better understand the performance of different nature finance mechanisms on ecological, climate and distributional outcome, the enabling conditions under which finance reaches and benefits communities, and distributes across emerging nature economies.

6 Cultural values and knowledge systems

Cultural values, worldviews and relational connections with nature shape environmental behaviour beyond economic incentives. Key challenges for supporting effective and equitable environmental stewardship include understanding the conditions under which community-led practices generate durable biodiversity and climate outcomes, and how diverse knowledge systems and values of nature can be meaningfully incorporated into research and decision-making.

7 Data, evidence and decision-making

Robust evidence systems are critical for effective biodiversity-climate action but delivering cost-effective and locally appropriate monitoring approaches remains a challenge. There is a need to improve approaches to synthesising and communicating evidence across contexts, including methods for plural valuation approaches, as well as strengthening knowledge brokerage and pathways for research findings to translate into policy and practice.

4. Our Investment Strategy

GCBC's research investments are aligned with international and UK strategic commitments. As Defra's flagship international R&D programme, GCBC generates the evidence needed to support effective policy and investment decisions and increase the impact of ODA investments.

The principles for ODA R&D set out in the UK's GRTD Approach Paper are embedded in GCBC.

This includes supporting open research and knowledge sharing, promoting transparency and collaboration, and maintaining strong ethical and safeguarding standards.

Our commissioning approach prioritises open, competitive funding processes that are transparent, fair and proportionate.

Research quality and integrity

GCBC's approach to research quality is informed by the Research Quality Plus (RQ+) framework[5] and principles of responsible research assessment, recognising that excellence encompasses not only scientific rigour, but also relevance, legitimacy and potential for use. Quality is conceived as multi-dimensional, context-dependent and to be assessed systemically and empirically rather than through proxy indicators such as publication metrics, journal prestige, or institutional reputation.

Alongside research quality, GCBC focuses on how research is positioned for use, recognising that pathways from research to policy influence are rarely linear and that researchers cannot be held accountable for whether policy change ultimately occurs.

Equity, partnership and inclusion

High-quality research at the biodiversity-climate-poverty nexus should be co-created with, and where appropriate led by, those most affected by these challenges. By the end of 2028, all GCBC funded projects will meet ICF minimum standards (GEDSI 'sensitive') on gender equality, disability and social inclusion (GEDSI), with an ambition for many to achieve GEDSI empowering standards, and where possible, projects will be supported in delivering transformational change.

Equitable partnerships strengthen research quality by improving relevance, legitimacy and impact. Further detail is provided in GCBC's GEDSI Approach.

5 *McLean R., Ofir Z., Etherington A., Acevedo M., Feinstein O. (2022) Research Quality Plus (RQ+) – Evaluating Research Differently. International Development Research Centre. Ottawa.*



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5. Geographic Scope

GCBC operates across ODA-eligible countries in Latin America and the Caribbean, Sub-Saharan Africa, Southeast Asia and the Pacific, and Small Island Developing States. This breadth reflects a deliberate approach to generating evidence across diverse socio-ecological, political and cultural contexts, to identify mechanisms and enabling conditions for achieving effective and equitable change.

GCBC may prioritise regions, countries or landscapes for individual Research Grant Calls. These priorities may be informed by evidence needs identified through Defra's priority-setting processes.

> *To achieve successful outcomes for people and the planet, the interconnections between biodiversity loss, climate change, and livelihoods demand more systemic understanding. Outcomes are shaped through complex political, economic and social systems and reductionist approaches are unlikely to deliver the systemic change required. We urgently need evidence on how to navigate interdependencies and design policies that maximise both social and environmental benefits.*
>
> *This is precisely the opportunity for GCBC research: shifting the conditions for systemic transformation, so that change at scale delivers co-benefits across biodiversity, climate and livelihoods in the world's most vulnerable places. Realising this requires research that understands the interactions between governance, markets, people, climate impacts, resource use and livelihoods. Only by seeing the wider system can we identify the leverage points for change and maximise benefits across the nexus.*

PROFESSOR TIM BENTON

Chair of GCBC's Indpendent Expert Advisor Group: The Opportunity



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For more information:
gcbc.org.uk