



## A three day showcase of environmental innovation, enterprise and research

This cross-sector event will promote environmental innovation and enterprise through the development of collaborative relationships between research users and the research community. It will inform the environmental research agenda, by highlighting the environmental challenges and opportunities of businesses, industries and policy-makers, as well as provide an insight into current world-leading environmental research being undertaken by some of the UK's foremost research and training partnerships funded by the Natural Environment Research Council (NERC). By participating in this event you will learn more about ongoing environmental research across a number of leading universities, and gain the opportunity to develop new collaborations that will shape the direction of future work.

### Parallel Sessions – Proposed Scope & Approach

#### Framing our discussions...

- Innovation is the application of knowledge or ideas for the development of products, services or processes - whether in business, the public services, or non-profit sectors. The UK innovation system is multi-faceted, with a wide variety of actors. The National Environmental Research Council (NERC) fosters UK and international partnerships that bring business, government and civil society together with scientists to address the challenges and opportunities of managing the environment, and to drive UK innovation, economic growth and societal wellbeing. Current core areas of focus for innovation at NERC and across its funded portfolio of University research are: Sustainable food production; Environmental data; Infrastructure; Natural resources; Risk management and Public policy.
- Enterprise is having ideas and doing something about them, taking advantage of opportunities to bring about change. Universities are increasingly enterprising in how they approach research. Working particularly to try to blend innovation with knowledge in such a manner that accrues positive benefit to society.
- For everyone strong relationships are the key to both successful innovation and enterprise. This event will strengthen existing and forge new relationships between research, industry, NGOs and policy, which are mutually productive and intellectually challenging.

**How relevant is university research to your work? Are there things we could do to make academia more accessible to you? What are your research questions? Are existing lines of academic questioning relevant to your needs?**

**What do innovators and entrepreneurs do in Universities and Research Centres? Do they exist? Where are they? How do they operate? How are they defined? What support do our next generation university innovators need?**

## Purpose & Process

This event will draw together a unique gathering of researchers from the NERC Doctoral Training Centres and Partnerships nationwide with professionals drawn from business, technology, NGOs and Government.

In our parallel sessions we will bring to the table some of the issues and technical challenges that are faced within our varied disciplines and come together to consider between us how our collective knowledge might bear solution? We will focus in on some of the emerging environmental and technical issues that we see, which may benefit from the different range of perspectives across our Programmes. Where are the synergies? Does the potential exist to use technology from one area, to assist another? What's stopping change and improvement?

- ✓ Part 1 - We have invited three knowledgeable individuals (academic, industrial, policy focused) within each parallel theme to talk about their work; the challenges they face and prospects they see. To highlight the questions they are formulating that may take some time to unravel?
- ✓ It is the job of a university to innovate, experiment and discover new ideas. Group discussion will be aimed at selecting and understanding the challenges presented and viewing them through different perspectives. Changing the lens on the problem and seeing if a fresh look can assist? In line with the nature of participating Doctoral Training Programmes, emphasis will be placed upon observational tools, analytical methods and technological solutions.
- ✓ Part 2 – Post Graduates and early career researchers will form the backbone of our event and the fresh perspectives they bring will come to the fore within these sessions. Following their scrutiny of material presented they will work together to debate, prepare and form a response to some of the questions posed;
- ✓ The parallel sessions will culminate in a series of group presentations that respond to selected challenges posed. We hope these will contain both potential solutions and waymarks to future enduring research collaborations, alliances, scalable ideas, new relationships and success.

## Content

### Water & Oceans

Do we believe that we now know enough about how water and ocean systems physically function? And how do they do so within climatic and hydrological systems? What else do we need to know? Why specifically? How effective are our monitoring and remote observational systems? What new tools could we apply, where?

Do we have for example, sufficient understanding about how to meet the challenges of ocean acidification and sea temperature rise? Are we doing enough to utilise the wealth of the sea from aquaculture? How do we make sure this is undertaken sustainably? How are industry technologies developing in the offshore oil and gas sector and in the developing enhanced oil and gas recovery industry? What observational tools are used for example in carbon and capture and storage (CCS) offshore development? Are there cross-functional applications that might also assist ongoing challenges associated with water and marine regulatory compliance? Including pollution from run off, marine micro-plastics and contaminant fate. What are the possibilities for innovation here?

## Ecology, food security and agri-technology

Is it better to grow food or import it? Which of the two overall has greater environmental and social impact? What is the role of ecosystem valuation and non-monetary valuation in this effect? Will modern agricultural technology ever be fully compatible with the maintenance of ecological integrity? How do can the dynamics of global food supply be measured and monitored – across a supply chain of growers, importers and in supermarkets? How will climate change impact this dynamic? How do we improve sustainable water resource management in agriculture? What if UK prime agricultural land is lost as a result of sea level rise? And many places experience greater drought and heat stress?

How do we measure and monitor modern land use change in the United Kingdom? How are remote observational technologies adopted and used? Who pays for them? Are there technological developments in the agricultural sector, which could also be utilised across to help us understand ecological risk and change? What are the possibilities for innovation here?

## Energy and Infrastructure: resilience, resources and risk

How can onshore and offshore remote observational technologies be better applied in the monitoring and management of natural hazards and risk across the energy and infrastructure sectors, whether from geological hazards, extreme weather, flooding, or human-induced factors such as oil spillage? How resilient are modern infrastructure networks - for communications, water and energy? What kind of contribution should environmental and geoscientists best make to this topic? How can we better support and improve understanding of natural environmental risk from critical infrastructure assets, including legacy issues. How can the liabilities associated with ageing energy and infrastructure assets be better managed? Are there also big data challenges and opportunities here? How is big data used in natural resource asset management?

What types of contribution should universities be making to oil and gas decommissioning? What are the environmental and social challenges and opportunities offered by the decommissioning process? How can infrastructure assets earmarked for decommissioning be most creatively used? What are the possibilities for innovation here?

*\*Please note this information is provided as a guide at this stage and is still subject to minor change.*