Research and knowledge exchange strategy

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Purpose Statement

Scottish universities are expected to conduct research. It's a core function of their role in higher education, and research is considered a significant part of their overall mission, alongside teaching and KE.

This strategy sets out the vision, mission, and strategic priorities for research and knowledge exchange (KE) at UHI North, West and Hebrides. It provides a framework to strengthen institutional research culture, enhance regional and global impact, and align with UHI's broader strategic objectives. Grounded in the region's unique assets and challenges, it aims to foster inclusive, interdisciplinary, and collaborative research that contributes to sustainable development, community resilience, and innovation across the Highlands and Islands and beyond.

The strategy is based on three pillars:

Institutional Development: Strengthen research culture, infrastructure, and interdisciplinary collaboration across UHI NWH to foster excellence, inclusion, and innovation, while supporting staff development and postgraduate supervision.

Regional Impact: Deliver high-quality, applied research and knowledge exchange that addresses key regional priorities such as net-zero transitions, rural sustainability, and natural capital through strong partnerships with communities, businesses, and public bodies.

Global Connections: Enhance the international relevance and visibility of research by building strategic partnerships, engaging in cross-border collaboration, and aligning with global priorities such as the UN Sustainable Development Goals.

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Where this strategy fits

This UHI NWH Research and KE strategy fits within the context of the UHI Research and Knowledge Exchange (KE) Strategy and the UHI North, West and Hebrides (NWH) Strategy.

In turn, it sets the context for the research centre plans for the Environmental Research Institute and the Centre for Recreation and Tourism Research. It also has interdependencies with several individual departmental strategies within UHI NWH (see 'Institutional pre-requisites and enablers')
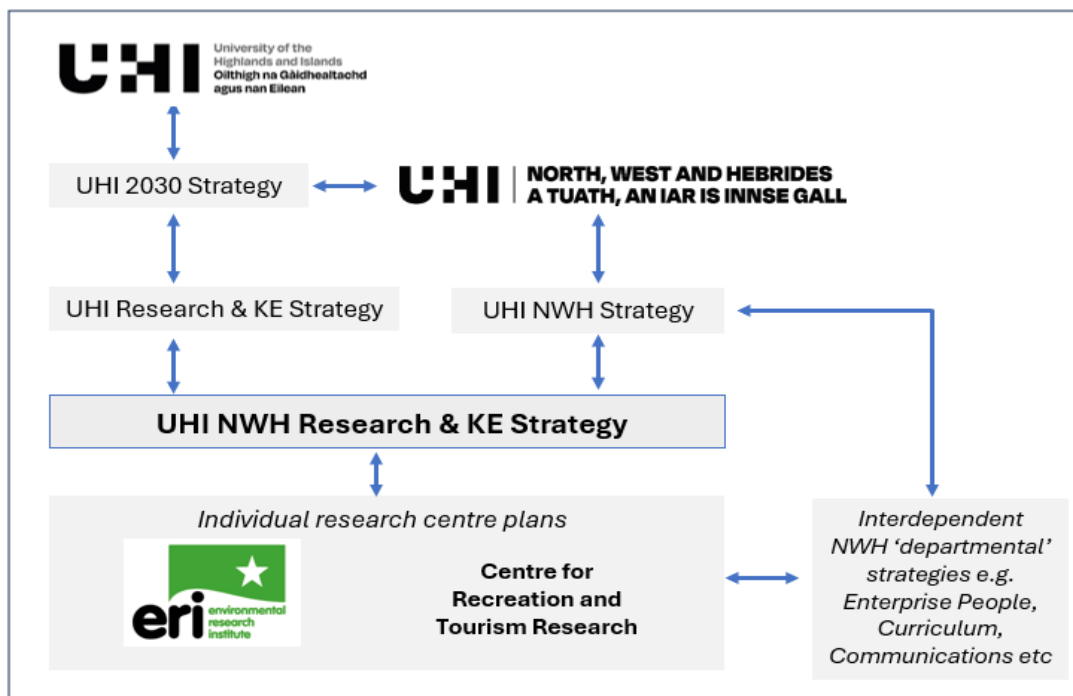
Introduction and Context

UHI North, West and Hebrides (NWH), a key academic partner of the University of the Highlands and Islands (UHI), contributes to UHI's overarching mission:

"To have a transformational impact on the people, communities and economy of our region."

Our Research and Knowledge Exchange (KE) activities are regionally grounded, globally relevant, and strategically aligned with UHI's priorities. We are committed to fostering impactful, inclusive, and interdisciplinary research that supports sustainable development, regional prosperity, and knowledge advancement.

Vision:

To be a leading hub for research and knowledge exchange that is embedded in our region and recognised for excellence, relevance, and innovation.

Mission:

To drive positive change in the Highlands and Islands through research and KE that is inclusive, collaborative, interdisciplinary, and closely aligned with societal and economic needs and opportunities.

Strategic Priorities

At UHI North, West and Hebrides (NWH) we will:

+ Maintain and enhance excellence in **established 'Research and KE themes'**

NWH's has five 'Research and KE Themes' at two UHI-recognised Centres:

Environment Research Institute (ERI)

Energy: Sustainable energy transitions and environmental interactions.
Pollution: Mitigating environmental contamination through innovative solutions.
Peatlands: Studying peatland resilience across scales and discipline boundaries.
Society: Connecting Environment, Economy and Wellbeing through Place-Based Innovation Socio-economic and cultural responses to environmental change.

Centre for Recreation and Tourism Research (CRTR)

Tourism: Cultural heritage and responsible tourism; Slow adventure and well-being and Tourism innovation and rural enterprise.

Each centre will maintain its own detailed strategy aligned to this overarching institutional approach. Outlines of each of these themes are presented in the appendix.

+ Identify and invest in emerging areas of opportunity, our '**Development themes'.** Potential areas include archaeology and education.

+ Support '**cross-cutting initiatives'** that advance innovation and societal relevance. These may include activity related to '**One Health', 'Place-based innovation', 'Net Zero' and the 'Circular Economy, and commercialisation** activity.

+ Proactively seek new **strategic alliances** that that will support the above, drive innovation and enhance global visibility and connectivity of our research

UHI and Sector Engagement

These two research centres will contribute to UHI research through:

+ **UHI Research Clusters**: Humanities and Arts Research Cluster (HARC); Society, Identity, Landscape and Knowledge (SILK) and Marine, Environmental Science and Engineering (MESE)

+ **UHI's submission to the REF** 2021 in three Units of Assessment: Earth Systems and Environmental Sciences; Area Studies and Education.

+ **Postgraduate research** training in Environmental Science, Engineering, and Sustainability.

We will embrace a broad, tertiary-focused approach to KE, fostering mutual learning, innovation, and impact. Our approach includes active participation in:

+ **UHI Knowledge Exchange Sector Groups**: Energy (Chair), Tourism (Chair), Water (Chair), One Health (joint chair) & others.
+ **KE Innovation Vouchers and KT Partnerships.**
+ **Strategic partnerships** with business, community, and policy stakeholders.

Networks and Collaborations
We value partnerships such as those below as essential to driving innovation and maximising research impact. We aim to:

+ Sustain and strengthen current collaborations.

+ Proactively seek new strategic alliances.

+ Enhance global visibility and connectivity of our research.

Our Ethos and Core values

We aim to ensure that our approaches are:

+ **Inclusive**: We support excellence in research and scholarship, helping everyone reach their full potential to maximise contributions.

+ **Innovative:** We champion knowledge exchange and entrepreneurship, turning creative thinking into practical applications with meaningful impact.

+ **Inter- and multi-disciplinary**: We work across disciplines, breaking down boundaries to address complex challenges and seize new opportunities.

+ **Collaborative:** We form effective partnerships across the UHI network and with organisations nationally and internationally.

+ **Distinctive:** Our work connects to our region's unique needs, reflecting its socio-economic, environmental, and cultural character.

+ **Embedded**: We integrate within the organisation, removing barriers to success.

+ **Future-Focused**: We prioritize natural capital management, 'net zero' transition, rural community sustainability, and renewable energy solutions.

+ **Aligned:** We align with regional, national, and international agendas, including Scottish Government frameworks and UN Sustainable Development Goals.

Strategic Alignment

We will ensure our activity aligns with:

+ UHI Strategic Plan 2030
+ UHI Research, Impact and KE Strategic Plan
+ The Scottish Government's National Performance Framework
+ UN Sustainable Development Goals (UN SDGs)

Our research and KE activities align with several (UNSDGs), reflecting a commitment to global priorities The ERI contributes to goals such as SDG 7 (Affordable and Clean Energy) and SDG 13 (Climate Action) through its work on sustainable energy and peatlands, while addressing SDG 6 (Clean Water and Sanitation), SDG 12 (Responsible Consumption and Production), and SDG 3 (Good Health and Well-being) through pollution mitigation. Its focus on socio-economic responses to environmental change supports SDG 11 (Sustainable Cities and Communities) and SDG 10 (Reduced Inequalities). Meanwhile, CRTR advances SDG 8 (Decent Work and Economic Growth), SDG 12, and SDG 11 work on responsible tourism, cultural heritage, and rural innovation.

Both centres contribute to SDG 4 (Quality Education) and SDG 17 (Partnerships for the Goals), reinforcing the institution's role in advancing sustainable development locally and globally.

Strategic Aims

Institutional Development

We aim to:

+ Strengthen the research culture and infrastructure across UHI North, West and Hebrides (NWH), enhancing its contribution to the wider UHI network (KPIs 1,2,3,4,6).

+ Foster a culture of inclusion and excellence across all research and knowledge exchange (KE) activities (KPIs 1,7).

+ Support staff development, interdisciplinary collaboration, and the supervision of postgraduate research (PGR) students KPIs 1,4,5).

+ Conduct research that leverages the region's unique assets and responds to its specific challenges (KPIs 6,7).

+ Produce high-quality, relevant research that is recognised for its rigour, innovation, and impact (KPIs 3,6,10).

Regional Impact

We aim to:

+ Address key regional challenges, including the transition to net zero, rural sustainability, and the protection and management of natural capita (KPIs 6,7).

+ Use research and KE to strengthen the region's economic, environmental, and cultural resilience (KPIs 7,8,9).

+ Work in partnership with public, private, and third-sector organisations to co-develop locally relevant solutions (KPIs 7,9).

Global Connections

We aim to:

+ Collaborate with other rural and remote regions across Europe and globally to enhance the reach and relevance of our research (KPIs 6,7).

+ Expand international partnerships and engage in comparative, cross-border research (KPIs 6,7).

+ Align our work with national research agendas and the United Nations Sustainable Development Goals (SDGs) (KPIs 3,6,7).

+ Empower our staff & students to be active, informed global citizens (KPIs 1,4,5).

Key performance indicators (KPIs)

Our **ten KPIs** will be monitored by the **NWH Research and Management Group and reported to the Executive and to the Board of Management** through its Learning, Teaching and Research Committee. These will also align with UHI's broader evaluation frameworks. Except for REF 2029, all targets are set for a three-year time horizon, i.e. 2028. A core objective underpinning these KPIs is to contribute to the **long-term financial sustainability** of NWH through enhanced research income, strategic partnerships, and increased impact.

Two scenarios have been identified to guide targets for research and KE:

- **Scenario 1** reflects the current post-merger context, acknowledging the challenges of embedding, initiating, and expanding research and KE activity in a transitional environment. These challenges include constrained staff capacity, evolving institutional structures; increasing financial pressures across the university sector; growing competition for research and KE funding, and declining PGR funding. In this context, maintaining key performance indicators (KPIs) at 2023–24 levels is considered a 'stretch target'.

- **Scenario 2** assumes a more enabling environment, in which institutional conditions, support mechanisms, and organisational culture are more conducive to sustained growth in research and KE. This scenario also assumes modest growth in core university funding and increased availability of external grant funding.

For each scenario, a tailored set of KPIs and targets has been developed to reflect the specific opportunities and constraints of the respective context.

KPI	Scenario 1: Transitional / Constrained Context	Scenario 2: Enabling / Growth-Oriented Context
1. Number of staff recognised as being 'research active'	Maintain at 2023-4 staff survey levels (22)	Increase by 20% relative to respect to 2023-4 staff survey levels (26)
2. Number of staff eligible for inclusion in REF 2029	New metric	New metric
3. Number of staff submitted to REF 2029	Maintain (Headcount and Full Time Equivalent) at 2021 levels (14/12.4)	Increase by 20% above 2021 levels (17 / 14.9)
4. PGR student enrolment	Secure funding for 15 PGRs	Secure funding for 19 PGRs
5. Number of staff involved in PGR supervision 2028	Maintain at 2023-4 staff survey levels (13)	Increase by 20% relative to respect to 2023-4 staff survey levels (15)

6. Number of outputs published in international peer-reviewed journals	Maintain 2023–24 output levels (35)	Increase by 20% above 2023–24 output levels (42)
7. Number of Research and KE projects secured with regional and national partners	Maintain at 2023-4 levels (50 TBC)	Increase by 20% above 2023-4 levels (60)
8. Income from research	Maintain at 2023-4 levels (£1.55 M)	Increase by 20% above 2023-4 levels (£1.86M)
9. Income from KE	Maintain at 2023-4 levels (£0.28 M)	Increase by 20% above 2023-4 levels (£0.35M
10. Income from REF	Not applicable (set until next REF cycle (£0.27 M)	Not applicable (set until next REF cycle (£0.27 M)

Additional deliverables

+ **Quarterly Activity Reports** – Provide consistent, consolidated reporting to the Board, Executive, staff, and students in March, June, September, and December (2025, 2026, and 2027).

+ **Research and KE survey** – Conduct annually to enable data collection for generating KPIs and assessing (2025, 2026, 2027).

+ **Award Nominations** – Submit at least two nominations per year, focusing on Knowledge Exchange activity (2025, 2026, 2027).

+ **External Communication** – Issue a minimum of six press releases per year, showcasing innovation, staff achievements, and other key successes (2025, 2026, 2027).

+ **REF 2029 Planning** - Explore and outline possible approaches for UHI NWH to take part in REF 2029 (2025)

+ **Staff Guide to Research and Scholarship-** Create a basis guide to help staff understand research and scholarship (2025)

+ **KE Workshops -** Run workshops to involve more staff in Knowledge Exchange activities, with follow-up support to encourage ongoing participation (2025)

+ **Commercial Services Opportunities** -Identify and assess new opportunities to grow our commercial services based on our expertise and local needs (2026)

+ **Innovation Centre Business Case** - Develop a business case for the North Highland Innovation Centre, setting out its purpose, benefits, and funding options (2027).

Institutional pre-requisites and enablers

To deliver impactful research and knowledge exchange (KE), the following institutional enablers must be in place and actively supported. These form the foundation for a thriving research and KE culture and ensure that activity is both sustainable and aligned with strategic priorities.

Infrastructure and Resources

- **Facilities:** Research and KE activity underpinned by the maintenance and development of fit-for-purpose infrastructure, including laboratory space, field equipment, and access to digital platforms.
- **Resources:** Access to research tools, information resources, software, and technical support must be sustained at a level that enables high-quality outputs.
- **Digital Capability:** Systems for data storage, collaboration, and dissemination maintained to ensure security, accessibility, and compliance with open research and data management standards.

Leadership and Institutional Support

- **Leadership Commitment:** Senior managers at all levels must visibly champion research and KE, recognising its value to the institution, the region, and the wider academic and policy communities.
- **Strategic Alignment:** Research and KE must be recognised as core to the institution's mission and embedded within strategic and operational plans at faculty and institutional level.
- **Culture and Values:** A culture that values curiosity, innovation, and external collaboration will be actively promoted and supported.

Policies, Systems, and Processes

- **Integration into Core Functions:** Research and KE must be embedded in institutional policies and procedures across finance, HR, procurement etc.
- **Process Flexibility:** Where necessary, policies and procedures should be reviewed and adapted to meet the specific needs of research and KE, including contracting, costing, intellectual property, and external income management.
- **Governance:** Clear governance arrangements, including appropriate oversight of research and KE.

Links

Strategic Plan 2030 (uhi.ac.uk); Research-Impact-and-Knowledge-Exchange-Strategic-Plan-2022-2025.pdf (uhi.ac.uk);Home - UHI North, West and Hebrides; The Environmental Research Institute – Environmental Research from a New Perspective (eri.ac.uk)
Research - Tourism (uhi.ac.uk)

Appendix: Research and KE themes

Peatlands: Studying peatland resilience across scales and discipline boundaries

The ERI Peatland team benefits from unrivalled access to **The Flow Country peatlands** of Caithness and Sutherland: covering 4000 km2, they represent largest expanse of blanket bog in Europe and a site of global significance, inscribed since 2024 as the world's first and only peatland UNESCO World Heritage Site. The Flow Country is also a changing landscape where large-scale restoration and infrastructure development are rolled out at pace, and where climate extremes like wildfires and droughts have become more frequent.

Our research seeks to provide underpinning evidence that can drive changes in policy and practice to ensure a resilient future for the Flow Country peatlands and rivers, and a just transition for its people. The Peatland theme also facilitates access to the Flow Country for researchers from across the UK and abroad and coordinates the **Flow Country Research Hub,** a network of >60 organisations and stakeholders with an interest in the Flow Country peatlands.

Our priorities are:

+   **Peatland Resilience in a Changing World:**
    We use field monitoring, controlled experiments, remote sensing, and modelling to understand how peatland biodiversity and processes are affected by land use and climate change, including droughts and wildfires. Our interdisciplinary approach builds evidence on the environmental and societal impacts of peatland management.

+   **The Fate of Organic Matter:**
    We apply field and lab techniques to characterize organic matter and measure carbon exchange between terrestrial, freshwater, and atmospheric systems. We use analytical chemistry to examine how land use changes in peat-dominated catchments, such as restoration and wind farm construction, impact water quality and biodiversity in freshwater systems**.**

+   **Sustainable Land Use and Thriving Communities:** We develop innovative solutions that integrate peatland management with climate change mitigation, economic growth, and circular economy principles, while ensuring a just transition for rural Highland communities. Our expertise assesses the economic and societal impacts of peatland degradation, restoration, and conservation, from local to international levels

Pollution: Investigating environmental contamination & developing sustainable solutions

An ever-increasing array of anthropogenic contaminants are now present in our environment. At ERI, we focus on evaluating their **fate, behaviour, and impacts** — from their sources to their final sinks — addressing issues posed by (among others) emerging contaminants, plastics, pharmaceuticals, and heavy metals. Our research not only quantifies pollution levels but also examines risks to and effects on biodiversity at molecular, individual, and population levels.

Aligned with the global "**One Health" agenda**, which emphasizes the interconnectedness between human, animal, and environmental health, our work advocates for holistic and transdisciplinary solutions. We aim to provide globally sustainable solutions to complex pollution problems by engaging with diverse stakeholders and applying cutting-edge research to real-world challenges. Our findings are intended to influence and inform national and international environmental protection policies.

ERI also leads the **UHI WaterHub** knowledge exchange team, which addresses contemporary issues in drinking water provision, wastewater treatment, and resource management in rural and sparsely populated regions of Scotland and similar areas across Europe and the world.

Our priorities are:

+ **Sustainable Water Quality Management and Wastewater Treatment:** We aim to developing innovative and circular wastewater treatment options, repurposing waste for water treatment, advancing engineered adsorption technologies, and implementing low-cost, sustainable nature-based solutions (like constructed wetlands). Our focus includes resource (nutrient) recapture, recovery, and reuse.

+ **Monitoring and Assessing Acute and Chronic Impacts of Pollutants**: We utilise novel biomonitoring techniques to detect emerging risks (e.g., antimicrobial resistance), employing eDNA metabarcoding to assess community-level impacts, and integrating remote sensing and citizen science for large-scale monitoring. We are also developing new ecotoxicity tools using model organisms and testing systems across various scales to evaluate impacts on wildlife at different trophic levels and endpoints.

+ **Minimizing Pollution in Rural Sectors**: Collaborating with the agriculture, forestry, conservation, and game management sectors we aim to reduce pollution impacts through practices like deforestation, afforestation, wind farm construction, hunting, and agrochemical use.

+ **Preventing Harm from Priority Pollutants**: We form cross-sector partnerships to prevent the entry of priority pollutants into the environment by altering practices (e.g., pharmaceutical prescribing) and promoting increased recovery, recycling, and repurposing.

Energy: Renewable energy and the environment

The potential of renewable energy is immense, offering solutions for emissions targets and blue growth. However, it's crucial to understand how harnessing energy from wind, waves, and tides will affect the environment. Sustainable management of these resources is vital for meeting the Scottish Government's ambitious renewable energy and carbon reduction goals. Our "research where the resource is" philosophy positions ERI perfectly to address these challenges, whilst also having a global impact.

We foster collaborations and partnerships at regional, national, and international levels. Our team uses methods such as in-situ measurements, environmental surveys, experimental work, modelling, and remote sensing to study renewable energy resources, ecosystem dynamics, and human impacts across marine biology, behavioural ecology, and oceanography. We also examine the interplay of social and economic issues, including in rural and island communities.

We are dedicated to advancing the development of northern Scotland by supporting sustainable industries that have the potential to transform the region's economy and communities. Our work integrates new environmental insights into sustainability assessments and models at various scales. Additionally, we explore the connections between adjacent sectors such as nuclear energy, oil and gas, and aquaculture, as well as leading energy knowledge exchange and innovation activities across UHI.

Our priorities are

+ **Renewable Energy and the Environment:**
  We study the ecological and biophysical interactions of renewable energy to inform planning, monitoring, and environmental assessments. Our research deepens understanding of vertebrate ecology using telemetry, bio-logging, remote sensing, and observation, with emphasis on ecosystem impacts, behaviour, predator-prey dynamics, and biodiversity.

+ **Oceanographic and Hydrodynamic Understanding:**
  Using in-situ data, remote sensing, and modelling, we explore renewable energy resources, metocean conditions, and flow-structure interactions. This includes wave-current dynamics and turbulence to guide the design and operation of energy devices.

+ **Innovative Sensors, Platforms, and Measurement Techniques:**
  We create and use advanced tools—drones, hydro-acoustics, sensor fusion, computer vision, and machine learning—to generate new environmental insights and meet emerging research demands.

+ **Energy Systems:**
  We enhance renewable integration into grid and off-grid systems, especially for remote, island, and developing regions. Our work spans energy vectors, storage, smart grids, and community engagement to support a just energy transition

Society: Connecting Environment, Economy and Wellbeing through Place-Based Innovation

The fourth theme of the Environmental Research Institute (ERI) is grounded in a place-based approach that harnesses environmental science to meet **regional challenges and global sustainability goals**. We focus on rural, remote, coastal, and island communities where environmental, economic, and social systems are closely entwined, and where innovative, community-led solutions can deliver transformational change.

This theme underpins the University of the Highlands and Islands' (UHI) mission to foster inclusive growth and sustainability across our region. It is a key driver of ERI's contribution to Scotland's fair and just transition, enabling green recovery, resilient communities, and equitable opportunities for people and place alike.

Our priorities are:

+ **Circular Economy:** We investigate material flows, resource efficiency, and waste minimization across critical sectors—from plastics and pharmaceuticals to food and energy systems. Our research advances circular systems that preserve value, regenerate natural environments, and foster local economic resilience and innovation..

+ **One Health**: Recognising the interdependence of human, environmental, and animal health, we collaborate through the One Health Breakthrough Partnership to reduce healthcare's environmental footprint and support integrated, systems-based solutions.

+ **Transition to Net Zero**: We advance climate mitigation and adaptation through renewable energy development, low-carbon innovation, and nature-based solutions. Our portfolio encompasses marine and wind energy technologies, community-centred energy systems, and carbon-sequestering landscapes, ensuring the net zero transition delivers environmental effectiveness with social justice.

+ **Sustainable and Regenerative Land Use**: We investigate how land is used, valued, and restored, focusing on the economic, ecological, and cultural dimensions of change. Our work spans the degradation and restoration of peatlands, land management on Highland estates, and global land-use scenarios. ERI has played a key role in securing UNESCO World Heritage Site status for the e Flow Country of Caithness and Sutherland as a, recognising its global importance.

Tourism: Developing sustainable tourism solutions that make our communities inspiring destinations to visit and great places to live

Scotland Outlook 2030 highlights the tourism industry's major role in Scotland's economy, with £10.8 billion spent by tourists and 245,000 jobs supported (VisitScotland, 2024). This is especially true in the Highlands and Islands, where tourism spend in the Highlands alone reached £762 million in 2023. However, factors like the cost-of-living crisis and climate awareness are shifting consumer behaviour and reshaping the sector. Growing visitor numbers also place pressure on destinations, particularly in overcrowded hotspots and cruise destinations. A more sustainable tourism industry is becoming essential to ensure communities remain attractive places to visit and live.

At UHI North, West and Hebrides, our research and knowledge exchange teams are helping lead the shift toward more responsible and sustainable tourism.

Our **Centre for Recreation and Tourism Research (CRTR)** is a leading regional and international hub, delivering a broad portfolio of applied, community- and industry-focused tourism research since 2012. CRTR also coordinates the Adventure Tourism Research Association, expanding our global reach and partnerships. We support postgraduate research and offer practical insights to support local communities and tourism businesses.

Our priorities are:

+ **A more sustainable tourism sector:** We promote regenerative tourism, which supports thriving visitor economies while restoring and sustaining communities and natural environments.

+ **Slow tourism**: The Highlands and Islands offer ideal conditions for low-impact, immersive travel. Our spin-off company, Slow Adventure Ltd, exemplifies this trend by encouraging human-powered journeys and deeper connections with landscapes.

+ **Health and the outdoors**: With growing physical and mental health concerns, we explore how access to nature and cultural heritage can support well-being and reduce health-related pressures.

+ **Leveraging cultural heritage:** We help create inspirational and immersive visitor experiences by drawing on the region's rich cultural heritage and using tools like digital media, immersive tech, and AI.