



UK Research
and Innovation



Science for Humanitarian Emergencies & Resilience (SHEAR)

Integration and Impact Proposals

Announcement of Opportunity

Issued on: 1st March 2019

Proposal deadline: 4pm on 14th May 2019

Information about your application, including the personal information provided on the forms, will be processed and stored electronically by the SHEAR Secretariat and representatives of SHEAR's Funders (NERC and DFID). 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 SHEAR programme for management purposes but will not be shared with other organisations outside the SHEAR 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 SHEAR Programme you have indicated your acceptance of these data protection terms and conditions.

1. Summary

This Integration and Impact call of the Science for Humanitarian Emergencies and Resilience (SHEAR) programme aims to deliver added value and impact by supporting the integration and synthesis of the outputs from the individual SHEAR projects. This call is restricted to Principal Investigators and Co-Investigators of the current SHEAR Research Consortia and Catalyst projects, as well as the 'Building resilience to disasters using financial instruments' call, who are invited to submit proposals that bring together two or more projects to add value and increase impact of the SHEAR programme to stakeholders in disaster risk and prediction in Sub-Saharan Africa and South Asia.

Up to £1M (with UK institutions eligible for 80% FEC with the usual exceptions paid at 100% and overseas organisations eligible for 100% direct project costs) is available for this call, with a maximum budget of £150k for individual projects. It is anticipated that ten to fifteen projects of varying size and duration will be funded, with the earliest anticipated start date in October 2019 and project completion by March 2021.

2. Background

2.1 Programme background

Science for Humanitarian Emergencies and Resilience (SHEAR) is a five-year interdisciplinary research programme funded by DFID and NERC to improve understanding and monitoring of disaster risk and generate more reliable prediction across South Asia and Sub-Saharan Africa. It has four main scientific objectives:

- Improving risk assessment and prediction of drought and flooding.
- Enhancing multi-hazard risk assessment and monitoring across South Asia, with a focus on the interaction of 'cascading' hazards such as landslides.
- Strengthening understanding of the underlying drivers of risk toward more integrated, multi-hazard risk monitoring and warning systems.
- Getting the right information, to the right people in the right ways – research to enhance the uptake and use of risk information in practice.

SHEAR also had the following cross-cutting themes:

- Real-time monitoring of vulnerability and risk, including through novel applications of satellite and remote sensing data, social media, socioeconomic data, big data and others.
- Economics and social science of the communication and use of risk information in disaster resilience, preparedness and response
- Assessing and improving the reliability of forecasts for application in multi-hazard early warning systems and disaster resilience.

SHEAR aims to work with users to co-produce demand-led, people-centred science and solutions to improve risk assessment, preparedness and resilience to natural hazards. For SHEAR, it is equally important that projects deliver development impact as well as world-leading science.

The NERC-DFID funded SHEAR programme comprises the SHEAR Consortia grants, Catalyst grants and the SHEAR Studentship Cohort. The programme is part of a wider DFID SHEAR programme that also includes Challenge Fund projects and the 'Building resilience to natural disasters using financial instruments' programme; the relationships between the different components of the programme is summarised on the [SHEAR website](#).

2.2 SHEAR programme vision

The vision of the programme combines research excellence with development impact and as such the programme is guided by the following principles:

- 2.2.1 *Research excellence*: Internationally recognised and competitive natural and social science evidenced by publications in high impact journals, which represent world-leading standards in terms of quality, independence, significance and scientific impact.
- 2.2.2 *Development impact*: All research should be able to demonstrate its potential to contribute to development challenges in Sub-Saharan Africa and South Asia and its contribution to delivering the overall impact of this programme, to contribute to saving lives and reducing the impact of natural hazards on livelihoods, poverty levels and economic development.

- 2.2.3 *Creation of meaningful partnerships:* Research projects will be expected to demonstrate capacity building of partner institutions.
- 2.2.4 *Co-production Approach:* Stakeholder engagement will be central to SHEAR to ensure its outputs are relevant and useful to decision makers. The SHEAR programme will support a co-production approach, where users are involved at each stage of the research process to design and test outputs.
- 2.2.5 *Impact and Value for Money:* Proposals must include clear evaluation components in all research. A strategy for developing an innovative value for money approach that enables costs and benefits to be tracked and evidence of research impact to be captured is also expected. To ensure value for money, the cost of projects and the benefit of potential outcomes will be assessed with on-going assurance of appropriate expenditure required throughout.
- 2.2.6 *Research translation for impact:* There is a considerable body of existing data and knowledge, which can be harnessed to improve risk assessment and support decision making. This might exist in academic or user communities but not be fully utilized, perhaps due to issues of access or format. The SHEAR programme will support the use and adaptation of existing knowledge, including its combination with new research, to develop innovative tools and products, which enable decision-makers to reduce risk and increase resilience.

2.3 SHEAR Consortia

The aim of the SHEAR Research Consortia Grants is to undertake large-scale, complex and interdisciplinary research targeted at improving knowledge and providing tools to support decision making and reduce the impacts of natural disasters in Sub-Saharan Africa and South Asia. Four Consortia were funded, two on floods and droughts in Sub-Saharan Africa and two on landslides in South Asia. Annex A provides further details on the funded projects.

The [NERC SHEAR Consortia call website](#) has more detail on the Consortia call.

2.4 SHEAR Studentships Cohort

The funded SHEAR Consortia project teams are leading a focused cohort of doctoral training students in SHEAR related research. The studentships started in the 2017/18 academic year.

2.5 SHEAR Catalyst Grants

Eleven Catalyst grants addressing the SHEAR objectives were funded and started in November 2018. SHEAR Catalyst grants focus on weather-related hazards such as floods, droughts, heatwaves and the events weather can trigger, such as landslides - and improving peoples' resilience to these, in Sub-Saharan Africa or South Asia.

The [NERC SHEAR Catalyst call webpage](#) has more information on the Catalyst call and Annex B provides further details on the funded projects.

2.7 SHEAR Knowledge Broker

SHEAR has a dedicated Knowledge Broker activity, led by Practical Action and Red Cross Climate Centre (RCCC). The Knowledge Broker team is tasked with maximising the impact of SHEAR by connecting and communicating with users, undertaking meta-analysis and other studies, and ensuring coherence across the projects including shared story lines.

2.8 Wider SHEAR programme

The [wider DFID SHEAR programme](#) includes a number of additional components:

GFDRR Challenge Fund: DFID works with the World Bank Global Facility for Disaster Reduction and Recovery (GFDRR) to deliver an innovative toolkit of new open data and tools to support preparedness and resilience. For an overview of the Challenge Fund and projects and institutions supported, see the [GFDRR website](#). This partnership leverages GFDRR's on-the-ground expertise and networks to ensure that the outputs are demand-led and deliver value for money through building upon existing projects and delivering private sector contributions.

DFID also commissions selected research through the SHEAR programme, for example monthly medium-term weather/climate forecasts, to warn of potential near-term extremes of relevance to the humanitarian community, to inform emergency preparedness and response activities. See the [SHEAR reactive grants](#) webpage for more information.

NERC, DFID and the Economic and Social Research Council (ESRC) co-fund the '[Building resilience to natural disasters using financial instruments](#)' programme, which aims to strengthen the design, development and evaluation of pre-arranged disaster risk financing instruments in developing countries. Through a series of collaborative projects between academia and disaster risk financing actors, the programme is exploring how to

- Improve the robustness and enhance the use of assessments of disaster risk.
- Widen the types of hazards, geographical regions and situations in which disaster risk financing instruments can be offered and ensure they are contextualised to local need.
- Improve and validate indices and determine appropriate triggers for response, which minimise basis risk.

The projects funded under the 'Building resilience to natural disasters using financial instruments' programme are listed in Annex C.

3. Scope

3.1 Programme objectives

The aim of this Integration and Impact call is to deliver added value by synthesising the results and findings from individual projects to enable the development of more robust evidence and information for users. Outputs will directly improve risk assessment and support policy development in the management of natural hazards in Sub-Saharan Africa or South Asia.

3.2 Proposal requirements

Integration and Impact projects should build on two or more current SHEAR projects (i.e. SHEAR Research Consortia, Catalyst Grants and the 'Building resilience to disasters using financial instruments' programme). Involvement of other relevant programmes (such as Unlocking the Potential of Groundwater for the Poor (UPGro), Future Climate for Africa (FCFA), Understanding the Impacts of the Current El Niño and GCRF Building Resilience, as well as actors from the GFDRR Challenge Fund), is welcome where this will support the delivery of the goals of the Integration and Impact call.

Projects must address the SHEAR objectives (set out in section 2 above). The proposed work must be oriented towards maximised impact for stakeholders in disaster risk and prediction in Sub-Saharan Africa or South Asia. To achieve this impact projects should include a range of environmental and social research and innovation activities. In addition, where applicable, projects should address the wider international development goals, such as equality, diversity and gender.

In order to achieve development impact, stakeholder engagement should be a key component of the Integration and Impact projects, in particular risk/hazard information end-users should have a role in identifying user needs and applicable tools to reduce the impacts of disasters.

SHEAR forms part of the UK's Official Development Assistance (ODA) commitment, which is monitored by the Organisation for Economic Cooperation and Development (OECD). As a requirement of funding, the application under this call must demonstrate how the research will focus on outcomes that promote the long-term sustainable growth, economic development and welfare of a developing country as its main objective. More information on ODA compliance is available on the [UKRI – International Development](#) website.

4. Programme requirements

4.1 Programme funding

Up to £1M is available for this call, which aims to fund ten to fifteen Integration and Impact projects. **Projects may vary in size and length, with a maximum size of £150k cost to NERC each.** UK institutions are funded at 80% FEC with the usual exceptions paid at 100%, and overseas organisations are eligible for 100% direct project costs.

Projects must focus on either Sub-Saharan Africa or South Asia geographical regions. To reflect DFID's priorities at least half the available budget will be spent on research focused on low-income countries¹ in these regions.

It is important to highlight that the UK Research Organisation awarded the grant is responsible for the conduct and administration of the 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, the funding organisations (NERC and DFID).

If any of the Research Organisations that receive funding from NERC 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.

CGIAR organisations are eligible to be involved as part of an application with an eligible UK Principal Investigator. However, under DFID funding rules they should not apply as developing country partners since they have competitive international terms and conditions and are able to recruit internationally.

¹ See [DAC list of ODA recipients](#) of low-income countries

Awards will be made under the standard NERC research grant terms and conditions.

4.2 Implementation and delivery

It is expected that the Integration and Impact projects will vary in size and length depending on the nature of the work being undertaken. Projects will be able to select a start date that aligns with the progress of the current SHEAR projects, however the earliest possible start date is in October 2019, and all Integration and Impact projects must complete by March 2021.

Funding for successful projects will be added to existing grants. Where researchers from non-SHEAR projects are involved in proposals, they will receive funding via a subcontract from the lead institute on the proposal.

The SHEAR Knowledge Brokers can receive funding from this call for project-specific knowledge exchange and outreach activities, where it can be demonstrated that these are distinct from the programme-wide knowledge exchange activities the KB team already receive funding for.

4.3 Reporting requirements

The Integration and Impact activities should be included in the reports of progress of the main SHEAR projects, for example through UKRI reporting systems and the requests for inputs to the DFID annual review.

5. Application process

5.1 How to apply

As funding for Synthesis projects will be added to existing grants, the proposal does not have to be submitted to Je-S. Instead, the **proposal should be submitted to Daniel Knight at shear@nerc.ukri.org by 16:00 on 14th May 2019.**

The proposal must be completed in single-spaced typescript of minimum font size 11 point, Arial font; with margins of at least 2cm. References should also be at least 11 pointfont.

Applicants referring to websites should note that the Assessment Panel may choose not to use them.

The format of the proposal should include the following:

1. A Case for Support of up to 5 sides A4, including:

- A brief track record summarising the relevant skills and expertise of the project team, including their roles in current SHEAR projects Where researchers not currently part of SHEAR projects are included, the track record should outline how their expertise and experience will add value to the project (Up to 1 side of A4).
- A description of the proposed work, up to 4 sides of A4, which should include:
 - Objectives and anticipated outputs, demonstrating how the outputs will contribute to the delivery of the SHEAR programme objectives
 - Outline of the proposed work and how it addresses user needs

- Summary of the impact of the proposed work and how it will contribute to better preparedness and resilience.
- Evidence that the project meets the ODA compliance criteria.

2. A Justification of Resources, including:

- **PART A** - A common Justification of Resources of **up to 1 side of A4** for all Research Organisations involved, for all resources sought: Directly Incurred Costs, Investigator effort, use of pool staff resources, any access to shared facilities and equipment.
- **PART B**- The Additional Funding Stream proforma form (Annex D, Excel file) should be completed for each research organisation receiving funding to provide a breakdown of the costs so that the additional funding streams can be added to the grants.

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

UK and non-UK organisational budget is indicated below:

UK Organisational 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.
- 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 Organisation Budgets:

- Non-UK organisations are expected to be able to comply with full and transparent costing for budget elements.
- Non UK organisations will be supported at 100% of the Directly Incurred costs of the research (e.g. staff, Travel, consumables).
- In addition indirect costs (including estates costs) maybe charged on staff salary and other staff-related costs (i.e. statutory contributions analogous to UK National Insurance or Superannuation contributions).
- Overheads may not be charged on non-staff related direct costs, for example, equipment, travel and subsistence, consultancies, conferences, etc.
- The following rates for indirect costs should be applied: - for applicants from low and middle-income countries, the rate is 50%; for applicants from high-income countries and CGIAR institutes the rate is 20%.
- For further guidance on what overhead budgets can be used please see [NERC Research Grants Handbook](#).
- Non-UK organisations should not enter any costs in the ‘Estates’ section of the proforma document. All overheads should be entered as an ‘Other Directly Incurred Cost’.
- 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%.

3. **Letters of Support** from named Project Partners to confirm that support and facilities will be made available for associated collaborations and co-funding (up 2 sides of A4 each).
4. **Data Management Plan**
Separate data management plans are not required for the Integration and Impact projects, but project teams will be expected to update their SHEAR existing data management plans to include data generated by the Integration and Impact work where applicable.

5.2 Eligibility

This is a closed call. Principal Investigators and Co-Investigators of the current SHEAR projects, which includes the SHEAR Research Consortia and Catalyst Grants, as well as the 'Building resilience to disasters using financial instruments' grants, are invited to lead the development of an Integration and Impact project that addresses the research challenges set out in this specification. As this is a closed call there is no cap on the number of proposals individual researchers can be involved in.

While it is anticipated that much of the work will be undertaken by researchers currently working on the SHEAR programme, the inclusion of additional expertise may be needed to deliver the aims and objectives of the call.

Normal individual eligibility applies and is in Section C of the [NERC research grant and fellowships handbook](#). Research Organisation eligibility rules are in Section C of the handbook.

6. Assessment Process

Peer review of the proposals will be provided by an Assessment Panel.

The assessment criteria to be used will be as follows:

- Excellence of proposed work
- Fit to Scheme, including:
 - Strength of the integration of existing projects
 - Evidence how the proposed work will add value to and have impact on end-users of the SHEAR programme
 - Relevance to programme objectives and principles

Applicants will be given brief feedback from the Panel summarising the reasons why the proposal was successful/unsuccessful. No further feedback will be available.

NERC will use the recommendations of the Assessment panel along with the overall call requirements and the available budget in making the final funding decisions.

7. Timetable

- Announcement published: 1st March 2019
- Deadline for submission of proposals: 14th May 2019
- Assessment panel meets: 25th June 2019
- Earliest start date for projects: October 2019
- Latest end date for projects: March 2021

8. Contact

For all enquiries, please contact the SHEAR programme secretariat: Daniel Knight
SHEAR@nerc.ukri.org.

SHEAR Consortia

The information below details the title, region and lead PI of the existing SHEAR Consortia.

Sub-Saharan Africa

- [Toward Forecast-based Preparedness Action \(ForPac\): Probabilistic forecast information for defensible preparedness decision-making and action](#) - Kenya / Greater Horn of Africa (GHA) (Lead PI: Professor Martin Todd, University of Sussex)
- [FATHUM: Forecasts for Anticipatory Humanitarian Action](#) - Mozambique, Uganda (Lead PI: Dr Elisabeth Stephens, University of Reading)

South Asia

- [Landslide Multi-Hazard Risk Assessment, Preparedness & Early Warning in South Asia: Integrating Metrology, Landscape and Society \(LANDSLIP\)](#) – India (Lead PIs: Professor Bruce Malamud, King's College and Dr Helen Reeves, British Geological Survey)
- [Citizen science for landslide risk reduction and disaster resilience building in mountain regions](#) - Nepal (Lead PI: Dr Wouter Buytaert, Imperial College, London)

SHEAR Catalyst Grants

The information below details the title, region and lead PI of the existing SHEAR Catalyst projects.

Sub-Saharan Africa

- [Nowcasting Flood Impacts Convective storms in the Sahel \(NFLICS\)](#) – Senegal (Lead PI: Dr Steven Cole, NERC Centre for Ecology and Hydrology).
- [Improving Preparedness to Agro-Climate Extremes in Malawi \(IPACE-Malawi\)](#) – Malawi (Lead PI: Dr Stephen Whitfield, University of Leeds).
- [Connect4 water resilience: connecting water resources, communities, drought and floods hazards, and governance across 4 countries in the Limpopo basin](#) – Botswana, South Africa, Zimbabwe, Mozambique (Lead PI: Dr Jean-Cristophe Comte, University of Aberdeen).
- [Next generation flood hazard mapping for the African continent at hyper-resolution](#) – Democratic Republic of the Congo (Lead PI: Dr Jeffrey Neal, University of Bristol).
- [National-scale Impact-based forecasting of Flood Risk in Uganda \(NIMFRU\) – Uganda](#) (Lead PI: Professor Rosalind Cornforth, University of Reading).
- [Predicting Impacts of Cyclones in South-East Africa \(PICSEA\)](#) – Mozambique, Madagascar, Seychelles (Lead PI: Dr Nicholas Klingaman, University of Reading).
- [Towards resilience to pluvial flood events](#) – Uganda (Lead PI: Dr Claire Walsch, Newcastle University).

South Asia

- [Accounting for BOUlders in Landslide-flood Disaster Evaluation and Resilience](#) – Nepal (Lead PI: Dr Georgina Bennett, University of East Anglia).
- [Web-Based Natural Dam-Burst Flood Hazard Assessment and ForeCasting SysTem \(WeACT\)](#) – Nepal (Lead PI: Professor Qihua Liang, University of Loughborough).
- [Climate service for resilience to overheating risk in Colombo, Sri Lanka: a multi-scale mapping approach \(COSMA\)](#) – Sri Lanka (Lead PI: Dr Zhiwen Luo, University of Reading).
- [Compound flooding from tropical cyclone-induced sea surge and precipitation in Sri Lanka \(C-FLOOD\)](#) – Sri Lanka (Lead PI: Dr Alison Raby, University of Plymouth).

'Building resilience to natural disasters using financial instruments' grants

The information below details the title, region and lead PI of projects funded under the 'Building resilience to natural disasters using financial instruments' programme.

- [Satellite data for Weather Index Insurance-Agricultural Early warning system \(SatWIN-ALERT\)](#) – Malawi, Nigeria, Senegal, Zambia, Ethiopia (Lead PI: Dr Emily Black, University of Reading).
- [The Drought Risk finance Science Laboratory \(DRiSL\)](#) – Zimbabwe, Madagascar, Pakistan (Lead PI: Professor Martin Todd, University of Sussex).
- [Mitigating basis risk in weather index-based crop insurance: harnessing models and big data to enable climate-resilient agriculture in India](#) – India (Lead PI: Dr Timothy Foster, University of Manchester).
- [Improving the Role of Information Systems in Anticipatory Disaster Risk Reduction \(IRIS\)](#) – Malawi, Zambia, Zimbabwe, Botswana, Mozambique, Pakistan, Tajikistan (Lead PI: Professor Leonard Smith, London School of Economics).
- [Financial planning for natural disasters: the case of flooding risk in Central Java](#) – Indonesia (Lead PI: Professor Alistair Milne, Loughborough University)
- [Integrated Threshold Development for Parametric Insurance Solutions for Guangdong Province China \(INPAIS\)](#): China (Lead PI: Dr Gregor Leckebusch, University of Birmingham)
- [Coastal Ecosystem Recovery Financing for the Future \(CERFF\)](#) – Grenada, Caribbean (Lead PI: Professor Piran White, University of York)