**UKRI - GCRF Collective Programme: Multi-hazards and Systemic Risks**

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<th><strong>Closing date</strong></th>
<th>12th September 2019</th>
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<td><strong>Funding available</strong></td>
<td>£7.5M</td>
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<td><strong>Funding mode/stream</strong></td>
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<td><strong>NERC Core or UKRI/Collective Fund budget</strong></td>
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<td><strong>Project duration</strong></td>
<td>3 years</td>
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**Call aims and objectives**

Aim: To provide a better understanding of the drivers of multi-hazard events and how the impacts of these events cascade through socio-economic systems and to use this knowledge to determine which interventions and policies are effective at mitigating the risks, particularly for vulnerable groups.

Programme Focus: Multiple natural hazards and interrelated environmental, social, economic, cultural, historical, and health risks and effects that can be triggered by these events, that can initiate natural hazards, or can amplify or compound their impacts

Objectives:

Proposals must address all three Research Challenges:

1. Understanding the drivers of multi-hazard events
2. Characterising the cumulative impacts of risk chains
3. Increasing resilience to multi-hazards and systemic risks

Programme Goal: Determine how to mitigate the impact of multi-hazards in Low and Middle Income countries (LMICs)

**Eligibility criteria**

Only applicants that were successful at the Outline Bid stage are eligible to submit Full Proposals. Principal Investigator (PI) must be based in a UK Research Organisation eligible for UKRI funding.
Co-Investigators (Co-Is) and researchers can be based in the UK or overseas, those based overseas receive funding through the lead research organisation Proposal must be ODA compliant
Applicants may submit no more than two proposals to the call as an investigator, only one of these may be as the lead Principal Investigator (for joint proposals, the PI on the non-lead proposal is a Co-I for these purposes).

| Call specific requirements | • Projects must address all three Research Challenges  
|                           | • Multi-disciplinary project teams  
|                           | • Equitable Partnerships and Capacity Building  
|                           | • Problem and Solution Focused - substantial impact on improved social welfare, economic development, and environmental sustainability  
|                           | • Users should be engaged both during the design phase and throughout lifespan of project |

| Contact | Sarah Blackburn |

UKRI - GCRF Collective Programme: Multi-hazards and Systemic Risks

Announcement of Opportunity – Invitation Only

Issued on: 12th July 2019
Invited Full Proposals deadline: 4pm on 12th September 2019

Information about your application, including the personal information provided on the forms, will be processed and stored electronically by the UKRI-GCRF Collective Programme. The information contained in your application may be passed on to external reviewers in confidence. Reviewers will be asked to destroy information after the review and selection process is complete.

Your application and personal information will be stored by the UKRI-GCRF Collective Programme for management purposes but will not be shared with other organisations outside the UKRI-GCRF partnership. We will use details provided in the application for correspondence about the call and may also use this information for future analyses of the performance of the programme.

By submitting your application to the UKRI-GCRF Collective Programme you have indicated your acceptance of these data protection terms and conditions.

1. Summary

The Natural Environment Research Council (NERC), on behalf of UK Research and Innovation (UKRI) invites full bid proposals for international, interdisciplinary, collaborative research projects under the UKRI-GCRF multi-hazards and systemic risks research call.

Low and Middle Income countries (LMICs) are especially vulnerable to multiple and cascading hazards, and associated systemic risk where cumulative costs may be thousands of deaths each year, extensive disruption and high economic losses. The aim of this programme is to provide a better understanding of the drivers of multi-hazard events, how the impacts of these events cascade through socio-economic systems and to use this knowledge to determine which interventions and policies are effective at mitigating the risks, particularly for vulnerable groups. The focus is on multiple natural hazards and the interrelated environmental, social, economic, cultural and health risks and effects that can be triggered by these events, or can amplify or compound their impacts.

This call will aim to support two large, international collaborative research projects with a value of up to £3.75M (cost to UKRI); UK institutions are eligible for 80% FEC and overseas organisations are eligible for 100% direct project costs. The total available budget for this call is £7.5M. It is expected that projects will start in April 2020 and have a maximum duration of three years.

All projects are required to have a Principal Investigator based in a UK Research Organisation eligible to hold UKRI grants. Projects with co-investigators and researchers based in low and middle-income countries are strongly encouraged, and will receive funding via a UK Research Organisation.

The submission of an Outline Bid proposal is a requirement of this call, and only those successful at the Outline Bid stage have been invited to submit a full proposal.
Any other proposals which are not invited submissions will be rejected. Full Bid proposals must be submitted via the UK Research Councils’ Joint Electronic Submission (Je-S) system before 16:00 BST on 12th September 2019.

2. Background

The Global Challenges Research Fund (GCRF) is a key component in the delivery of the UK Aid Strategy: tackling global challenges in the national interest. The fund aims to ensure that UK Research and Innovation takes a leading role in addressing the problems faced by developing countries through:

- Challenge-led disciplinary and interdisciplinary research.
- Strengthening capacity for research and innovation within both the UK and developing countries.
- Providing an agile response to emergencies where there is an urgent research need.

GCRF forms part of the UK’s Official Development Assistance (ODA) commitment, and will be awarded in a manner that fits with ODA guidelines. ODA provided by UKRI must comply with the requirements of the International Development (Gender Equality) Act 2014 which states, the “desirability of providing development assistance that is likely to contribute to reducing poverty in a way which is likely to contribute to reducing inequalities between persons of different gender.”

The Collective Programme under the UKRI GCRF Collective Fund is a series of calls designed to enhance the coherence, strategic focus and overall impact across the six strategic GCRF Challenge portfolios:

- Cities and Sustainable Infrastructure
- Education
- Food Systems
- Global Health
- Resilience to Environmental Shocks and Change
- Security Protracted Conflict, Refugee Crises and Forced Displacement

The Collective Programme is being delivered by UKRI and steered by the GCRF Challenge Leaders. Interdisciplinary research excellence is central to the GCRF and Investigators from all disciplines are encouraged to apply for calls within the parameters of each call, regardless of the host function. This call will be managed by NERC on behalf of all UKRI research councils. All proposals received will be shared with other constituent parts of UKRI as necessary to assist with processing.

The GCRF Challenge Leaders are responsible for the building and success of individual GCRF challenge portfolios and together are collectively responsible for maximising the portfolios’ overall research excellence and real-world impact. Their goal is to make certain that the GCRF as a whole can have the greatest possible impact on global development and move the world closer towards achieving the UN Sustainable Development Goals. Professor Mark Pelling and Dr John Rees have been appointed to jointly provide strong, intellectual and strategic leadership for the GCRF Resilience research portfolio and to strengthen coordination across multiple delivery partners. This call is part of the Resilience research portfolio.
Resilience research aims to provide society with knowledge about how to mitigate the impacts of environmentally induced risks, with commensurate potential for minimization of human and economic loss. Research supported by the portfolio will characterize key processes at appropriate temporal and spatial scales and build these into concepts or models that shape decisions about the management of risk. The research required incorporates characterization of the exposure and vulnerability of communities and infrastructure to multiple environmental processes that have potential to cause damage especially through hazard and risk cascades and contagion.

Proposals submitted to this call should be developed in the context of the wider resilience research landscape. The Sendai Framework calls for countries to 'Build Back Better' by connecting pre-disaster risk reduction with disaster response and reconstruction, enabling development outcomes through resilience work. The Sustainable Development Goals (SDGs) similarly advocate that development should ‘leave no-one behind’. This joined-up agenda positions risk, adaptation, and resilience work at the centre of efforts to enhance development processes and outcomes – to move beyond existing ambitions of ‘returning to pre-event normalcy’ and to ‘do no harm’. Some international agendas, e.g. those leading to the Sendai Framework, have recognised complexity and highlighted the importance of its understanding for risk management, but have not yet built programmes to explicitly develop appropriate research. Understanding complexity through multiple processes of change and responses requires multi-scaled views and action.

Risk-based science currently fails to take sufficient account of the wider context of the systemic nature – the interconnectedness, the interdependencies – of complex risk landscapes with multiple interacting drivers that affect multiple human actors and infrastructures in a fast-changing world.

There is also a need to articulate risk reduction options and minimise barriers that inhibit individuals at risk, practitioners and policy makers, from making better risk-informed decisions. Despite decades of interventions, many policy mechanisms continue to be a barrier for the integration of emergency response within long-term development strategies. Resilience concepts and agendas provide potential frameworks for bridging this gap.

Previous UKRI investments focussed on supporting resilience research include programmes such as the NERC-ESRC-AHRC Building Resilience Programme and the NERC-ESRC-DfID Science for Humanitarian Emergencies & Resilience (SHEAR) Programme. A number of wider GCRF investments have incorporated resilience research, including the new global GCRF Research Hubs which tackle complex development challenges, in particular the Urban Disaster Risk Hub which aims to bring disaster risk management to the centre of global urban policy and practice. Resilience research also features within projects supported through the GCRF Growing Research Capability Programme, which aims to grow research capacity around the globe and to strengthen and broaden skills and expertise to address specific challenges of developing regions and countries. Under the current GCRF Collective Programme, ESRC are leading another resilience-themed call entitled ‘Equitable resilience: ensuring resilience enhances the Sustainable Development Goals’.
3. Scope of Multi-hazards and Systemic Risks Call

Multiple hazard events describe both the interaction of discrete natural hazards and the interaction over time of natural hazards with shocks and stresses in social, cultural, political, economic, health and technological systems. For example, a severe cholera outbreak followed the earthquake in Haiti in 2010, affecting 700,000 people and leading to 8,500 deaths\(^1\), and El Niño induced drought in Indonesia in 2015 led to widespread wildfires, which cost the Indonesian economy $16.1Bn\(^2\). Long-term trends and antecedent conditions can also influence resilience to natural hazards; e.g. environmental stressors and post conflict readjustment amplified the impact of drought on Colombian mangrove-lagoon systems, whereas in Ethiopia and Malawi incentives and actions to improve soil management over decadal timescales are reducing the impact of natural hazards on agricultural systems\(^3\).

While the risks associated with multi-hazard events are recognised and approaches for managing multi-hazard events are increasingly advocated as part of disaster risk reduction policies and practice (e.g. Government Office for Science, 2012; UNISDR, 2015) these risks are not well defined, and there are key challenges and gaps which must be addressed to enable informed assessments of the likelihood of multi-hazard events and their impacts. In particular, natural hazards, such as floods, droughts, earthquakes and volcanic eruptions, have recognised ‘knock-on’ or cascading impacts through the interconnected social, cultural and economic systems. These risks to multiple interlinked systems, referred to as systemic risk, can increase the impact of multi-hazard events with impacts that may be unexpected and manifest in sectors or geographies removed from the initial hazard.

Low and Middle Income countries (LMICs) are especially vulnerable to multiple and cascading risks associated with natural hazards as uneven development produces economic and infrastructural interdependencies with limited institutional, governance and social capacity for resilience. This can lead to systematic but unplanned risk contagion across sectors and concentration in specific places. Despite widespread recognition of the scale of the challenges caused by multiple and systemic risks in the developing world, social-, cultural-, technical-, legal-, and governance-based approaches to characterize and cost-effectively build resilience to these risks have been notably lacking. Yet understanding these perspectives has the potential to revise the way we understand the production and accumulation of risk in social groups and specific places or sectors.

The aim of this programme is to provide a better understanding of the drivers of multi-hazards events that include natural hazard components but where risk also spreads beyond these. This programme will support research on the intersection of natural hazards, and the intersection of natural hazards with other hazard domains. It will use this knowledge to determine which interventions and policies are effective at mitigating the risks, particularly for low-income, vulnerable groups. The focus is on multiple natural hazards and the interrelated environmental, social, economic, cultural, historical, and health risks and effects that can be triggered by these events, that can initiate natural hazards, or can amplify or compound their impacts. By advancing understanding of multiple causation along risk chains the outputs of

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\(^1\) Centre for Disease Control: [https://wwwnc.cdc.gov/](https://wwwnc.cdc.gov/)


The programme will provide an essential input to the risk statements needed to inform multi- and cross-sector risk and development planning from household scale up.

The programme has three Research Challenges:

1. **Understanding the drivers of multi-hazard events.**
   Questions to be addressed could include, but are not limited to:
   - How do physical processes interact to create multi-hazards events, i.e. what are the trigger mechanisms and relationships between discrete hazards?
   - How can hazard events increase the probability of additional hazards occurring?
   - What is the likelihood of concurrent or coincident hazards; and what are their likely impacts?
   - How can secondary hazards amplify or exacerbate the impacts of the initial hazard?
   - What effect do antecedent conditions have on the impacts of multi-hazards events?

2. **Characterising the cumulative impacts of risk chains.**
   Questions to be addressed could include, but are not limited to:
   - What are the interactions between hazards and potential receptors including environmental, technological and social, cultural, and economic systems (people, infrastructure, buildings, heritage, etc.) and how do risks cascade through and across systems?
   - How can the dynamic vulnerability associated with accumulation or contagion of risks be determined?
   - How do long-term trends and chronic hazards, such as climate change, political instability or demographic changes, affect vulnerability to multi-hazards?
   - Can environmental, social, and cultural histories provide insights into how and why vulnerability and risk change spatially and temporally?
   - How do global, national, regional, and local contextual factors and processes mediate the contagion of risk at the local level?
   - Can systems-based analysis and models be developed to better account for multiple and systemic risks, the dynamics of these over time?

3. **Increasing resilience to multi-hazards and systemic risks.**
   Questions to be addressed could include, but are not limited to:
   - How can multi-hazards and associated systemic risks be managed and communicated effectively, taking into account contextual factors in order to avoid non take-up of solutions and unintended consequences?
   - What environmental-, social-, technical-, cultural-, legal-, governance, and/ or participatory-based approaches can build resilience to these risks?
   - What can we learn from past efforts (successes & failures) to build resilience and manage systemic risks?
   - How can cross-sectoral governance structures (e.g. civil contingency secretariats, social safety nets and insurance) be developed or adapted to mitigate the loss of lives and livelihoods in complex emergencies?
How can the trade-offs associated with managing multi-hazards and systemic risks be factored into planning processes and engagement within local stakeholders and communities?

Can approaches, methods, tools, metrics and indicators be developed which allow us to assess the relative risks and co-design proportionate mitigation strategies?

Projects must address all three Research Challenges listed above. It is envisaged that the projects will take a case study approach, and explore multi-hazards and systemic risks in a particular geographic setting, such as a watershed or small island state. This can include the interaction of such regions with wider national or global processes including climate change or global economic or political systems dynamics. Projects should consider the role that context, e.g. environmental, social, cultural, historic and economic, has on interrelationships between multi-hazards and systemic risks to ascertain the degree to which multi-hazards events and the associated systemic risks are context specific, and how this context should be incorporated into mitigation strategies. Anticipated outputs from the programme include new understanding of the drivers of multi-hazards, novel methodologies and approaches to enable the systemic risks associated with multi-hazard events to be accounted for, and feasible solutions and approaches that will enable increased resilience. Projects should also consider how outputs can be transferred or translated to other geographic regions or contexts.

It is expected that project teams will be multi-disciplinary and include the range of expertise, e.g. environmental, social, economic, engineering, mathematical sciences, health, and arts and humanities, needed to deliver the integrated cross-sectoral understanding required to increase resilience to multi-hazard events and systemic risks. The development of equitable partnerships with researcher in LMICs in the project teams is strongly encouraged to strengthen the impact and relevance of the research and address the GCRF goal of building research and innovation capacity in LMICs.

As the goal of the programme is to determine how to mitigate the impact of multi-hazards in LMICs it is expected that project teams will work closely with populations at risk, local and national government, civil society and corporate private sector interests and align themselves with ongoing policy development and/or business and civil society planning processes. Importantly, users should be engaged both during the design phase and throughout the lifespan of the project.

4. Programme Requirements

4.1. Programme Funding

The call has two stages: an Outline Bid and an invited Full Proposal. The submission of an Outline Bid is a requirement for this programme and only applicants that were successful at the Outline Bid stage are eligible to submit Full Proposals.

This is an invitation only call for Full Bid proposals, which aims to support two large, collaborative research projects. The total available budget for this programme is £7.5M.
maximum project size is £3.75M (cost to UKRI); with UK institutions eligible for 80% FEC and overseas organisations eligible for 100% direct project costs.

4.2. Implementation and Delivery

Projects will start in April 2020 and have a maximum duration of three years.

The call will be managed by NERC on behalf of UKRI. Awards will be made under the standard NERC research grant terms and conditions, and there may be additional call-specific conditions applied to the awards.

4.3. ODA Compliance

This call is funded through the Global Challenges Research Fund (GCRF). GCRF forms part of the UK’s Official Development Assistance (ODA) commitment, which is monitored by the Organisation for Economic Cooperation and Development (OECD). ODA-funded activity focuses on outcomes that promote the long-term sustainable growth of countries on the OECD Development Assistance Committee (DAC) list, which is available here. Funding within this call will therefore be awarded in a manner that fits with Official ODA guidelines (see here).

When applying to this call it is important applicants ensure that their proposal is ODA compliant. It will be important to ensure that it is clear in the proposal how it is ODA eligible as defined by “administered with the promotion of the economic development and welfare of developing countries as its main objective”. There are no priority countries, proposals may relate to any country or countries on the DAC list except those which are flagged as likely to graduate from the list during the course of the proposed project. If a country is flagged as likely to graduate it cannot be the primary focus of a proposal, although it can be included as an additional case study or comparison.

All proposals to this call will be required to include a mandatory attachment (ODA Statement) setting out how they fulfil the criteria for ODA compliance. Further guidance on how to complete this attachment is provided in the Application Process section of this document.

As part of the government’s commitment to ODA transparency and in line with DfID ODA reporting requirements, UKRI is responsible for publishing information about UKRI ODA grants including project titles and summaries via the International Aid Transparency Initiative (IATI) registry and via DfID’s national statistics. The purpose of publishing information via the IATI registry is to make information about ODA easily accessible to governments, stakeholders and other relevant groups in beneficiary countries. All UKRI funded projects from this programme will be published in this way. Please therefore write your project title and summary in such a way that they are meaningful and accessible to non-specialist audiences, following publication. We would be grateful if you would ensure that the project title and summary are written in plain English and avoid the use of jargon, acronyms, puns and plays on words. Please also make clear in your project title and summary how your project is ODA compliant, for example by identifying the development challenge(s) being addressed, the aims of the project and the beneficiary countries.

If you have any questions, please contact GCRFResilience@nerc.ukri.org
4.4. Eligible Research Organisations

All projects are required to have a Principal Investigator based in a UK Research Organisation eligible for UKRI funding. Projects with co-investigators and researchers based in low and middle-income countries, are strongly encouraged, but will receive funding through a UK research organisation.

UKRI research and fellowship grants for all schemes may be held at approved UK Higher Education Institutions (HEIs), approved Research Council Institutes (RCIs) and approved Independent Research Organisations (IROs). Full details of approved RCIs and IROs can be found on the UKRI website.

Co-investigators can be from non-UK research organisations (for example higher education organisations, public laboratories, or other non-profit research intensive organisations) and can receive funds via the lead UK Research Organisation. Co-investigators from DAC list countries can receive funding for direct costs and some indirect costs.

Co-Is can also be based in high-income countries outside of the UK and can claim 100% of their direct costs but no indirect costs. However, as the scheme is intended to fund work in DAC list countries, high-income country applicants are advised to keep their costs claimed to a minimum. The balance of intellectual leadership and costs between high income countries and DAC list countries will be considered in the assessment of proposals.

The funders recognise the importance of and want to encourage the involvement of non-academic organisations, such as NGOs, local & national policy-makers, as well as organisations representing affected communities, in this programme. If a collaborating organisation is integral to the design and delivery of the project and is contributing to the project through financial or in-kind contributions to the grant (e.g. staff time, access to facilities, data, sites) then they should be listed as a project partner.

Project partners – Participating organisations not meeting the criteria to be a Research Organisation and co-investigator can be project partners on the awards based on the following requirements:

- Third sector organisations – NGOs, charities and other non-profit civil society organisations (not meeting the minimum requirements for research partner organisations) can be included on proposals as project partners and are eligible to receive a contribution towards costs from the award (see Section 5.4).
- Government departments and business – Overseas and UK government departments and businesses should be engaged where appropriate but are not eligible to directly receive funds on the awards.

Sub-contracts – Sub-contracts are eligible costs on proposals submitted to this call but should only be used for the procurement of goods and services. Sub-contracts are not permitted for research partners providing intellectual input into the project, where a research partner or project partner relationship is more appropriate.

Full Bids should state the partner organisations being engaged, including the nature of the contribution to the project. It is expected that proposals will evolve between the Outline Bid
and Full Bid stages (including personnel and partnerships). Letters of Support from Project Partners are required at the Full Bid stage.

It is important to highlight that any UK Research Organisation awarded a grant is responsible for the conduct and administration of that grant. It is accountable for the effective use of public funds, and must therefore ensure that all grant monies are subject to proper financial management processes. It is the Research Organisation’s responsibility to ensure that expenditure on collaborations in the UK and abroad is subject to robust controls to ensure value for money and propriety and that all costs should be fully vouched and maintained for possible inspection and checks by, or on behalf of, UKRI.

If any of the Research Organisations that receive funding from UKRI wishes to sub-contract research to an overseas research organisation or include a Co-Investigator at an overseas research organisation then the UK Research Organisation must undertake due diligence checks to ensure that the funding will be appropriately used.

As part of UKRI funding assurance, non-UK research organisations may be requested to complete a UKRI Overseas Due Diligence Questionnaire. Please be aware that research organisations may be contacted by UKRI at any point during the review process. This is in order to expedite our assurance process. If UKRI does contact any non-UK research partner organisation named on an application, the lead organisation will be informed.

For organisations hosting non-UK co-investigators, due diligence checks are for UKRI’s assurance purposes only and do not replace the due diligence requirements of the lead organisation. However, when obtaining information from non-UK research organisations UKRI will request permission to share the information provided with the lead organisation. The lead organisation can then use this information for their own due diligence processes should they wish.

4.5. Research Roles and Eligibility

Applicants may submit no more than two proposals to the call as an investigator, only one of these may be as the lead Principal Investigator (for joint proposals, the PI on the non-lead proposal is a Co-I for these purposes).

Normal individual eligibility applies and the lead Principal Investigator must be from a UK-based organisation and eligible to hold a UKRI grant. Full information on individual eligibility and role descriptions can be found under Section C of the NERC Grants Handbook.

4.6. Associated Studentships on a Proposal

Associated studentships (either Masters or PhD studentships) cannot be included on proposals submitted to this programme.

4.7. Programme Level Coordination and Integration

Representatives from all the funded projects will be expected to attend a programme kick-off coordination meeting in Spring 2020 (date and venue tbc). This meeting will provide an
opportunity for the project teams to meet each other and gain an overview of the funded research. The GCRF Resilience Challenge Leaders (John Rees and Mark Pelling) will act as programme coordinators/knowledge brokers for the projects funded through this call.

Project teams will be expected to work together with the Challenge Leaders and UKRI as required to deliver the GCRF Resilience portfolio. This includes participating in portfolio-wide activities such as one-day knowledge exchange workshops. There will also be opportunities to network with projects funded through the other resilience-themed GCRF collective call - GCRF Equitable resilience: ensuring resilience enhances the Sustainable Development Goals.

Each project is also expected to feed into any programme level reporting requirements. This includes feeding into the Challenge Leaders on progress periodically. Projects may be required to respond to other ad hoc queries for information from UKRI.

4.8. Research Ethics

All GCRF projects must be underpinned by a strong research ethic based on mutual respect and understanding for different cultural, ethnic, social and economic beliefs and practices. Solutions to any development challenge(s) must be rooted in, and acceptable to, the institutions, communities and societies where they will operate.

Ethical issues should be interpreted broadly and may encompass areas where regulation and approval processes exist as well as areas where they do not. Applicants must ensure that the proposed research will be carried out to a high ethical standard and must clearly state how any potential ethical and health and safety issues have been considered and will be addressed, ensuring that all necessary ethical approval is in place before the research commences and all risks are minimised. More guidance can be found in the ESRC Framework for Research Ethics.

4.9. Capacity Building

An important aspect of GCRF is capacity development, and UKRI strongly encourages all proposals to this call to identify research capacity-building activities as part of, and not separate to, the stated research approach. The focus should be on the quality and impact of the research, and how increasing capacity contributes to this. Examples of building capacity include:

- opportunities for those with relevant skills who have not previously worked on development relevant research projects to orient their research towards global issues
- support and mentoring for more junior team members
- co-design of research and implementation with developing country partner staff

Please note that studentships are not eligible under this call. Further information on capacity-building in relation to GCRF is available on the ESRC website.
4.10. Equitable Partnerships

Partnerships are a key pillar of the GCRF strategy. Partnerships should be transparent and based on mutual respect. Partnerships should aim to have clearly articulated equitable distribution of resources, responsibilities, efforts and benefits. Partnerships should recognise different inputs, different interests and different desired outcomes and should ensure the ethical sharing and use of data which is responsive to the identified needs of society.

4.11. Safeguarding

UKRI condemns all forms of harm and abuse, including bullying and harassment. We take a zero tolerance approach to harm and abuse to any individual employed through or associated with our programmes in all contexts; whether in humanitarian or fragile and conflict-affected settings, in other field contexts, or within the international or UK research and development community which we fund. We expect institutions to promote the highest standards in organisational culture, and have in place the systems and procedures required to prevent and tackle all incidents of harm and abuse. Applications must detail how they will identify and manage safeguarding risks and what policies and procedures will be in place to enable reporting and investigation of allegations when they arise.

4.12. Knowledge Exchange and Impact

Knowledge exchange (KE) is vital to ensure that environmental research has wide benefits for society, and should be an integral part of any research.

All applicants must consider how they will or might achieve impact outside the scientific community and submit this with their application as a Pathways to Impact statement, with associated delivery costs where relevant. Pathways to Impact activities do not have to be cost-incurring; it is not a requirement to include funded activities. Any funds required to carry out any proposed, outcome-driven activities identified within the Pathways to Impact must be fully justified within the Justification of Resources statement.

The Pathways to Impact will identify those who may benefit from or make use of the research, how they might benefit or make use of the research, and methods for disseminating data, knowledge and skills in the most effective and appropriate manner.

An acceptable Pathways to Impact is a condition of funding. Grants will not be allowed to start unless unacceptable Pathways to Impact are enhanced to an acceptable level within one month of notification of the panel outcome.

All funded projects may also be required to engage with programme-wide KE activities, in which case appropriate funding for which will be provided by the programme.

4.13. Data Management

The NERC Data Policy must be adhered to, and an outline data management plan produced as part of proposal development. Successful projects will need to agree the full data management plan with the relevant Data Centre within 6 months of the grant start date.

Where other specific types of data are also collected, applicants must refer to relevant council guidance for archiving such specific data. For example, if specific social science data
is produced, please refer to the full statement on data management planning and datasets deposition requirements for data intensive investments in the ESRC Research Data Policy and the Research Funding Guide.

4.14. NERC Facilities

Prior to submitting a proposal, applicants wishing to use a NERC service or facility must contact the facility to seek agreement that they could provide the service required. Applicants wishing to use most NERC facilities will need to submit a mandatory ‘technical assessment’ with their proposal. This technical assessment is required for aircraft but not for NERC Marine Facilities (Shiptime and/or marine equipment) and HPC. For NERC, this means a quote for the work which the facility will provide. A full list of the Facilities requiring this quote can be found on the NERC website. The costs for the service or facility (excluding NMF and HPC costs) must be included within the Directly Incurred Other Costs section of the Je-S form and also within the facilities section of the Je-S form. Further information on NERC services and facilities can be found on the NERC website.

Applicants wishing to use NERC’s marine facilities must complete an online Shiptime and Marine Equipment (SME) or Autonomous Deployment (ADF) application form on the Marine Facilities Planning webpage. The SME/ADF number should be included on the Je-S grant proposal form under Services and Facilities. SME/ADFs must be submitted and approved by NERC Marine Planning by the time the proposal (Je-S form) is submitted, so that a pdf of the SME/ADF can be attached as a facility form. Failure to do so may result in the request not being included in the NERC Marine Facilities Programme. The costs for the marine facility must be included within the Directly Incurred Other Costs section of the Je-S form and also within the facilities section of the Je-S form. Applicants intending to apply for NERC’s marine facilities should also contact marineplanning@nerc.ukri.org to discuss shiptime and equipment needs as soon as possible.

Completed SMEs/ADFs should be submitted by 12th August 2019.

4.15. Reporting Requirements

Successful applicants will be required to report research outcomes on ResearchFish in line with standard UKRI Terms and Conditions. This is required annually and continues for up to five years post grant end.

In addition to the standard outcomes all award holders will need to complete sections under the ‘GCRF Collective Fund’ outcomes.

Project teams may also be required to participate in a mid-term review and respond to ad hoc reporting requests from NERC or the GCRF Collective Programme.

5. Application Process

5.1. Full Bid Stage

Only applicants successful at the Outline Bid stage have been invited to proceed to the Full Bid stage. It is expected that proposals will evolve between the Outline Bid and the Full Bid (including personnel and partnerships), but the major research elements are expected to remain broadly the same, within the confines of any feedback from the Outline
Bid stage. Similarly, the Principal Investigator should not change between the Outline and Full Bid stages. Applicants considering any significant changes to the scope of a project or personnel involved should agree any significant proposed changes with NERC prior to submitting their Full Proposals.

At the Full Bid Stage, some of the UK-based Co-Investigators will become the Principal or Co-Investigators on the component grant proposals and not be named on the lead grant proposal.

5.2. How to Apply

Proposals for Full Bids must be submitted via the Joint Electronic Submission (Je-S) system by 16:00 BST on 12th September 2019.

One Full Bid submission (plus any associated component proposals) is required for each proposed project, it is expected that the lead component will be submitted by the lead Principal Investigator. The Multi-hazards and Systemic Risks call will close on Je-S at 4pm on 12th September 2019 and it will not be possible to submit to the call after this time. Applicants should leave enough time for their proposal to pass through their organisation’s Je-S submission route before this date. Any proposal that is incomplete, or does not meet NERC’s eligibility criteria or follow NERC’s submission rules (see NERC Grants Handbook), will be office rejected and will not be considered.

All applications must be submitted in English and costed in pounds sterling (£/GBP).

In order to prepare a Je-S Full Bid submission the person preparing the proposal has to create a new proposal. The process for this is as follows:

- Log into Je-S and select the Research Council – ‘NERC’
- Select the Document type – ‘Standard Proposal’
- Select Scheme – ‘Directed International’
- Select call ‘UKRI-GCRF Collective Programme: Multi-hazards and Systemic Risks Full Bids’

All attachments, with the exception of letters of support and services/facilities/equipment quotes, submitted through the Je-S system must be completed in single-spaced typescript of minimum font size 11 point (Arial or other sans serif typeface of equivalent size to Arial 11), with margins of at least 2cm. Please note that Arial narrow, Calibri and Times New Roman are not allowable font types and any proposal which has used either of these font types within their submission will be rejected. References and footnotes should also be at least 11 point font and should be in the same font type as the rest of the document. Headers and footers should not be used for references or information relating to the scientific case. Applicants referring to websites should note that referees may choose not to use them.

Applicants should ensure that their proposal conforms to all eligibility and submission rules, otherwise their proposal may be rejected without peer review. More details on NERC’s submission rules can be found in the NERC research grant and fellowships handbook and in the submission rules on the NERC website.
Proposals for this call should be submitted in large grant format following the requirements outlined in Section F of the NERC research grant and fellowships handbook (also detailed under section 5.3 of this AO).

Additional requirements for this call

ODA Statement:

In addition to the usual requirements for large grants, a statement of ODA compliance of up to 1 side of A4 should be submitted. This should be uploaded as an attachment type of ‘Non-UK Components’. All research funded through the GCRF will form part of the UK’s Official Development Assistance (ODA) and thus it is a requirement that funding be awarded in a manner that fits with ODA guidelines. Therefore, research proposals submitted to this call should describe how the proposed project meets the Official Development Assistance requirements of this call by answering the following questions:

1. Which country/ countries on the DAC list will directly benefit from this proposal?
2. How is your proposal directly and primarily relevant to the development challenges of these countries?
3. How do you expect that the outcome of your proposed activities will promote the economic development and welfare of a country or countries on the DAC list?

Gender Equality Statement:

A Gender Equality statement of up to 1 side of A4 should also be submitted. This should also be uploaded as an attachment type of ‘Non-UK Components’. It is a requirement that funding that forms part of the UK’s Official Development Assistance (ODA) complies with the International Development (Gender Equality) Act 2014. Therefore, research proposals submitted to this call should address the following questions as part of their Gender Equality Statement:

- Have measures been put in place to ensure equal and meaningful opportunities for people of different genders to be involved throughout the project? This includes the development of the project, the participants of the research and innovation and the beneficiaries of the research and innovation.
- The expected impact of the project (benefits and losses) on people of different genders, both throughout the project and beyond.
- The impact on the relations between people of different genders and people of the same gender. For example, changing roles and responsibilities in households, society, economy, politics, power, etc.
- How will any risks and unintended negative consequences on gender equality be avoided or mitigated against, and monitored?
- Are there any relevant outcomes and outputs being measured, with data disaggregated by age and gender (where disclosed)?

It is expected that some projects will have less impact on gender and gender relations and professional judgement of the applicants should be exercised to ensure appropriate
consideration of the context and intended aims of the project. Applicants are able to reference other parts of your application within this statement, if relevant.

Guidance on Gender Equality compliance is provided on the [UKRI website](https://www.ukri.org).

### Other considerations

Please note that on submission to council ALL non PDF documents are converted to PDF, the use of non-standard fonts may result in errors or font conversion, which could affect the overall length of the document.

Additionally where non-standard fonts are present, and even if the converted PDF document may look unaffected in the Je-S System, when it is imported into the Research Councils Grants System some information may be removed. We therefore recommend that where a document contains any non-standard fonts (scientific notation, diagrams etc), the document should be converted to PDF prior to attaching it to the proposal.

In order to prepare a Je-S proposal submission, the person preparing the proposal has to log onto Je-S and create a new proposal. Note that this person must have previously created an individual Je-S account for themselves. This should be done well in advance of the application deadline as there may be some delay in the approval of an individual Je-S account.

For the full proposal stage, any individuals that will be named on the application (with the exception of Project Partners and sub-contractors) must have an individual Je-S account for themselves or will need to create an account in order to be added to an application. It is also necessary for an individual’s organisation to have been registered before they can register themselves. Guidance on how to register an organisation and how to create an individual Je-S account can be found on the [JeS website](https://jes.ukri.org).

### 5.3. Documents Required at the Full Bid Stage

The Full Bid application will comprise a Je-S pro-forma and a series of additional attachments, as outlined below.

The **Je-S pro-forma** has a series of sections that need to be completed:

- Title of the proposal
- Applicants
- Objectives
- Impact Summary
- Summary
- Summary of Resources requested
- Cash and In-Kind Project Partner contributions

<table>
<thead>
<tr>
<th>Document/attachment type</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposal Form</td>
<td>Je-S pro-forma</td>
</tr>
<tr>
<td>Case for Support</td>
<td>Comprising a common Previous Track Record incorporating all Research Organisations involved (up to 3 sides of A4), a</td>
</tr>
<tr>
<td>Section</td>
<td>Pages/Details</td>
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<tr>
<td>-----------------------------------------------------</td>
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</tr>
<tr>
<td>common Description of the Proposed Research</td>
<td>up to 16 sides of A4 including all necessary tables, references and figures.</td>
</tr>
<tr>
<td>and a Description of the Proposed Management Structure and plans, participant responsibilities, and scheduling chart. (up to 2 sides A4). The Case for Support should explain: • underlying rationale and scientific issues to be addressed, • describe why the work is strategically important, • how the application addresses the scope of this particular call, • the key research objectives and hypotheses, and • how these will be achieved</td>
<td></td>
</tr>
<tr>
<td>Outline Data Management Plan (ODMP)</td>
<td>Up to 1 side A4</td>
</tr>
<tr>
<td>Justification of Resources</td>
<td>Up to 4 sides A4 for all Research Organisations in the proposed grant. It should include full justification of all sea-time and facility costs (excluding High Performance Computing (HPC)) included as estimates on proposals. Use of ARCHER should be included as an estimate in Million Allocation Units (MAUs). A brief justification for the use of High Performance Computing (HPC) should be included.</td>
</tr>
<tr>
<td>C.V.</td>
<td>CVs are required for named research staff (including Researcher Co-Investigators), Visiting Researchers, all Principal and Co-Investigators named in the proposal (up to 2 sides A4 for each CV). There is a Je-S validation requiring the same number of CVs as named investigators and researchers on the proposal. Note: Only CVs for the PI, any Cols and named researchers will be sent out for peer review. Other submitted CVs e.g. from Project Partners should not be attached and will not be made available to reviewers or panel members.</td>
</tr>
<tr>
<td>Pathways to Impact</td>
<td>Up to 2 sides A4</td>
</tr>
<tr>
<td>Project Partner Letter of Support</td>
<td>From any named Project Partners (up to 2 sides A4 each). There is a Je-S validation requiring the same number of attachments as Project Partners</td>
</tr>
<tr>
<td>Letter of Support</td>
<td>Letters of support should generally be from Project Partners or relevant to the Pathways to Impact so be attached as above. No further letters of support should be attached, except in exceptional cases where permission has been received from <a href="mailto:researchgrants@nerc.ukri.org">researchgrants@nerc.ukri.org</a>. Letters of support can only be attached to the lead proposal. Applicants should ensure that any letter of support adds value to the scientific case e.g. where access to data is being granted. NERC reserves the right to not make letters of support available to reviewers and panel members where they do not add value to the scientific case.</td>
</tr>
<tr>
<td>Facility Form</td>
<td>Use only for: application forms for Ship-time/Marine Equipment (SME) Autonomous Deployment (ADF); Antarctic Logistic Support (BAS should already have been approached before the outline proposal stage); and for High Performance Computing (HPC) when use of ARCHER exceeds 160 MAU (in any one year) for the whole project.</td>
</tr>
</tbody>
</table>
### Technical Assessment

Mandatory for any NERC Facility selected on the Je-S pro-forma except those listed in the previous row. The full list is on the NERC website. The attachment should be a quote from the relevant facility.

### Non-UK Components

The mandatory ODA Statement and Gender Equality Statement (both 1 side of A4 each) must be uploaded under this attachment type.

### Equipment Section attachments

Not applicable for this call (equipment costs are limited to a maximum of £10,000 per item for all GCRF funded grants).

### Other attachment

This attachment does not go out to reviewers and should not be used, except where a Head of Department is required to confirm the eligibility of one or more of the Investigators. If the document does not fit within any of the attachment types above, it probably should not be submitted. Contact researchgrants@nerc.ukri.org if unsure.

### Proposal Cover Letter

This attachment does not go out to reviewers, so should not be used except to flag up a significant issue to the NERC Office (e.g. a request not to use a certain reviewer). This attachment should be used to declare any relevant interests.

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### 5.4. Project Finances

All applicants are advised to consult their institutional finance officers when completing the financial parts of the application.

A full Justification of Resources and detailed budget are required at the full bid stage.

Details of eligible costs are given in the NERC Research Grants Handbook. All costs should be in pounds sterling (£/GBP).

Individual items of equipment above £10,000 are **not an eligible cost** for this call. Small equipment and consumables may be requested where appropriate as long as individual items are below £10,000.

Capital or infrastructure expenditure is **not an eligible cost** for this call.

The maximum project size is £3.75M cost to UKRI (including overheads and any NERC facility costs); with UK institutions eligible for 80% FEC and overseas organisations eligible for 100% direct project costs. Any applications which go over the budget of £3.75M will be automatically rejected.

As per normal NERC rules, NERC will not provide additional funding to cover fluctuations in exchange rates.

UK and non-UK research organisational budgets are indicated below:

#### UK Research Organisation Budgets:

- UK organisations will receive 80% of the full economic cost of the project, as per standard Research Council funding rules. UK universities are required to calculate the FEC using the “TRAC” (Transparent Approach to Costing) methodology.
NERC Research Centres (BGS etc) should use a separate JeS component form and cost under FCC. The 80% FCC figure should be used to calculate the maximum cost to UKRI/NERC.

Other eligible UK organisations use an equivalent methodology, which has been validated by the Research Councils.

Overseas travel and expenses costs incurred by members of UK institutions will be paid at 80% and must be included as costs related to that UK institution.

Non-UK Research Organisation Budgets:

- Non-UK research organisations are expected to be able to comply with full and transparent costing for budget elements.
- Non-UK research organisations will be supported at 100% of the Directly Incurred costs of the research (e.g. staff, travel, consumables).
- For DAC list countries only, indirect costs may be charged at up to 20% of the total direct cost.
- Indirect costs cannot be claimed for any non-UK high-income countries.
- For further guidance on what overhead budgets can be used please see NERC Research Grants Handbook.
- Non-UK organisations should identify all costs as an ‘Exception’ on Je-S, using the exceptions tick boxes, for the full (100%) cost to be paid.
- Costs from UK and Non-UK organisations should be entered as separate items. For example T&S costs for field work should be entered as two separate lines i.e. that related to UK organisations payable at 80% and that related to non-UK organisations payable at 100%, by using the Exception tick box.

Funding available for project partners

Organisations that do not meet the minimum criteria to be a research organisation but offer valuable partnerships may be eligible to receive funds from the awards based on the following requirements:

- Third sector organisations (e.g., NGOs, charities and other non-profit civil society organisations) – These organisations are eligible to receive a modest contribution to their costs on the project, funded by the research councils at 100% of direct costs. Any non-staff costs must be reasonable; indirect costs and overheads are not allowed. All staff costs must be based on basic salaries (i.e. not day rates).
- Government departments and business – International and UK government departments and businesses where staff have significant intellectual input and contribute to the leadership of the proposal are not eligible to directly receive funds from the award.

Sub-contracts

Costs for procurement of goods and services can be requested, including for businesses and government departments. The costs for subcontractors are tied to the country managing
the sub-contract, e.g., if a DAC list country research partner organisation is managing a subcontract it will be awarded at 100%. If a UK partner is managing a subcontract it will be awarded at 80%. The most appropriate country should be chosen to manage the sub-contract based on the overall governance arrangements.

6. Assessment Process

All Full Bids will be internationally peer-reviewed and final funding recommendations made by a Moderating Panel consisting of independent experts. Applicants will be given the opportunity to provide a written response to peer review comments prior to the moderating panel. Applicants may be invited to give a presentation at the moderating panel.

The assessment criteria to be used will be as follows:

- The scientific excellence of the proposed research
- Fit to Programme Objectives:
  - Approach to addressing the three research challenges – Understanding the Drivers of Multi-hazard Events, Characterising the Cumulative Impacts of Risk Chains, and Increasing Resilience to Multi-hazards and Systemic Risk
  - Potential for impact, including co-design and co-production of research with users
  - ODA compliance, including evidence directly addressing development challenges, and of capacity building, equitable partnerships and appropriate consideration of gender and equality issues

Feedback will be provided to both successful and unsuccessful applicants following the assessment of proposals. NERC will use the recommendations of the moderating panel along with the overall call requirements and the available budget in making the final funding decisions. Applicants will be informed of the outcome of their Full bids following the Moderating Panel in January 2020.

7. Timetable

- Full Bids invited: 12 July 2019
- Full Bid call closes: 12 September 2019
- Moderating Panel: mid-January 2019
- Outcomes announced: late-January 2019
- Grants start date: 1 April 2020
- Kick-off workshop: TBC 2020

8. Contact

All queries relating to the call should be directed to: GCRFResilience@nerc.ukri.org

If you experience difficulties using Je-S or have questions regarding its use, please contact the Je-S helpdesk:

Email: JeSHelp@je-s.ukri.org
Telephone: +44 (0) 1793 44 4164