STFC Global Challenges Concepts Fund Guidance Notes
November 2013

Introduction

The STFC Global Challenge Programme is inviting proposals for small scale proof of concept projects (up to £50k) that will demonstrate the ability of innovative technology and applications from STFC's programme to address priority areas of the Global Challenges

The fund aims to provide a faster route to funding that will enable researchers to demonstrate capability applied to new areas, de-risk novel concepts and, thereby, maximise the potential to realise opportunities for next-stage funding.

This scheme complements and underpins other STFC funding schemes that are aimed at the transfer of technology and expertise from STFC-funded research (Innovation Partnerships Schemes (IPS)) and that provide support for larger demonstrator projects and industry-ready prototypes.

A total budget of up to £500k is available for this call. Proposal must be submitted by 16:00 on 30th January 2014.

Global Challenge Priority Areas

Priority areas have been identified through various routes including workshops and expert groups. The list below is not exhaustive and we would welcome any novel and innovative proposal that addresses other areas within the four Global Challenge Themes. Further guidance can be obtained from Katharine Hollinshead [katharine.hollinshead@stfc.ac.uk].

Energy	
Energy storage for transport and grid management • Decarbonisation of transport • Characterisation and optimisation of devices, component materials and their lifecycles • Next generation storage techniques	Energy efficiency • Advanced materials for buildings (e.g. insulation) • High temperature materials for increased efficiency in power generation • Lightweighting of vehicles and infrastructure
Future grids • Big data issues • Faults and cascade effects • Management of complex grids	Nuclear • Plant life extension • Decommissioning • Future reactors and their fuels
Bioenergy • Catalysts • Liquid separation technologies • Artificial photosynthesis • Algae behaviour • Modelling impacts of changes in land use	Sensing and Monitoring • Fugitive emissions • Biomass mapping • Incoming energy to wave and wind sites
Cleaner fossil fuels • Increased carbon capture and storage efficiency for coal and gas • High efficiency power generation systems	Thin film solar cells
Air-fuel synthesis	Negative emissions technologies

Environment	
Bioinformatics	Environmental radioactivity
Geological repositories • Carbon Dioxide and nuclear waste	Increasing resilience to extreme events • Flooding coastal change and drought
Space weather	Tropical forests
Water	Pollution
Resource efficiency, improved recycling and extraction from waste • Alternatives to scarce materials • Lower embodied carbon and water	Farming and food production • Mapping and control of nutrients • Early identification of stress in crops • Early identification of stress in crops
Monitoring • Diffuse emission sources • Biodiversity and invasive species • Near-real-time and automated monitoring • Mobile and personalised monitoring systems	Underpinning of climate system modelling • Improved observations and understanding • translation/communication of climate impacts to non-experts users (e.g. industry, local government)
Smarter cities and integrated systems	

Healthcare	
Healthcare proposals must clearly identify the unmet clinical need and include clinical involvement in the form of additional participants in the project.	
Dementia and mental health • Sensing technology for measuring effectiveness of treatments	Pandemics and climate change-related effects • Cold, heat, storms, flooding and sunlight • Simulation, modelling and detection of ground-based ozone • Pandemic influenza and terrorist attack
Aging population and lifestyle diseases including diabetes, obesity and cardiovascular disease • Diagnosis, monitoring and control • Non-hospital-based early stage diagnostics • Engineering for the challenges of old age • Wound care	Cancer care • Imaging, detectors and sensing • Early detection and diagnosis • Post treatment care and monitoring

Security	
Novel computational approaches (including algorithm development) to facilitate and enable analysis and interpretation of large, complex and incomplete data sets • Detect emergence and monitor the spread of antibiotic-resistant strains of new and existing diseases • Methods to analyse and interpret data relating to new communications media and social networking in order to shed light on changing social attitudes, relationships and tensions between different groups and communities, and unreported crime patterns	Structure and dynamics of societies • Enhancing the resilience of national infrastructure • Understanding how events widely separated in time and/or space could combine in currently in unknown ways to pose a risk • Identifying new and previously unidentified risks and vulnerabilities, including those with a low probability of occurrence and/or are difficult to identify using existing methods despite their potential for high impact
Chemical and nuclear containment • Contingency planning and response management • Prediction of behaviour in the environment	Border security and contraband interdiction • Detection and interception of contraband (e.g. nuclear and radiological materials, narcotics, firearms, currency and people) at

• Prediction of the effects of blast and initial distribution of liquid, vapour and particular contaminants in complex environments	entry points to the UK and elsewhere • Advanced algorithms for high speed tomographic synthesis and imaging systems for imaging large and/or rapidly moving objects

A list of previously funded projects can be found on the STFC website.

Eligibility

The work proposed should clearly link to and develop technologies and expertise from STFC-funded projects. Individual applicants need not have been previously funded by STFC and projects should be interdisciplinary.

Proposals should be aim to bring existing technologies and expertise to a level where their relevance will be more easily appreciated and taken up by end-users in the Energy, Environment, Healthcare and Security fields with a view to attracting the next stage of funding. Proposals should clearly state the added-value and leverage that Global Challenges funding would bring.

Collaborations with academics, industry or end users are encouraged. Healthcare proposals clearly identify the unmet clinical need and include clinical involvement in the form of additional participants in the project. Only academic partners may request funding.

The Global Challenges Concepts Fund is open to Research Organisations that are eligible for STFC Grants, i.e. Higher Education Institutes, recognised academic analogues such as institutes funded by other Research Councils and other organisations eligible to apply for STFC funding, including CERN and ESO.

For further information applicants should refer to the STFC Research Grant Handbook.

Capital

Where any project is proposing to apply for any capital items, including items needed to build a prototype, over £10K inc. VAT, the applicant should contact the office ASAP due to the limited capital budget of this programme. Please see the guidelines on equipment costs for more details.

Assessment criteria and Peer Review

Peer review of applications will be conducted by expert reviewers and an independent Panel comprised of members from academia and the public and private sectors.

All Panel members are required to sign a standard STFC Non-Disclosure Agreement.

Applications will be assessed against the following criteria:

- Scientific quality and novelty of approach
- User engagement
- Suitability of applicants and, where relevant, partners
- Value for money (justification of costs)
- Added value of Global Challenges Concepts funding
- Likelihood of attracting next-stage funding

- Strategic fit to call

Application Process

Applicants must use Je-S (Joint Electronic Submission) to submit their proposal by 16:00 on 30th January 2014. Any queries relating to Je-S should be directed to the Je-S helpdesk by email (JeSHelp@rcuk.ac.uk) or telephone on +44 (0)1793 444164. It is the responsibility of the Principal Investigator (PI) to ensure their institution's administration department submits the proposal before the submission deadline.

Full details of the terms and conditions under full economic costing (fEC) prinicples can be found in the fEC Grants Handbook www.stfc.ac.uk/rgh.

11pt Arial (or equivalent) font should be used throughout. **Please submit all application attachments in pdf format to JeS to avoid any issues with corrupt files**

The application should include:

- Je-S proposal proforma
- Case for Support: maximum of 4 pages
- Pathways to Impact: maximum of 1 page
- Where relevant project partner letters of support
- Where relevant data management plan (maximum of 2 pages)

The Case for Support should be clear and concise and cover:

- Technical outline of the proposal and its link with STFC-funded research
- Added value that Global Challenges funding will bring
- Potential impact on the Global Challenge area and its importance
- Participants, track record and the justification for any collaborations
- User engagement
- Timescale and outline work plan
- Proposed route for next stage development and funding

It is the responsibility of the principal applicant to ensure that any information is worded in such a way to protect commercially confidential or sensitive areas. STFC will assume that the applicant has obtained necessary permission from any party that may be involved in the application.

Applicants may refer to supporting information in their Case for Support. The supporting information should not be submitted in the first instance and the Case for Support should form a standalone document.

It is expected that in the majority of cases the projects will not exceed 12 months in duration although it is recognised that there may be exceptional cases where longer duration projects are required.