GCRF Evaluation Foundation Stage

Final Report

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This assessment is contracted through e-Pact (an OPM-Itad consortium for the DFID evaluation framework); **Itad and Technopolis have carried out this work**. The project manager is Rob Lloyd. The Team Leader is Julian Barr. The authors for this report are: Isabel Vogel (lead author, Theory of Change), Billy Bryan (lead author, Process Evaluation), Julian Barr (lead author Evaluation Strategy), Peter Kolarz, Xavier Potau, Mel Punton, and Paul Simmonds. Andy Hirst wrote the section on the VFM module.

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Preface / Acknowledgements

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Disclaimer

This material has been funded by UK aid from the UK government; however, the views expressed do not necessarily reflect the UK government's official policies.

The views expressed in this report are those of the evaluators. They do not represent those of the BEIS or of any of the individuals and organisations referred to in the report.

November 2018

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List of abbreviations

AHRC	Arts and Humanities Research Council
AMS	Academy of Medical Sciences
BBSRC	Biotechnology and Biological Sciences Research Council
BEIS	Department of Business, Energy and Industrial Strategy
CO-Is	Co-Investigators
CBO	Community Based Organisation
DP	Delivery Partners
DFE	Department for Economy (Northern Ireland)
DFID	Department for International Development
DSA	Data Sharing Agreement
EPSRC	Engineering and Physical Sciences Research Council
ESRC	Economic and Social Research Council
EoI	Expression of Interest
EQ	Evaluation Question
FEC	Full Economic Cost
GCRF	Global Challenges Research Fund
HEFCE	Higher Education Funding Council for England
HEIs	Higher Education Institutions
ICAI	Independent Commission for Aid Impact
IPP	International Partnership Programme
IPSP	International Partnership Space Programme
LMIC	Low and Middle Income Country
LoO	Letter of Offer
M&E	Monitoring and Evaluation
MRC	Medical Research Council
NERC	Natural Environment Research Council
NFC	National Funding Council
ODA	Official Development Assistance
OECD DAC	Organisation for Economic Co-operation and Development - Development Assistance Committee
PI	Principal Investigator
QR	Quality Related
RAEng	Royal Academy of Engineering
REF	Research Excellence Framework
RCUK	Research Councils UK
SDGs	Sustainable Development Goals
SAG	Strategic Advisory Group
STFC	Science and Technology Facilities Council
TWG	Technical Working Group

ToC	Theory of Change
UKRI	UK Research and Innovation
UKSA	UK Space Agency

Executive Summary

This is the Final Report for the Foundation Stage evaluation of the Global Challenges Research Fund (GCRF).

It is BEIS' ambition to undertake a robust and thorough evaluation of the GCRF. The UK Aid Strategy commits "*All departments spending ODA will be required to put in place a clear plan to ensure that their programme design, quality assurance, approval, contracting and procurement, monitoring, reporting and* ***evaluation processes*** *represent international best practice*"; this includes GCRF.

BEIS has decided to procure the GCRF evaluation in two parts: this Foundation Stage and a subsequent Main Evaluation, to be commissioned in 2019.

The Foundation Stage evaluation consists of three modules:

- Part A presents the Theory of Change and its accompanying narrative
- Part B presents the Process Evaluation
- Part C presents the Evaluation Strategy, including an Evaluation Framework

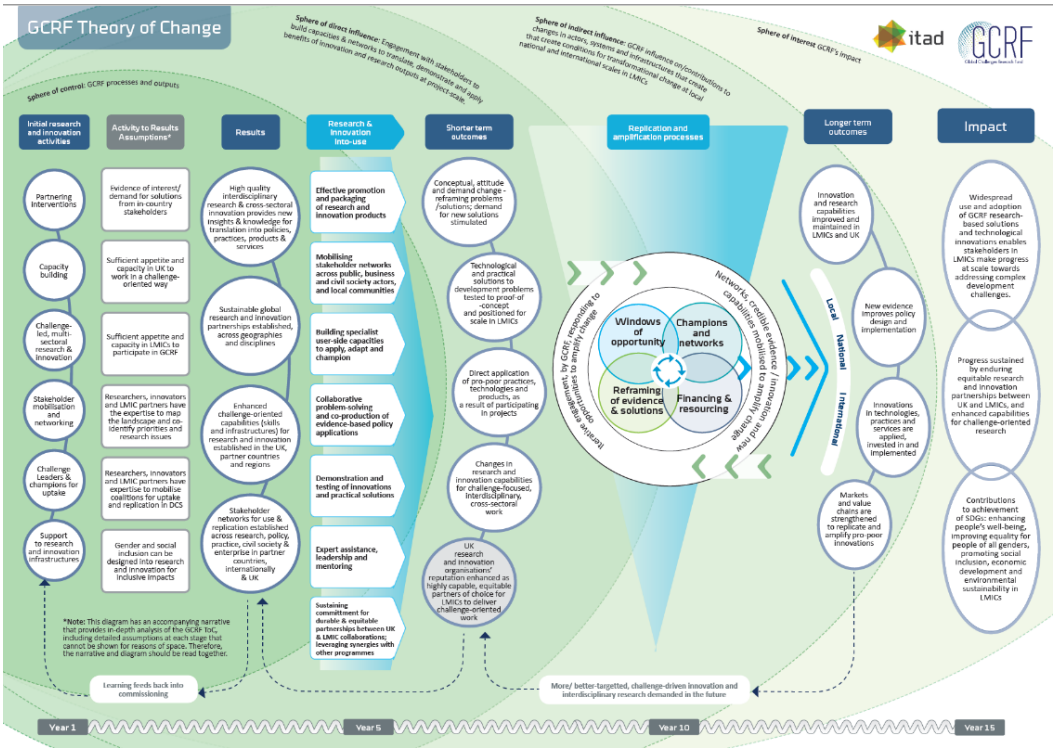
Each part is summarised separately below and in the main report.

Part A. Theory of Change

A Theory of Change (ToC) has been developed through an iterative stakeholder-based approach.

The ToC consists of a one page diagram and an accompanying narrative. The diagram represents the ways in which stakeholders believe GCRF will have an impact on poor people's lives in developing countries through addressing challenge area problems. The narrative explains in detail the thinking behind the diagram – the cause and effect steps and the assumptions on which these are based, and draws on research and innovation uptake and impact literature, as well as pathways-to-impact in GCRF-funded projects.

This is the final ToC diagram:



Part B. Process Evaluation

This process evaluation reviews the early stages of the fund from its inception in late 2015 to June 2018. This part of the report draws on quantitative and qualitative analysis of GCRF metadata, representative surveys of and interviews with Principal Investigators (PI – leaders of proposals and awarded grants, always UK based), Co-Investigators (Co-I – UK and overseas researchers, including those listed as "partners" unless otherwise specified), unsuccessful applicants (PIs and Co-Is applying for but not awarded grants), and panel members and chairs (those assessing GCRF proposals at panel stage only), a programme of interviews with individuals involved in the delivery of GCRF within the Delivery Partners (DPs), and additional desk research on the programmes delivered as part of the GCRF.

Our headline conclusion is that the GCRF is operationally functional and processes are for the most part transparent, well-run and clear. As a funding instrument, GCRF is in good health: a broad and diverse range of different funding tools have been deployed within a very short space of time, given the size of the fund. Demand is overall of an appropriate level, as evidenced by the success rates and applications are suited to calls both thematically and in terms of quality and expertise.

The call and selection processes are running well; there are 69 defined programmes in total putting out 91 corresponding calls for proposals regularly funding a wide range of collaborative activities, and a total of 1,410 projects have been awarded as of June 2018. These range from very small to every large award types. Awards worth less than £50,000 make up the largest share of awards, but only account for 1% of total GCRF spend, while the largest share of spend (around 69%) has gone into awards worth £1m or more.

Some difficulties remain, particularly around three areas: (1) Creation of new expertise and collaborations; (2) Set-up times for new calls; (3) Research information systems.

Delivery Partners consciously focused their initial calls and promotional efforts on the sub-sets of their research communities with established international development networks. This was to meet the government's ambition to launch the first GCRF investments within a timeframe that could not be met had they had to design new instruments and recruit new constituencies. If the promise of GCRF, in producing new and transformative research and innovation activities, is to be realised DPs must be allowed to develop demand-led programmes from the ground-up that will encourage their applicants to do the same in their proposals, all co-produced with those from the Global South.

The rapid roll-out also limited the time for many applicants to set up their networks and collaborations. The later phases did allow time for the delivery partners to come forward with more novel calls and methods to facilitate collaborative proposal development (e.g. IDHubs mid-selection cooperation fund) but the issue of lead-in time for applications still remains an issue. Collaborations - whether they be new, growing or ready-made – will still require more time to organise and prepare a proposal that is truly co-created between UK and LMIC partners, which may also require in-person visits to properly develop. If DPs can facilitate this, higher quality proposals with more achievable pathways to impact are sure to result.

Much of the monitoring and evaluation activities are small in scale and have been slow to develop, notably the lack of a portfolio level view of programmes and projects per DP to understand where funding gaps might be filled. There are major discrepancies among the Delivery Partners as regards their categorisation and curation of application and programme data, which has created additional work for all parties in order to arrive at a singular data set and has in any event limited comparability and analysis in some degree. There is greater consistency with later calls, however, improvements in this area would provide a stronger basis for the full evaluation of the GCRF.

The National Funding Councils have developed and introduced a new approach to allocating GCRF money to HEIs, in response to a challenge made by ICAI as regards the funding councils' ability to assure funds are being spent on ODA compliant activities. The new arrangements require institutions to submit a costed, 3-year strategy in order to secure their allocation. The institutions are also required to submit an annual report detailing the activities undertaken using the GCRF allocation.

There are notable examples of cross-DP learning, including the Delivery Forum and evaluation sub-group, which were not in place at the beginning of the fund. As such, there is evidence of improvement in this area as the fund has progressed and DPs work together in more instances on large investments, such as the National Academies joint scheme: Resilient Futures.

In detail, we note the following further main findings:

- International partners tend to play important roles in idea generation and proposal preparation. This contributes to their buy-in and is a feature of equitable partnerships
- The Delivery Partners determine the focus of their respective calls for proposals, and in a majority of cases GCRF calls have been thematically 'open' and have not been linked with a single challenge or region. An open call requires less time to develop than a targeted call, where there would typically need to be a previous process of dialogue and strategic prioritisation
- Overall, proposals are judged to be a good fit with the assessment criteria and of high quality
- Most programmes use a standard assessment process involving an eligibility/ODA check, remote peer review, panel review, and awarding of grants. EoI stages are

often added, as are interview stages for larger awards, whilst processes are sometimes 'stripped down' for smaller awards

- Panels are largely composed of university-based academics. Panellists judge the decision-making processes as efficient, effective and well-organised. From the 'outside' perspective, applicants also voice favourable views on the selection processes (e.g. transparency). However, there are critical views regarding application feedback after the review process, especially from unsuccessful applicants
- Research excellence dominates across the board in terms of criteria that influence panel decisions. The international partnership, fit with the call, organisation and leadership were also cited as influencing decisions to a high degree. Impact on SDGs, value for money, sustainability beyond funding period and equality/diversity were most often cited as influencing decisions to a medium extent on decisions, with the latter ranking least influential on a survey item on this issue
- The total GCRF application success rate is 27%, a figure almost identical between Research Councils (27%) and National Academies/UKSA (26%). There are no evident patterns around success rate fluctuation linked to beneficiary countries but there are fluctuations when challenge areas are considered
- Of the beneficiary countries targeted across all GCRF-funded awards, around 74% at least one 'least developed', 'other low income' or 'lower middle income' country of the OECD DAC list
- GCRF awards are by no means equally distributed across GCRF challenge areas: 'Equitable access to sustainable development' is by far the most commonly addressed challenge (61% of awards), followed by 'Sustainable economies and societies (35%), with 'Human rights, good governance and social justice' making up only a very small share (4%)
- There is widespread prior experience in international development among both applicants (unsuccessful and successful) and panellists. Although 19% of PIs do note that their GCRF award was their first involving an international development component (indicating that there is a degree of 'first steps' being taken into this field by some), we find that successful applicants are far likelier to have had prior experience in this field compared with their unsuccessful counterparts
- The great majority of PIs and Co-Investigators signalled strong degrees of interdisciplinarity in their responses. The share of responses indicating largely, or strictly, mono-disciplinary work is vanishingly small
- The key elements of successful partnerships involve regular communication between proposal partners (at the proposal stage and during the project), in-country networking workshops/events, co-creation of proposals (and of the research itself), and building on established relationships
- Critical success factors for pathways to impact, according to PIs and Co-I interviews and surveys, are: continued engagement with key stakeholders; training and development of stakeholders; and securing follow-on funding to extend impact
- Around two thirds of Co-investigators are male and around three quarters are of 'white British' or 'white-other' ethnicity. The proportions increase slightly further when we consider only PIs. However, these proportions mirror the situation as regards diversity in the UK research landscape as a whole.
- For the GCRF Collective Fund, DPs indicate across the board that collaboration between the DPs has worked well and been collegial, efficient and, in particular, enriching in terms of avoiding disciplinary silos. The awards made through this funding stream have a similar pattern of relevance to the list of GCRF challenges as

the totality of GCRF awards, and are likewise mostly concentrated in 'least developed' and 'low to middle income' countries

- Transparency of GCRF funding allocations from BEIS to DPs is considered to be poor from the perspective of DPs, with a longer-term view required to better plan GCRF activities beyond the annual allocation and the five-year lifetime of GCRF

Part C. Evaluation Strategy

The evaluation strategy identifies the **purposes of the evaluation**, and how they meet the needs of a **range of stakeholders**, including Ministers and Parliament, BEIS officials, Delivery Partners, and research and implementation partners in developing countries. The main purposes of the evaluation are to:

- address **accountability** demands for a large item of public expenditure. Being 'aid money' - Official Development Assistance (ODA) – brings a high degree of scrutiny.
- demonstrate GCRF is meeting its legal requirements around the **use of ODA** in the UK, notably the need for it to directly address poverty and gender inequality.
- provide a timely and credible **source of learning and evidence** to support course corrections and adapt the programmes; inform decisions on the design and implementation of current and future research, capacity, and innovation building programmes; and support future bids to the Treasury for further funding and continuation.

The suggested framework for the GCRF evaluation considers three interacting factors:

- the **characteristics of GCRF** that influence design choices
- the **evaluation questions** that will provide useful accountability and evidence for stakeholders
- **design options** that are compatible with the nature of GCRF and can answer the questions

The characteristics of GCRF set the boundaries of what sort of evaluation designs are suitable.

Firstly, GCRF is a **research and innovation fund** – this is a complicated system with many parts, and this presents evaluation challenges if the evaluation aims to extend beyond bibliometric reckoning. Second, to achieve impact, GCRF must engage with the messiness of 'real world' – the **complex system** in which knowledge, partnerships, capacity, and technologies have an effect on people's lives. The key feature that sets the design direction for the evaluation is conceptualising **the ToC as a two-domain model**:

- a complicated research and innovation intervention
- a complex system as the context for outcomes and impacts

These two domains lead to specific evaluation modules employing particular methods to determine what difference GCRF has made.

The strategy then presents a set an **overarching evaluation question**:

> ***To what extent has GCRF contributed to achieving the SDGs and improving the UK's ability to deliver cutting-edge research on these challenges?***

This is splits into five **main evaluation questions:**

1. Is GCRF relevant, fair, well targeted and well managed?
2. How are GCRF's signature investments[1] working, and what have they achieved?

3a. What results has GCRF produced or contributed to, and what has worked in terms of transforming outputs to outcomes?

3b. Has GCRF made a difference to UK's ability to deliver cutting-edge research on global challenges for development?

4. Has GCRF made a difference to the sustainable and inclusive prosperity of people in developing countries?

A set of sub-questions underlies each of these. The questions will addressed in three stages: a **Process Evaluation** of the major GCRF components, plus gender and poverty targeting audits and a research quality assessment, a **Summative Evaluation** assessing effectiveness in achieving outputs and outcomes, and finally an **Impact Evaluation**.

The design presents a set of **modules** and associated **methods** to operationalise the design. This is a **multi-module, mixed-methods design, that aims to be complexity-aware**. Given the nature of GCRF as an evaluand, The effectiveness and impact modules principally employ methods from the **theory-based evaluation** family. The Summative Evaluation will take a quantitative approach to assessing output production, and it is proposed to use a **Contributions Analysis** method for considering outcomes and how outputs are transformed to outcomes. Due to the complex adaptive system in which GCRF aims to contribute to the SDGs, a method in the **realist family** is proposed for addressing Evaluation Question 4. This is a method that recognises the importance of context and the interaction between intervention and context.

The suggest framework is summarised in an **Evaluation Strategy Map**, that combines the evaluation questions, stages, and modules with the timeline of GCRF and Theory of Change.

This proposed framework will need an innovative evaluation design. It will need good oversight and on-going dialogue about the approach, to ensure it is well-implemented and remains fit-for-purpose. It also requires a good engagement between BEIS, the Delivery Partners and the evaluators, so that both: a) data are available and b) full use is made of the evaluation in GCRF learning systems and to support the adaptive approach that dealing with 'wicked' problems[2] requires.

[1] These are considered to be: Interdisciplinary Hubs, the GROW programme, UKSA's IPP, selected other cross-DP programmes (tbc), and the Challenge Leaders initiative

[2] A wicked problem is a problem that is difficult or impossible to solve because of incomplete, contradictory, and changing requirements that are often difficult to recognize. Because of complex interdependencies, the effort to solve one aspect of a wicked problem may reveal or create other problems. A wicked problems are difficult or impossible to solve for reasons including: incomplete or contradictory knowledge, the number of people and opinions involved, the large economic burden, and the interconnected nature of these problems with other problems. Poverty is linked with education, nutrition with poverty, the economy with nutrition, and so on. Wicked problems include poverty, sustainability, equality, and health and wellness – SGD-related issues. https://www.wickedproblems.com
Australian Public Service Commission (n.d.) *Tackling wicked problems : A public policy perspective*. Canberra. https://www.apsc.gov.au/tackling-wicked-problems-public-policy-perspective

Introduction

1. The Foundation Stage Evaluation

BEIS wishes to undertake a robust and thorough evaluation of GCRF. This will both comply with the evaluation requirements of the UK Aid Strategy and pursue best practice in evidence-based programming, learning for continual improvement and accountability for public money. BEIS has decided to undertake this GCRF evaluation in two stages. Initially, this Foundation Stage which combines a Process Evaluation of commissioning activity to date, with development of a GCRF Theory of Change (ToC) and an Evaluation Strategy for GCRF.

It is intended that the Main Evaluation will be commissioned in mid-2019, based on the Evaluation Strategy and ToC.

2. Foundation Stage parts

The Foundation Stage consists of three parts:

1. **Theory of Change**

Prior to this contract, GCRF had already developed a simple ToC in table form, which provides some of the main steps in the Fund's intervention logic. This module worked with a technical group of GCRF stakeholders to develop a more detailed ToC. The resulting ToC has been approved by stakeholders and is presented as a one page diagram and an accompanying narrative.

2. **Process Evaluation**

This part is a substantive and stand-alone piece of work. It is a process review of the GCRF calls to date, and has analysed how these map to dimensions including: GCRF priorities/challenge areas, disciplinary spread, geographies, delivery partners, research institutions, and research partners.

3. **Main Evaluation Strategy and Framework**

This part presents an evaluation strategy for GCRF, outlining a proposed design that will provide both learning and accountability for the Fund. It analyses the attributes of GCRF and its grand challenges framing and what this means for how it can be evaluated. The design brings together a set of evaluation questions with a modular approach to addressing them using a theory-based design.

These modules are elaborated in sections below.

3. This Report

This report is the third, final and summative report from the GCRF Foundation Stage Evaluation. Two prior reports have been produced – an Inception Report and an Interim Report. This Final Report captures, updates and advances what has been presented in the previous reports. It encompasses:

- the finalised GCRF Theory of Change
- a Process Evaluation of GCRF commissioning activity to date
- the GCRF Evaluation Strategy and Evaluation Framework

Each of these parts is presented as a standalone section below.

The ToC has previously been circulated and signed-off by DPs. This finalised version includes a refined diagram which has benefitted from graphical design inputs, and a more fully referenced narrative.

The Process Evaluation builds on the work in the Interim Report, having had the benefit of the full dataset being available. All planned analyses have been completed and evaluation questions addressed. It responds to DPs' comments on the interim analysis.

The Evaluation Strategy has not been previously presented since it was the final part in the sequence. It is therefore a *draft for consultation*. Some elements, such as the monitoring module as subject to on-going work within BEIS.

4. What is GCRF?

GCRF was announced in 2015, as part of the UK Aid Strategy. It aims to be consistent with the Aid Strategy's guiding principle to "that the UK's development spending will meet our moral obligation to the world's poorest and also support our national interest".[3]

It is a £1.5 billion fund, running from 2016-2021, that harnesses the expertise of the UK's research base to pioneer **new ways of tackling global challenges**. It will "ensure UK science takes the lead in addressing the problems faced by developing countries, whilst developing our ability to deliver cutting-edge research"[4].

Its way of working emphasises **interdisciplinarity** and **building partnerships** in developing countries – these principles signal an ambition "to achieve a positive **transformational impact on development research and on sustainable global development**"[5]

GCRF is conceived as "a unique opportunity to build a global community of researchers committed to sustainable development and the eradication of poverty". It is designed to complement, and also significantly expand and develop other forms of international and multinational funding for development research. It aims to deploy **UK research excellence** in a strategic way to "generate solutions to the most significant and **complex problems** faced by developing countries while at the same time strengthening their **research capability**." (BEIS 2017)

The UK is already a **world leader in international development** and its research is **world class**. A set of challenge areas, based on the UN Sustainable Development Goals (SGDs)[6] provide an overarching framework for these two domains (research and development) to come together in a new way by increasing the scope and depth of research activities.

[3] HM Treasury and DFID (2015). *UK Aid: tackling global challenges in the national interest*. HMT, London
[4] BIS (2016). *The Allocation of Science and Research Funding 2016/17 TO 2019/20*. Department for Business, Innovation and Skills, London.
[5] BEIS (2017). *UK Strategy for the Global Challenges Research Fund (GCRF)*. BEIS, London.
[6] http://www.un.org/sustainabledevelopment/sustainable-development-goals/

Thus, GCRF aims to ensure UK science takes the lead in addressing the problems faced by developing countries - "harness the expertise of the UK's research base to pioneer new ways of tackling global challenges such as in strengthening resilience and response to crises; promoting global prosperity; and tackling extreme poverty and helping the world's most vulnerable."[7] Through this, the UK's ability to deliver cutting-edge development research will be further strengthened.

1.1. GCRF priorities and objectives

GCRF will support a diverse but balanced portfolio of activities with the common feature that they all in some way address the research agenda for enabling change and the SDGs. They should also reflect the BEIS ODA statement of intent to maximise the practical impact of the research and innovation to improve the lives and opportunities of the global poor.

In relation to the SDGs, GCRF aims to address global challenges in three main themes:

- equitable access to sustainable development
- sustainable economies and societies
- human rights, good governance and social justice.

Across these themes, 12 challenge areas have been identified (Figure 1):

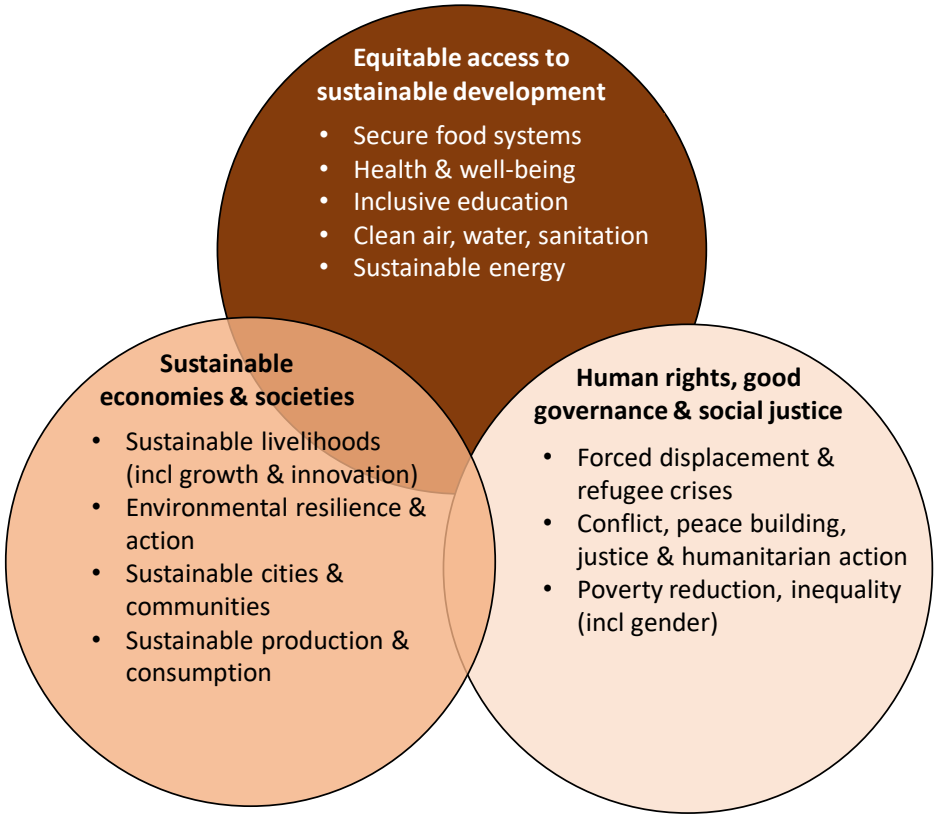


Figure 1. GCRF Challenge Areas

[7] BIS (2016). *Ibid.*

From within these themes, GCRF has created initially six strategic GCRF Challenge Portfolios (Figure 2), each with at least one Challenge Leader to bring coherence to the work in the portfolio extract and amplify the research outcomes and impact of GCRF.

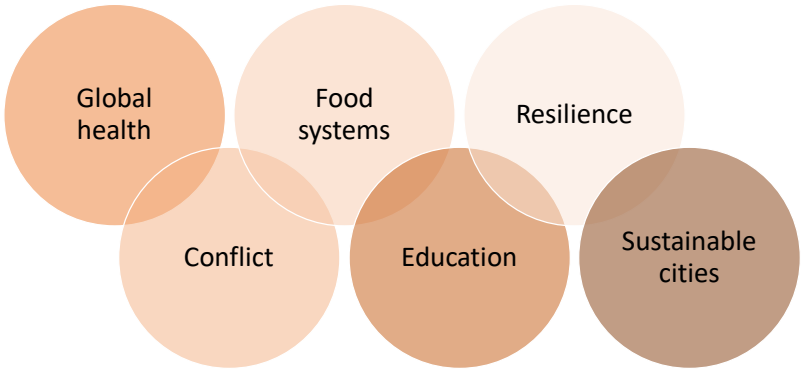


Figure 2. GCRF Challenge Portfolios

Within its challenge areas, GCRF will support excellent research that addresses a significant problem or development challenge. Funded activity should directly contributing to the sustainable and inclusive prosperity of people in developing countries. However, GCRF recognises that the challenges facing societies and individuals across the globe "are often complex, protracted and multi-faceted". GCRF believes it is well placed to address these complex issues given its size, its challenge-led approach and broad remit. Further, given the complexity and breadth of the challenges area, GCRF will take an integrated approach that includes a wide range of research and innovation, people and partnerships.

In selecting research and innovation activities to fund, GCRF will prioritise work that[8]:

- has a strong **likelihood of Impact.** Research that is intended to transform the lives of the maximum number of poor people. The research will be selected based on how much it is likely to make a real contribution to improved social welfare, economic development, and environmental sustainability, and redresses inequalities.
- is **Problem and Solution focused:** research that is aimed first and foremost at addressing global sustainable development challenges. The starting point for research proposals should therefore be a significant problem or development challenge.
- demonstrates **Research Excellence.** new research communities and learning alliances should be brought together to address the problem. This approach should bring new and valuable insights, contributing to a step change to existing knowledge and approaches.
- builds **Capacity and Partnerships.** The funded work should build UK and global development research capacity and capability by forging strong and enduring partnerships between academic communities in the UK and the Global South. This

[8] GCRF Strategic Advisory Group (2017). *Criteria for GCRF Funding*. UKRI, Swindon. https://www.ukri.org/files/legacy/international/global-challenges-research-fundsagcriteria-pdf/

will require strong networks to be built involving researchers, policy makers, and practitioners, plus the involvement of civil society and the private sector

- builds **Equitable Partnerships** – the funded work should build equitable partnerships between UK and developing country researchers to enhance the research and innovation capacity of both.
- is **ODA compliant:** meets the OECD requirement for ODA.

Part A. Theory of Change

Theories of Change (ToCs) are produced to serve a range of functions, including: a sense-making tool, a communications device, part of planning and strategising, and central to a theory-based evaluation approach[9]. It is hoped the GCRF ToC can contribute to all these purposes.

A recent review of use of ToCs in evaluation identified a challenge in producing ToCs that resolve two competing and valid requirements[10]:

- **simplicity**, which gives readability and usability
- sufficient **detail**, to ensure some match with the complexity of the real world

Programmes sometimes produce two ToCs to solve this problem – a simple one for communications purposes, and a more detailed and complicated one as the basis for evaluation. Through our iterative process, we believe we have developed an evaluable ToC, slightly towards the complex end of the spectrum, but still generally readable to audience in the research and technology for development area.

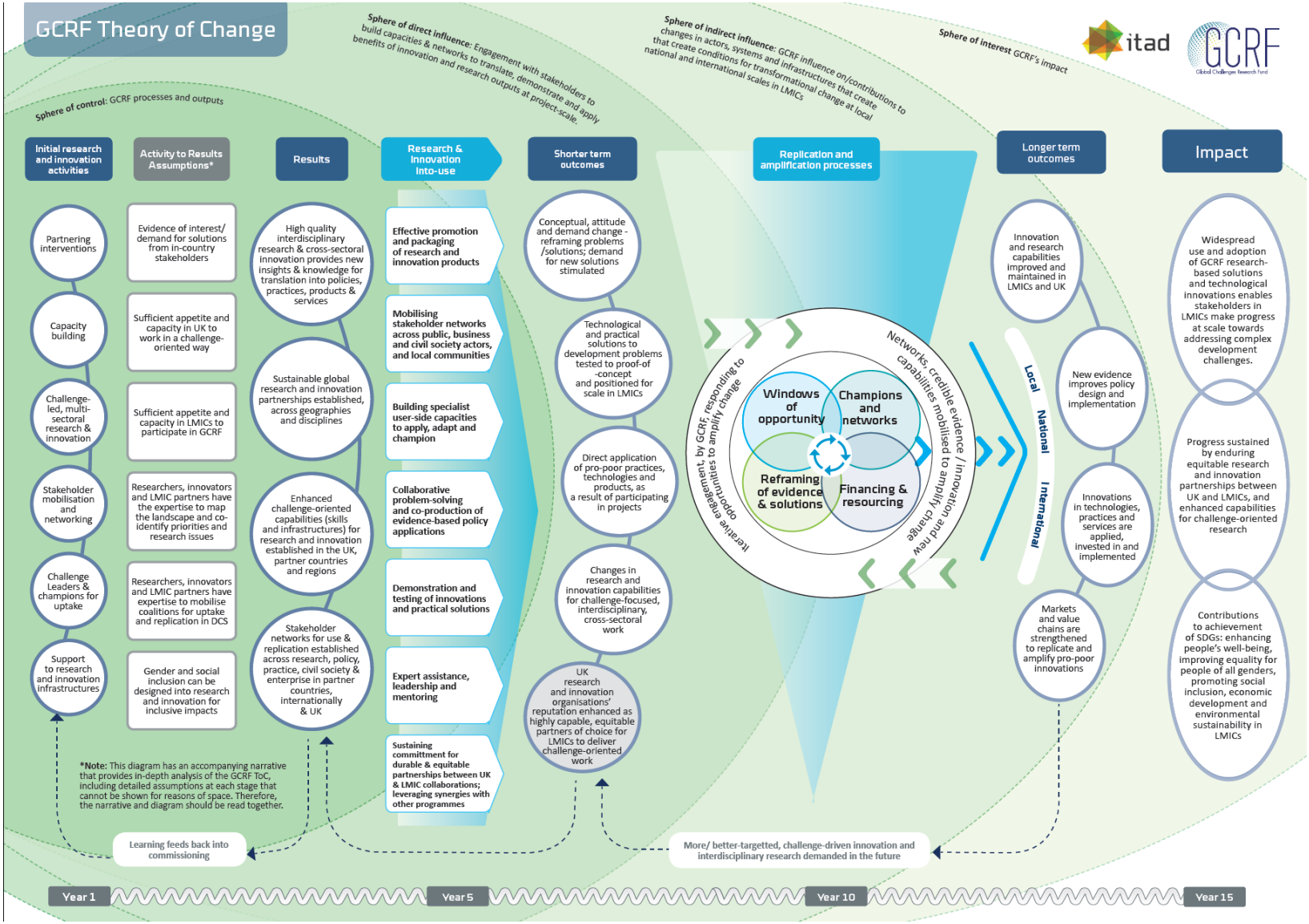
It is helpful to think of a ToC has having three aspects:

- **A systematic, group-based ToC analysis** that brings relevant stakeholders together, using an appropriate mix of workshops, consultation and desk work. This process should result in a ToC that represents a shared 'world view' of how the intervention should work.
- **A set of ToC products** that document and communicate the ToC – narratives and diagrams – in a way that is meaningful to the ToC owners and stakeholders, and are tailored to different purposes, e.g. communication and evaluation, but drawing on the same core model.
- **A process for using, reviewing and adjusting the ToC** based on evidence and learning.

A stakeholder-based approach was used to develop this ToC. This was reported in the Interim Report, and is not repeated here. A set of ToC products have been produced – the ToC diagram and a detailed narrative to accompany it and assist with navigation – are presented below. Finally, in the evaluation strategy, a design is proposed that includes periodic revisiting the ToC to review and adjust it as evidence is gathered on how GCRF plays out.

[9] They have been used in evaluation since the 1990s: Weiss C (1995) *Nothing as Practical as Good Theory: Exploring Theory-Based Evaluation for Comprehensive Community Initiatives for Children and Families*. In: New Approaches to Evaluating Community Initiatives, Washington DC: Aspen Institute, pp. 65–92.
[10] Davies R. (2018). *Representing Theories of Change: A Technical Challenge with Evaluation Consequences*. CEDIL Inception Paper 15: London. https://cedilprogramme.org/wp-content/uploads/2018/08/Inception-Paper-No-15.pdf

Figure 3. GCRF Theory of Change



1. Theory of Change – accompanying narrative

1.1. Introduction

This document presents the Theory of Change (ToC) for the Global Challenges Research Fund (GCRF) programme. This is a formal articulation of the implicit rationale and assumptions that have informed the design and implementation of GCRF. The ToC has been developed by a Technical Working Group (TWG) made up of representatives from UKRI, academies, HEFCE/Research England (RE)[11] and UKSA, BEIS staff and the evaluation team (see previous section for more information on the ToC development process). The ToC has been further enriched by a review of relevant literature[12] and information from GCRF awarded projects, which has helped to refine key assumptions. It is intended to be used by GCRF delivery partners (DPs), researchers and innovators to guide their strategies, and will also form the basis of a planned theory-based evaluation of GCRF.

The GCRF ToC aims to map high-level yet plausible pathways between GCRF's research and technologies, and the positive development impacts it seeks to influence. Research and innovation influence development outcomes through complex interactions of multiple stakeholders and agencies in varied innovation, policy and practice systems.[13] GCRF's scope is very large, spanning numerous policy domains and sectors in low and middle income countries (LMICs) (e.g. health, education, environment, enterprise, trade, humanitarian assistance, and civil society), which add many additional layers of complexity to the research/innovation-impact system. The ToC aims to acknowledge this complexity while presenting a simplified model to guide DPs, researchers and innovators, and the evaluation in monitoring change and progress towards the desired impact.[14]

The GCRF ToC represents how GCRF <u>as a whole</u> aims to achieve impact, as well as offering individual projects and programmes pathways to consider in their strategies for impact. Although it is ambitious to expect individual projects to have impact on the SDGs, GCRF *as a whole* is expected to have a measurable aggregate impact on the SDGs over its timeline of 15 years, from the initiation of the programme in 2017 to 2032. This impact should be commensurate with the scale funding available to GCRF. Individual projects and programmes should be able to map their expected pathway to impact against the ToC, although the whole ToC will not be applicable to any individual project.

[11] The Higher Education Funding Council for England (HEFCE) became Research England (RE) in April 2018.
[12] Relevant sources are referred to throughout the text, with a full list of sources reviewed given at the end of the document.
[13] There is a rich and growing literature on how research influences societal outcomes, a selection of which was reviewed, for example Court and Young 2003; Nutley et al 2007; Sumner et al 2009; Grant and Wooding 2010; Donovan and Hanney 2011; Newman 2014; Penfield et al 2014; Hinrichs et al, 2015; AHRC Impact report 2015-16; EPSRC Impact Report 2016-17; DFID Research review 2016; Meagher and Martin 2017; ESPA 2018.
[14] The ToC represents current thinking about how GCRF will work. As is normal in evaluation processes, as evidence is gathered on what works, and as understanding evolves, the ToC will be periodically revisited and potentially revised.

Box 1 Navigating the ToC diagram

The ToC is structured around different 'spheres of influence.' This concept is used by a number of other research-impact ToCs and funders (see Ofir et al, 2016) and was recommended at the ToC workshop as a helpful conceptual frame. The spheres help to represent the complexity of GCRF's change processes, and the degree of GCRF's agency to influence change at different scales.

Each sphere represents a progression of interventions and outcomes. GCRF interventions do not only appear on the left-hand side of the ToC; rather specific types of strategies and interventions are needed to support outcomes at each stage. For example, initial research and engagement activities need to be followed by specific research-into-use and innovation development strategies at a later stage. Finally, strategies for replicating and scaling innovations and research are required to support impact. These strategies are interlinked, as in the real world, many GCRF projects and programmes engage with stakeholders iteratively right from the design stage, e.g. to establish demand and co-identify priorities and entry points. This iterative engagement is represented by two-way feedback loops between strategies in different spheres.

The ToC should be read left-to-right – but it does not depict a linear process, and different research projects and programmes will have different starting points. The ToC depicts a progression from activities towards impact. GCRF's initial research and innovation interventions are represented on the left of the diagram, followed by the *sphere of direct influence,* where GCRF projects and programmes work collaboratively with stakeholders in developing countries to translate technologies and research into use and directly influence outcomes at a project/programme scale. These first domains represent the 'innovation systems' that GCRF aims to stimulate by bringing entities together across disciplinary and geographical boundaries to catalyse research and innovations.

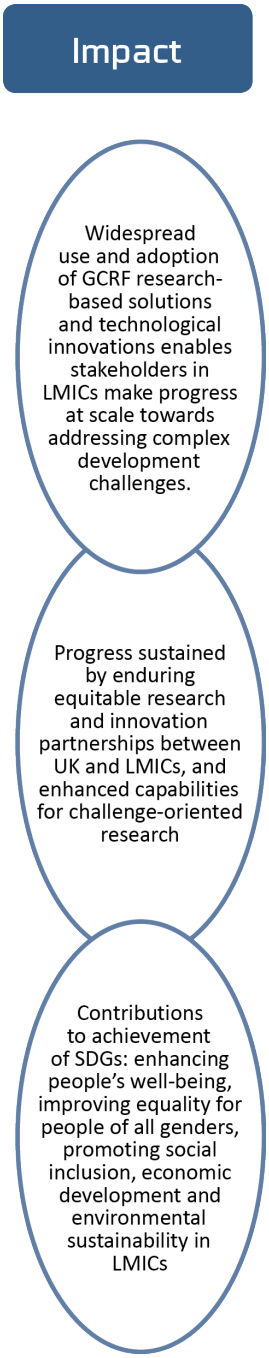
The change process then moves further into the *sphere of indirect influence*, where change is in the remit of wider stakeholders, but where GCRF actively engages with replication and scaling processes to encourage stakeholders to apply research and innovations, in order to influence further change at different scales in diverse settings, which can be thought of as the outcome systems for GCRF research and innovation. Finally, the diagram depicts GCRF's *impact,* where the desired positive impacts will be established for people living in LMICs at scale. However, GCRF's real-world change process is iterative and non-linear, represented by various feedback loops in the diagram. Also, while the ToC has a timeline based on current thinking about phasing and time-to-impact, the scale is flexible – different projects and programmes will have different starting points based on the nature of the research or innovation, and the extent to which the research builds on earlier work in similar fields.

The ToC acknowledges that GCRF's direct influence on outcomes reduces as the ToC moves towards the impact. However, GCRF is accountable for ensuring that the conditions for impact and longer-term outcomes are established. Although many of the contextual factors required for research to have an impact may feel beyond the ability of traditional research and innovation programmes to influence, to maintain momentum towards its impact GCRF must go further than generating high quality research and technologies and putting it 'out there' in the public domain. If GCRF is to achieve transformational change in LMICs, experience highlights that this requires early and ongoing consideration of the wider context for research application, and close and continued engagement and partnership with stakeholders who can support the application of research findings and innovations.[15]

[15] Ofir et al 2016; multiple research impact case studies from ESRC; DFID; REF; ESPA; BBSRC; AHRC; MRC; UKSA and other UK research councils.

1.2. Rationale behind GCRF and expected impact

The overarching rationale for GCRF is that complex development challenges require new kinds of research and innovation. GCRF was established to respond to a perceived critical need to address urgent and evolving global development challenges, through catalysing a new wave of research and innovation in order to make progress towards the Sustainable Development Goals (SDGs). The assumption is that new kinds of research and innovation are needed to tackle challenges, including work that is interdisciplinary, mobilises multi-stakeholder partnerships across the global North and South, and across sectoral boundaries, to build lasting research and innovation capabilities and infrastructures in LMICs. As a secondary objective, GCRF aims to build the reputation of UK research and innovation as global leaders in addressing global challenges.



Represented at the right-hand side of the diagram, GCRF's expected impact is:

Widespread use and adoption of GCRF-supported research-based solutions and technological innovations enables stakeholders in LMICs to make progress at scale towards addressing complex development challenges. These efforts will contribute to the achievement of the SDGs, enhancing people's wellbeing, improving equality for people of all genders, promoting social inclusion, economic development and environmental sustainability in developing countries. These improvements will be sustained into the future by enduring equitable research and innovation partnerships between the UK and LMICs, and enhanced capabilities for challenge-oriented research and innovation in all regions..

GCRF's impact has two aspects. First, tangible, development impacts are achieved through the direct use *and* widespread adoption of GCRF-supported policy, practice and technology innovations by development stakeholders, to make progress at scale on development challenges. This implementation process is dynamic, with new demands for problem-solving research expressed by stakeholders in LMICs to support implementation. This leads to the second aspect of GCRF's impact, that GCRF will help establish new capabilities and systems for challenge-oriented, interdisciplinary research and innovation in both the UK and LMICs, sustained by enduring, equitable research and innovation partnerships. Tangible progress towards these impacts is anticipated by 2021. In regard to widespread adoption, the areas of replication and amplification, and higher-level outcomes in the sphere of indirect influence (Section 2.3.6 below), are critical to achieving change at scale. In its initial phase, GCRF has paid most attention to activities and processes within its control. Increasing attention will need to be paid to these processes in the sphere of indirect influence, if GCRF is to achieve measurable impact on the SDGs.

Box 2 Impact-level assumptions

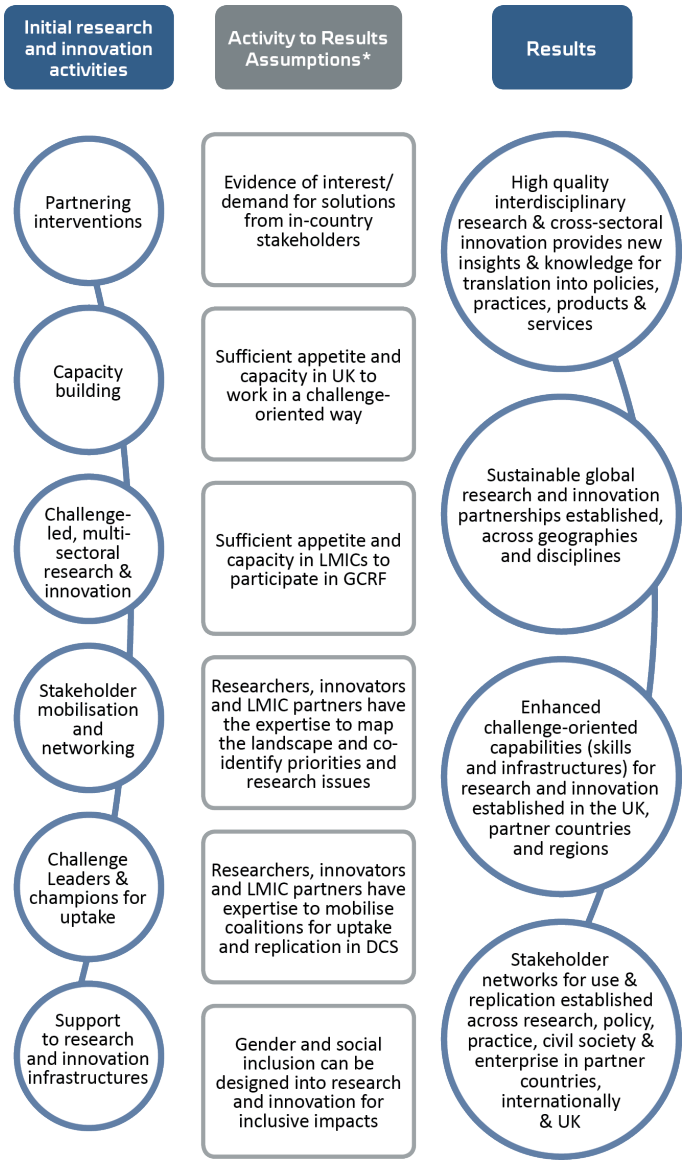
How and why will investing in UK research and innovation contribute to progress in tackling global development challenges?

1. **Research and innovation** is an important ODA investment *because* it contributes to welfare and economic development, including through four pathways (DFID 2016; Newman, 2014) - by:
    - **Providing evidence to inform policies and practice,** leading to conceptual and instrumental improvements in policy and practice decisions which strengthen their contribution to socioeconomic development
    - **Increasing human capital,** through building research and innovation capacities (skills, networks, infrastructures) in developing countries, potentially also driving up standards of tertiary education, which in turn contribute to socioeconomic development
    - **Developing pro-poor technologies, products and services** that will improve the lives of poor people through direct positive impacts
    - **Catalysing economic growth,** through developing commercially viable technology which sparks national enterprise, market and value chain development, attracting public-private investment, international trade
2. **A significant investment in challenge-oriented, interdisciplinary research** is needed now to tackle increasingly complex, multi-dimensional and rapidly evolving development problems as expressed in the SDGs *because* these require diverse skill sets and distinct contributions from across disciplines to develop solutions-focussed research and innovation to achieve transformative approaches. Breakthroughs are catalysed where disciplines meet – asking novel questions and solving novel problems, and reframing old problems by expanding horizons (Meagher and Martin 2017; DFID 2016)
3. **Channelling this ODA investment through a challenge fund model to UK-led global collaborations** will address SDGs and deliver different benefits for development than alternative approaches such as commissioned research *because:*
    - of the UK's prominent intellectual leadership and pre-existing expertise and infrastructures for global research and innovation…
    - the independence of UK researchers and innovators has more potential to yield innovative and transformative solutions than if commissioned, especially if…
    - GCRF incentivises them to establish partnerships and mobilise networks in LMICs between government, business, research, innovation, civil society and local communities…
    - so that development priorities are co-identified with user groups, and contextualised, directly applicable solutions are developed
4. **Tackling global challenges will indirectly benefit the UK** through, first, helping to solve development problems where they are experienced and contributing to stable, prosperous economies in partner countries; and second, by enhancing the UK's global reputation as a research and innovation partner that brings intellectual leadership, scientific expertise and resources, and builds lasting global partnerships, attracting future investment, resources and economic benefits globally (UK Strategy for GCRF, 2015).

These assumptions need to hold true if GCRF is to realise its impact and make the intended contributions to supporting the achievement of the SDGs, as well as catalyse secondary benefits for the UK.

1.3. GCRF research and innovation interventions and outputs

The ToC begins with a description of GCRF's initial research and innovation interventions and outputs, and articulates how GCRF's challenge-led projects and programmes are expected to lead to outputs. The principal interventions being implemented by GCRF are:



1. **Partnering interventions**: including Global Engagement events, brokering research and innovation partnerships between UK and LMIC institutions
2. **Capacity building interventions**: including fellowships and studentships, and capacity development activities to build research and innovation skills in LMICs
3. **Challenge-led, multi-sectoral research and innovation interventions:** including bi/trilateral DP programmes, interdisciplinary Hubs, and Rapid Response Studies
4. **Stakeholder mobilisation and networking interventions**, engaging stakeholders in government, business, research, innovation, civil society and communities
5. **Empowering challenge leaders and champions for uptake:** including establishing Challenge Leaders, to cluster GCRF projects working on similar issues and geographies within challenge areas and supporting them via aggregated and enhanced research-into-use activities in specific locations
6. **Support to research and innovation infrastructures and frameworks**: including support to technical systems and hardware and software, market development, policy and regulatory advocacy

If the assumptions in Box 3 (below) hold true, and learning can help to optimise GCRF design and delivery, then the ToC proposes that combinations of these initial interventions will produce GCRF's initial **outputs** as follows:

7. **High-quality, relevant interdisciplinary research and innovation** that provides new insights and problem-solving knowledge on development challenges for translation into policies, practices, products and services
8. **Sustainable global research and innovation partnerships established** across disciplines and countries
9. **Enhanced challenge-oriented capabilities (skills and infrastructures) for research and innovation established** in the UK, partner countries and regions

Stakeholder networks for uptake and replication established across research, innovation, policy, practice, civil society and business.

These **outputs** lay the foundations for the next level of changes to emerge in the **sphere of influence**. However, if the assumptions in Box 3 do not hold true, or only partially, we would expect this to have a limiting effect on subsequent outcomes.

Box 3 Intervention-level assumptions

How and why will the initial GCRF research and innovation interventions contribute to the expected outputs?

The review of case studies from across UKRI, DPs and UKSA highlighted the following critical factors that need to be harnessed to produce the expected outputs:

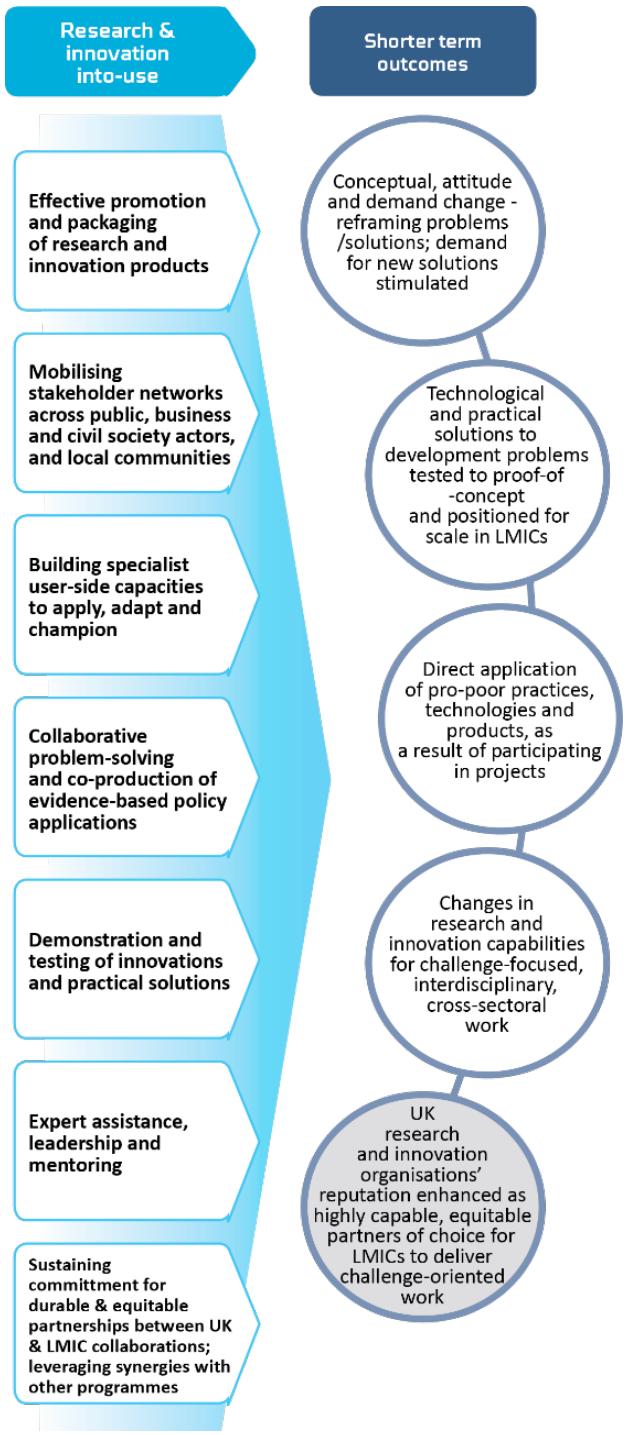
1. Sufficient **excellent applications**, which are well-targeted to SDGs and ODA aims, are received by UKRI, DPs, academies, HEFCE/RE and UKSA to ensure a rigorous selection process.
2. The GCRF selection processes **result in awards to the projects which are most likely to have development impact.**
3. There is sufficient **appetite and capacity within the UK research and innovation base** to meet GCRF's ODA requirements and work in a challenge-oriented way, i.e. conduct and manage (often large-scale) research projects into global challenges, work in interdisciplinary collaborations, and develop strong and equitable partnerships with researchers in LMICs, deliver research-into-use strategies, and monitor, evaluate, report (M&E) on their progress in a systematic way.
4. There is sufficient **appetite and capacity within potential research and innovation partners in LMICs** to participate in GCRF.
5. GCRF research and innovation partnerships have the **expertise and networks to map the landscape and assess demand for solutions**, in order to co-identify development priorities in the LMICs they are aiming to work in.
6. Researchers and innovators (in the UK and LMICs) have the **skill-sets and support to build relationships and coalitions with stakeholders** to support research-into-use, replication and scaling, e.g. with diverse stakeholders in government, business, research, innovation, civil society, communities, knowledge brokers and research translators.
7. Research and innovation partnerships can design in an **explicit focus on gender and social inclusion, diversity and equity** to achieve inclusive impacts.

These assumptions are important for GCRF commissioners and DPs to consider and monitor as part of their management of and learning from GCRF research and innovation. As GCRF is dynamic, with a phased commissioning process, the expectation is that learning from earlier phases will feed back to inform later commissioning. As the first wave of projects and programmes matures, commissioners and DPs are expected to learn from them about how to optimise the partnership building and other critical aspects of design and delivery of GCRF research and innovation. Commissioners are expected to take a proactive role in ensuring lessons are applied in new calls, as well as in live projects that require additional support or intervention. Some types of projects, such as hubs, have explicit break points, to provide opportunity for review, lesson learning and subsequent adjustment. The ToC diagram shows a feedback loop to reflect this learning from early stage design and implementation back into commissioning.

1.4. Sphere of direct influence

Outputs, research-into-use interventions, innovation development strategies, and intermediate outcomes

The sphere of direct influence represents the stage where GCRF programmes and partnerships work intensively and collaboratively with stakeholders in LMICs to develop applications of GCRF research, testing and tailoring research and innovation solutions to their intended country contexts. Stakeholders include a wide range of different users of the research and technology, as distinct from research-side partners, e.g. policy makers in national governments, decision makers in local government, development practitioners in public, private and civil society organisations, entrepreneurs and business leaders, national researchers in public and private agencies.



This process leads to tangible results and outcomes, mainly at project and programme scales, as the intermediate steps towards supporting more widespread and established development outcomes at later stages in the ToC.

In this sphere, GCRF programmes and projects undertake intensive **'research into-use' and innovation development strategies** with stakeholders to facilitate translation into new policy frameworks, new products, processes and services, as well as supporting new capabilities and infrastructures. The research-into-use and innovation development stage is conceptualised as the crucial 'transmission belt' between research outputs and wider development outcomes.

Alongside work being done in individual projects, **Challenge Leaders** will cluster some projects within issues and geographies in order to accelerate a collective approach to research-into-use and innovation strategies, leading to change on a greater scale in policy and practice.

The timeline anticipates that projects clustered under Challenge Leaders will reach the translation stage by year 3, with the majority of GCRF projects and programmes reaching this stage by year 5, although some may happen sooner and others later.

GCRF initiatives employ a wide range of research-into-use strategies, which are well-supported by the literature and impact case studies reviewed (e.g. Booth, 2018; ESPA 2018; Meagher and Martin 2017; Grant and Wooding 2010; Nutley et al 2007). These interventions are combined in different ways depending on the context, including:

10. **Effective promotion and packaging of research and innovation products.** This involves iterative promotion of evidence-based policy and regulatory frameworks and tools, and new technologies and products for use by stakeholders in LMICs to address development challenges and support desired impact. This is the minimum that is expected from all GCRF-funded projects
11. **Mobilising stakeholder networks across public, business and civil society stakeholders, and local communities,** to develop demand amongst potential users and support co-production of research and innovation solutions. This includes identifying and catalysing potential 'champions'
12. **Building specialist capacities, ownership and leadership amongst users and researchers/innovators** to apply, adapt and advocate for new evidence-informed approaches, innovative products and services in LMICs across sectors and settings
13. **Collaborating on problem-solving and co-production** of evidence-based applications and innovations with stakeholders in policy, practice and business settings
14. **Demonstration and testing** of innovations in technologies, products and services tested to proof-of-concept, and/or convincing evidence of effectiveness, and positioned for scaling in LMICs
15. **Clustering projects under Challenge Leaders** to accelerate a coordinated approach to research-into-use and innovation strategies, targeting collective change on a wide scale in specific issue areas
16. **Providing expert technical assistance and mentoring** to help apply knowledge, incubate policy and practice solutions and solve problems across sectors in policy, practice, civil society and business
17. **Sustaining resources and commitment to establish durable and equitable partnerships between UK and LMIC** research and innovation organisations to establish UK research organisations established as highly capable, equitable *partners of choice* for LMICs to deliver strategic, interdisciplinary research on global challenges for the future
18. **Establishing collaborations with other UK-LMIC initiatives and programmes** to leverage resources for scaling

If the research-into-use and innovation development strategies work as intended, the ToC anticipates that this will lead to a set of intermediate outcomes. Intermediate outcomes encompass changes in knowledge, attitudes and skills, as well as small-scale changes in policies, practices and behaviours amongst stakeholders directly engaged by GCRF projects and programmes. These will be observed at project and programme scales, within the immediate locations and networks engaged through the initiative, forming the foundation for further change at wider scales.

The intermediate outcomes that result from research-into-use strategies are diverse and wide-ranging, reflecting the diversity of challenges and settings addressed by

GCRF-supported research. To respect this diversity in summary form in the ToC, the literature suggests that these intermediate outcomes can be grouped as follows:[16]

19. **Conceptual and attitudinal changes around development challenges and potential solutions, increased demand for solutions, informed by evidence,** e.g. new framings of issues and potential solutions; evidence that challenges prevailing narratives and assumptions, and stimulates new debates and perspectives, leading to new demand, agendas and new strategies; awareness raised of new promising policy/practice/technology solutions, maybe from other sectors, and/or how current solutions could be adapted for greater effectiveness and impact, evidence to inform advocacy to pressure for policy change
    1. These changes are important to monitor as they reflect the principle aim of GCRF's interdisciplinary research – to seek breakthroughs by asking novel questions and solving novel problems, and reframing old problems by expanding horizons and understanding about potential solutions
20. **Technological and practical solutions to development problems tested to proof-of-concept and positioned for scale in LMICs,** e.g. new applications of technologies and other innovations piloted, demonstrated and evidence of effectiveness produced; new technologies from one sector are adapted and trialled for application in LMICs to address development issues; cross-sectoral knowledge exchange produced about new technologies and products, trials and pilots
    2. These changes are important to monitor as they reflect the principle aims of GCRF's technology and product innovation processes
21. **Direct application of practices, technologies, products and services that improve people's lives, *as a result of participating in the project*,** e.g. direct and/or immediate application and adoption of new practices, technology and/or product innovations by local communities, specific groups such as farmers, entrepreneurs, businesses (without requiring policy change); new approaches adopted for better management of urgent problems, e.g. in humanitarian response and/or development programmes; use of new technologies make processes more efficient
    3. These changes are important to monitor as they represent immediate results that are likely to lead to immediate improvements, but they cannot be taken as 'impacts' as the sustainability of them beyond the project has not necessarily been established
22. **Changes in research and innovation capabilities (individual skills, networks, infrastructures) for challenge-focused innovation and research,** e.g. new skill-sets developed in individual researchers based in LMIcs; new research and innovation infrastructures established in LMIC institutions; new durable connections established between researchers, innovators and stakeholders in innovation ecosystems; new research and innovation networks established between UK and LMICs
23. **The global reputation of UK research and innovation organisations is enhanced as highly capable, equitable *partners of choice* for LMICs to deliver novel, challenge-oriented, cross-sectoral research and innovation on global challenges**

[16] This framework is adapted from frameworks discussed in: Nutley, S., Walter, I., & Davies, H. (2007). *Using evidence: How research can inform public services*. Bristol: Policy Press at the University of Bristol. Newman, K., 2014. *What is the evidence on the impact of research on international development?*, London: Department for International Development (DFID). Available at: http://r4d.dfid.gov.uk/pdf/outputs/Misc_EcoDev/impact-of-research-on-international-development.pdf; as well as a review of REF Impact Case studies and DFID/ESRC case studies.

4. Both these changes are important to monitor as they represent the seeds of longer-term international partnerships, which are a key element of GCRF's impact, and the catalyst for the indirect benefits for the UK

For most GCRF projects, changes at this level are considered to be early-stage and localised within the immediate settings and networks engaged through GCRF projects and programmes. However, these changes are critical because they represent how GCRF has enhanced the agency of stakeholders to influence pressing development challenges, and equipped them with evidence and innovations to tackle these. As these stakeholders begin to apply GCRF-supported frameworks and products in their own settings, the ToC proposes that changes will start to ripple out through wide actor groups to catalyse further change, either through replication in other settings and/or scaled to benefit larger numbers.

Other projects, such as innovation projects and projects in Challenge clusters, have larger geographic footprints than others, and may be targeting change at a wider scale. For these projects, the ToC expects to see change at multiple levels of policy, practice and enterprise around an issue area, creating conditions for greater collective influence.

From this phase, the ToC moves towards impact into the **sphere of indirect influence,** where GCRF has much more limited agency and influence, but still needs to be proactively finding opportunities to position outputs for use at scale.

Box 4 Research-into-use assumptions

How and why will the research-into-use strategies translate into the intermediate outcomes?

The assumptions underpinning the whole array of innovation and research-into-use strategies are too diverse and numerous to discuss in detail here. Each strategy represents its own mini-theory, underpinned by an array of assumptions that need to hold in order for the strategy to work. Nevertheless, it is critical that GCRF projects and programmes implement these strategies effectively, tailoring and adapting them to their impact contexts. So, the ToC assumes that GCRF projects and programmes will be incentivised and supported to mobilise the research and innovation translation expertise required to operationalise these uptake pathways.

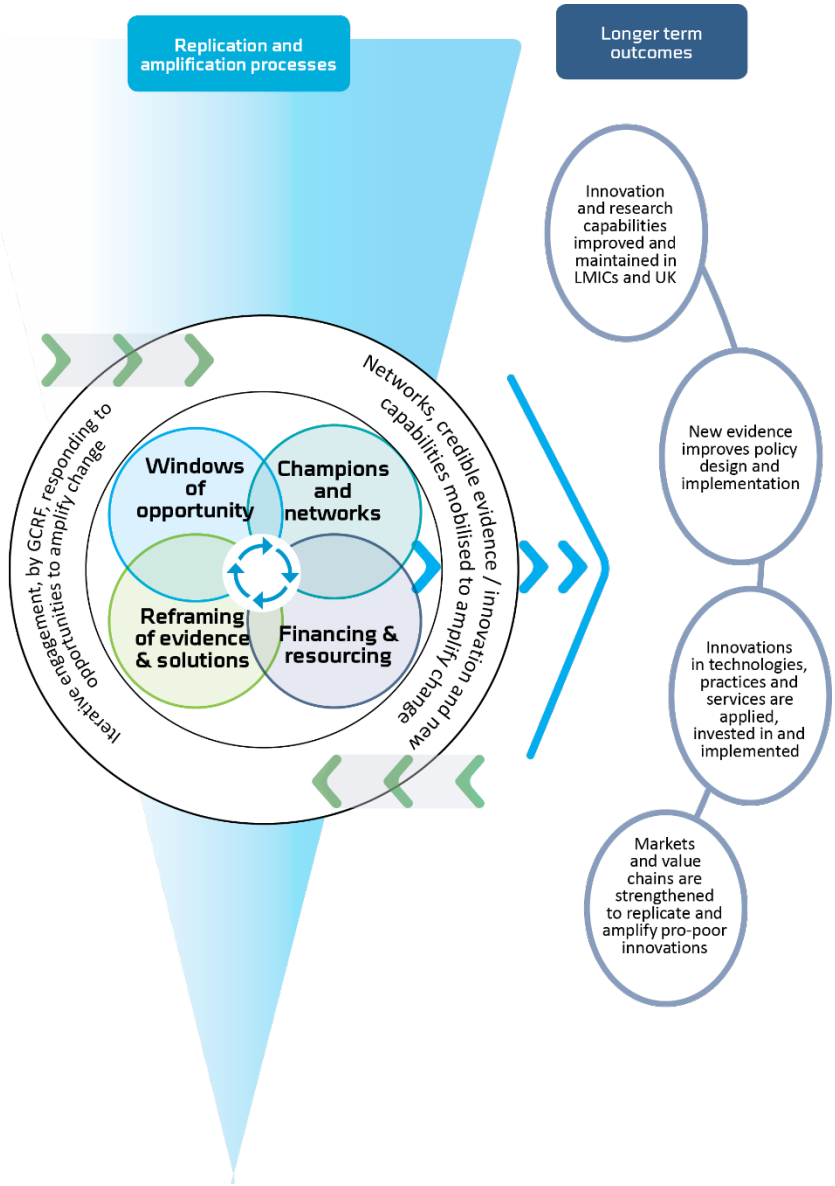
In the case of Challenge Leaders and clusters, the ToC assumes that these projects will have a significantly greater collective influence than others, as long as Challenge Leaders are able to incentivise projects to work together in coordinated approaches, can mobilise sufficient funding to design and deliver coordinated uptake strategies, and can effectively connect projects to stakeholders at every level to catalyse change in an issue area (e.g. subnational as well as multinational levels).

1.5. Sphere of indirect influence

Replication and amplification, and higher-level outcomes

Many factors influence the extent to which evidence and innovation products are replicated and amplified within different policy, practice and market settings. The links between intermediate outcomes and more widespread change becoming established in the *sphere of indirect influence* are complex, as other dynamics come into play at this level to enable or inhibit progress. However, the ToC proposes that GCRF must continue to proactively engage in this wider context, especially as GCRF aims to bridge sectors and push for change across challenge areas, in order to maintain its aggregate progress towards SDG-level impact.

The ToC summarises these complex contextual dynamics as a set of 'influencing conditions' that are likely to affect replication and scaling of innovations and research products.[17] Some conditions can be influenced by GCRF, others emerge serendipitously from other factors in the context, but all need to be navigated and optimised by GCRF and its stakeholder networks to make progress towards the desired impact. These influencing conditions have been grouped into three main categories as a conceptual device to simplify the context, and to assist GCRF projects and programmes to use the framework to help navigate the context and design their engagement strategies. These three interlinked categories of influencing conditions shape the opportunities for GCRF's work to scale towards impact:



1. **'Windows' of opportunity.** This set of conditions describes the dynamic contextual conditions within the broader institutional, political, social, economic and environmental landscape that open up (or close down) opportunities and prospects for further adoption and replication, including:
   - Political economy dynamics, extent of civil and political freedoms the country
   - National development vision, goals and political/economic pathways being followed, institutional arrangements and political and social contestation of these.
   - Urgency and tractability of policy problems for local stakeholders, political economy incentives to tackle these, and dynamics of policy entrepreneurship around the issues.

[17] This framework is adapted from: International Development Innovation Alliance, IDIA, *Insights on Scaling Innovation,* June 2017, available from https://static.globalinnovationexchange.org/s3fs-public/asset/document/Scaling%20Innovation%20DIGITAL%20COPY.pdf?C719IAFtMThwNbUpLMICs4TeYI5vYa2u9p; and
Tools for bridging research and policy: the RAPID Context, Evidence, Links Framework, 2014, Overseas Development Institute, available from https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/8854.pdf

2. **Networks and champions for replication.** This set of conditions describes the dynamic configurations of individual and institutional leaders and stakeholders, their behaviours interrelationships and mutual influence that need to be engaged to catalyse replication and amplification, including:
   - Supporting and/or aligned cross-sectoral coalitions of advocates, champions and potential individual and/or institutional allies; knowledge communities; sectoral networks across research, policy, civil society and business; advocacy coalitions, civil society and alignments; local communities, Community Based Organisations (CBOs), governance and/or producer organisations.
   - Roles, links and influence of international donors, investors and international processes.
   - Extent of trust, knowledge exchange, attitudes and incentives among policy, practice, business and community stakeholders, their room for manoeuvre, local history, and power relations.

3. **Reframing of problems, evidence and solutions.** This set of conditions describes the dynamic interplay between prevailing and novel narratives and framings of problems, and the availability, alignment and legitimacy of evidence about problems, 'what works' and technology, product and service innovations, and the motivations of stakeholders to engage with this – including:
   - Prevailing and novel / disruptive narratives about the determinants of urgent development challenges, institutional agendas and current investments amongst local, national and international players.
   - Accessibility, diversity, accuracy and legitimacy of the available evidence and innovation base and its operational usefulness, the credibility of evidence, extent of alignment or challenge of novel insights and potential solutions with prevailing narratives, and receptiveness of stakeholders.

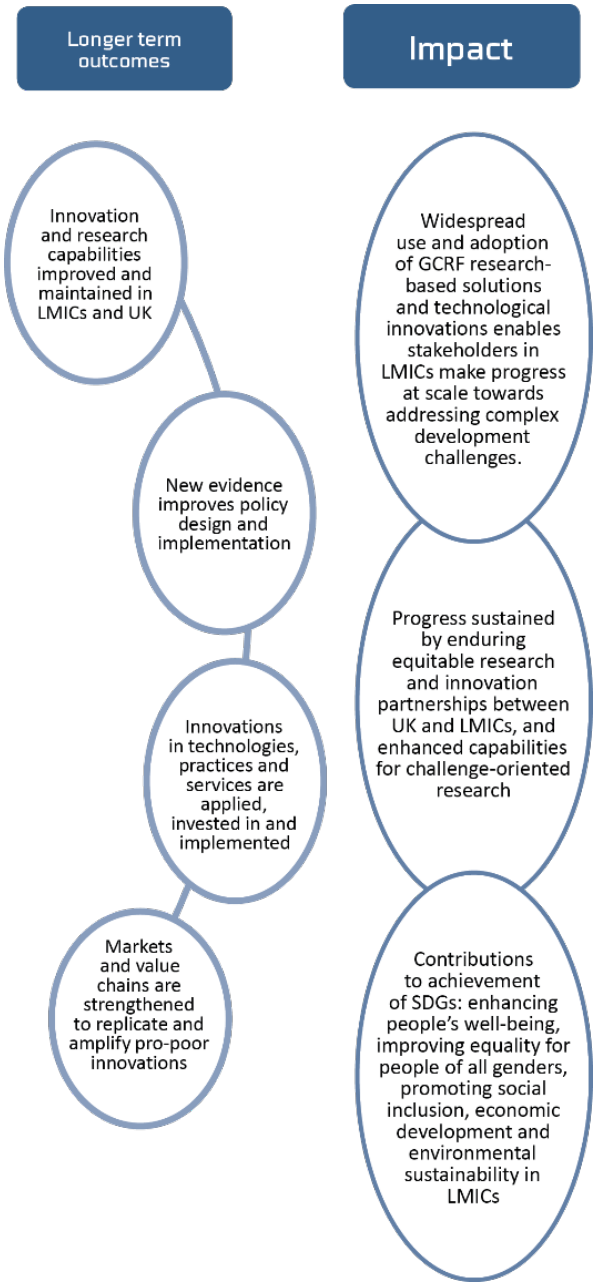
4. **Financing and resourcing.** This set of conditions describes the availability of different financing and investment instruments and diverse actors for scaling and to develop infrastructures; market and/or community demand for innovations and solutions (policy, practice and/or products) and supporting infrastructures and resources for change (e.g. technology, natural resources).

Higher-level outcomes

If the outcome-level assumptions in Box 5 hold true, then the ToC anticipates that the following higher-level outcomes will emerge at different scales and diverse settings – **local, (sub) national and international**:

1. **Innovation and research capabilities (skills, systems, infrastructures) are improved and maintained in LMICs**. For example:
   5. National and/or international investments are established to sustain connections between researchers, innovators and stakeholders in the UK and LMICs

- National and/or international investment is catalysed to sustain institutional infrastructure for interdisciplinary research and innovation
- UK research organisations are established as highly capable, equitable partners of choice for LMICs to help deliver interdisciplinary research and innovation on global challenges
- Future research and innovation is better informed and better targeted towards high-impact, operationally useful solutions for urgent development challenges



2. **New evidence improves policy design and implementation**. For example:
   - Stakeholders use evidence to design and implement new and/or adapted policy content and regulatory frameworks to create new local/national/international priorities and investment areas to address urgent development problems
   - Stakeholders use evidence of 'what works' to improve policy designs, implement more effective policy solutions with stakeholders, and improve quality standards for service delivery
   - Stakeholders reform policy and decision-making processes to include more diverse stakeholders, constituents and citizens
   - Civil society stakeholders and advocates use evidence in more effective advocacy and accountability campaigns that apply pressure on governments and business

3. **Innovations in technologies, practices and services are applied, invested in and implemented on a wide scale to improve people's lives in different settings and scales**. For example:
   - Local communities, and specific groups such as farmers, entrepreneurs, businesses and industry adopt and diffuse new practices, technology and/or product innovations for immediate improvement (without requiring policy change)
   - Stakeholders implement institutional innovations, novel management arrangements and/or technologies for more effective and efficient response to development and humanitarian challenges

- Stakeholders apply research-based tools and/or technology innovations to support improved government and agency decision making, planning and service delivery
- Institutional innovations, such as new cross-sectoral management models support better coordinated and more effective action on development challenges, especially in cross-border issues (e.g. in humanitarian response and ecosystems management)
- Development practitioners and humanitarian stakeholders adopt and invest in practice, technology and programme innovations that directly benefit affected populations
- Service delivery stakeholders adopt and implement new practices, technology and/or product innovations to improve efficiency and quality
- Public investment to mainstream new approaches for better management of urgent problems, e.g. in humanitarian response and/or development programmes; follow-on investment to develop and scale new technologies make processes more efficient

4. **Markets and value chains are strengthened to replicate and amplify pro-poor innovations, products, technologies and services in different sectors and industries**. For example:
   - Stakeholders mobilise public and/or private investment to further develop innovations
   - Stakeholders advocate for standards and regulations to formalise and stimulate markets and investment into new products and services
   - Local entrepreneurs, small businesses, social enterprises, intermediary and other value chain stakeholders form or grow to provide products and services to evolving value chains and to serve new markets
   - Stakeholders address market-based and/or institutional barriers to technology uptake and diffusion across sectors

Box 5 Outcome-level assumptions

How and why do intermediate outcomes translate into higher-level outcomes via replication and scaling processes?

There are three critical assumptions that shape how and why project level outcomes ripple out to a wider scale. These assumptions should be considered by DPs, researchers and innovators in their uptake strategies, and will also be explored by the evaluation:

1. **GCRF projects and programmes are able to position their research and innovation for adoption and replication, due to effective foundations established at earlier stages.** For example, the extent to which projects and programmes mobilised broad stakeholder networks, established credibility and trust in the evidence and innovations produced, built the capacity of various stakeholders to apply new approaches in tackling development challenges.
2. **Even where politics and institutions are volatile and fragile, GCRF award holders and their network partners are able to identify and respond to 'windows of opportunity' in the wider environment and work in a politically informed way to engage the right local stakeholders to replicate and/or scale GCRF-supported research and innovation outcomes,** so that that GCRF-supported research and innovations are taken up by development policy makers, practitioners, entrepreneurs and public/private funders and investors, and adopted into their work in a range of sectors and locations (see e.g. Booth 2018).
3. **The momentum created by GCRF's aggregate efforts will be sustained over ten years by mobilising follow-on investment** so that decisive and tangible progress is made towards GCRF's impact.

As a minimum, the ToC anticipates that GCRF's aggregate efforts will influence lasting shifts in research and innovation capabilities, with investments to sustain these made by national and international stakeholders. This will contribute to improved future research, commissioned by LMIC stakeholders – better informed, better targeted, and therefore more impactful, because of GCRF's efforts. The ToC proposes that this will produce a positive feedback loop to strengthen the position of UK research organisations as highly capable, equitable *partners of choice* for LMIC researchers, and stakeholders to deliver impactful, operationally useful development research and innovation.

Through these outcomes, GCRF will have contributed to equipping and enhancing the capabilities of a wide range of stakeholders in LMICS to tackle pressing development challenges in their wider settings, ultimately creating conditions for transformational change at scale.

Finally, the GRFC ToC proposes that, in the aggregate and over the GRCF lifetime of 15 years, these higher-level outcomes at local, (sub) national and international scales will accumulate and amplify to represent a decisive shift towards GCRF's impact, as discussed at the start of this ToC narrative:

Widespread use and adoption of GCRF-supported research-based solutions and technological innovations enables stakeholders in LMICs to make progress at scale towards addressing complex development challenges. These efforts will contribute to the achievement of the SDGs, enhancing people's wellbeing, improving equality for people of all genders, promoting social inclusion, economic development and environmental sustainability in developing countries. These improvements will be sustained into the future by enduring equitable research and innovation partnerships between the UK and LMICs, and enhanced capabilities for challenge-oriented research and innovation in all regions.

1.6. ToC Glossary

Assumptions	Assertions made about key aspects of the ToC (e.g. context, delivery and behaviours) that underlie the operations or plan, and whose *negation* would lead to significant changes in those operations or plans.
Capacity building	Activities that support individual and team research capacities, such as fellowships, studentships and research training.
Champions	Individual or institutional stakeholders who support and/or are convinced by potential solutions, and are in a position to advocate for them in their own settings, thereby facilitating and advancing take-up and adoption. Champions can be identified and catalysed in any setting in GCRF, local, national and multi-country.
Delivery partners	UKRI, academies, HEFCE/RE and UKSA who have commissioned GCRF research, often in collaboration.
Replication and amplification processes	The complex policy, market and social processes that stimulate innovations to be taken up, replicated and applied in other settings and sectors, and/or amplified to reach greater numbers of people, as a pathway to becoming mainstream technologies, products, services and/or practices.
Research and innovation infrastructures and systems	The facilities, resources and services used by the research and innovation community to conduct research and promote innovation, e.g. large facilities and specialist equipment to e-infrastructure networks, libraries and collections.
Research and innovation partners	Research-side and innovation project-side partners and co-leads of the UK-led projects and programmes, usually based in LMICs.
Research and innovation partnerships	UK-LMIC collaborations supported by GCRF awards to co-produce challenge-led, multi-sectoral research and innovation.
Researchers, innovators, projects and programme teams	Direct award-holders of GCRF grants in the UK research and innovation community.
Stakeholders	Diverse range of potential and/or intended users of the research (as distinct from research-side partners), e.g. policy makers in national governments, decision makers in local government, development practitioners in public, private and civil society organisations, entrepreneurs and business leaders, national researchers in public and private agencies. Stakeholders may be based in LMICs, or in multi-national organisations, and have interests and influence in the issue area and expressed demand for solutions.
Theory of Change (ToC)	A formal expression of the rationales and logic (both implicit and explicit) underpinning the plans and operations of an intervention or programme.

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1.8. Note on Theory of Change development

Davies (2018)[18] identifies a number of problems with ToCs that limit their evaluability, including: unlabelled arrows between boxes, absent connectors, multiple pathways (giving many permutations for success), and lack of acknowledgement of the wider context (i.e. the programme as centre of the universe). The GCRF ToC addresses these issues in two ways:

- the critiques stand up better for programme ToCs, which due to the smaller, and often simpler entity, can be somewhat more deterministic in their orientation. There are few cause-and-effect options and fewer pathways through the theory. i.e. they are generally more linear and less complexity-aware. GCRF is large and, as described below, increasingly non-linear and complex as it moves into outcomes and impact. Its ToC must encompass options and pathways for a wide mix of research and innovation activities and processes for attaining scale through one or more of a range of varied pathways.

- to keep the diagram manageable, we have produced an accompanying narrative. The diagram is intended to be understandable with some inspection, but to really comprehend how change process are represented in it, and how the underlying thinking behind the causal process work, it is necessary to read the narrative and diagram together.

[18] Davies R. (2018). *Representing Theories of Change: A Technical Challenge with Evaluation Consequences*. CEDIL Inception Paper 15: London

The GCRF ToC draws on work by Canada's International Development Research Centre (IDRC) on evaluating the quality of international development research. Specifically, IDRC's Research Quality Plus (RQ+)[19] assessment process uses the concept of spheres of control and influence. This 'spheres' model is the underlying framework for the GCRF ToC. The model represents the progression, essentially along a results chain, from a sphere of control, through a sphere of influence, to a sphere of interest (**Figure 3**).

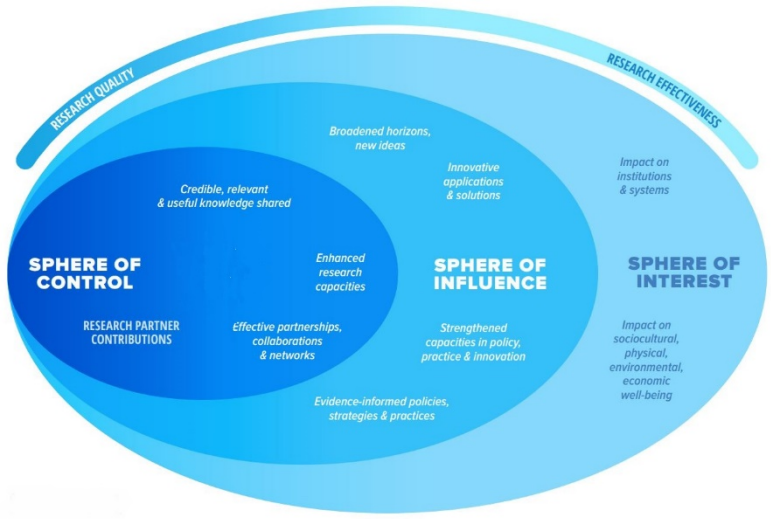

Figure 3. RQ+: Research quality, research effectiveness, and spheres of control

Finally, it is worth noting that one of the other conceptual frameworks for research impact that was examined as a basis for the GCRF ToC, and thence the theory-based evaluation modules, was the Health Economics Research Group (HERG) Payback Model[20]. While this does identify flows of benefits arising at different stages of a results chain, it was felt that it does not sufficiently reflect the research-into-use processes (seeing them as dissemination'), nor the complexity of the outcomes spaces and replication, adaptation and use processes.

[19] Ofir, Z., Schwandt, T., Duggan, C., and McLean, R. (2016). *Research Quality Plus [RQ+]. An Holistic Framework for Evaluating Research*. IDRC, Ottawa.

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Part B. Process Evaluation

1. Introduction to the Process Evaluation

This part of the report presents the findings of the GCRF Process Evaluation. It explores how the GCRF programmes and calls have operated in practice and identifies lessons to feed into policy development and the design of future GCRF calls.

The Process Evaluation used a mixture of classic social research methods, to compile a wide range of primary and secondary data in order to answer each of the evaluation questions and provide some level of triangulation and corroboration. The main components comprised:

- Documentary analysis. A review of documents, reports, programme/scheme notes, meeting minutes and any other existing analyses of GCRF programmes
- Composition analysis. Collection and analysis of metadata on programmes, projects, applicants and Panel Members collected by each Delivery Partner (DP) for their GCRF activities
- Online surveys of GCRF grant holders, co-applicants and partners
- An online survey of unsuccessful applicants
- An online survey and follow-up interviews with GCRF panel members.
- Semi-structured interviews – and follow-up correspondence with all Delivery Partners and all Funding Councils (involving 34 individuals in total)
- A programme of semi-structured interviews (20% face-to-face) with a cross-section of other stakeholders: Panel chairs (14); Principal Investigators (11); Co-Investigators (9); unsuccessful applicants (11)

While our primary focus has been the efficiency, fairness and transparency of the implementation of the GCRF calls, the Process Evaluation does link with the GCRF Theory of Change and the overall evaluation framework. In particular, the evaluation has explored several characteristics that are likely to be critical to the Fund's success in the longer term. As a case in point, the Process Evaluation has looked carefully at how the calls for proposals were framed and the relevance of the awards the challenge areas. The team has also looked at the international partnerships created and the extent to which they are equitable and sufficiently well-grounded to increase the likelihood of the Fund delivering a sustainable impact in the global south.

The Process Evaluation has explored 24 Evaluation Questions (EQs) covering seven different domains pertaining to GCRF processes, from the delivery partners' call processes through to the arrangements put in place to monitor and evaluate GCRF processes. Table 1 lists the evaluation questions and domains, which have been used to structure our data collection and reporting. The following sub-sections of this report address the full set of EQs and we return to them in the concluding section to provide a concise direct answer to each.

Table 1 Evaluation questions and domains

Evaluation Domains	Evaluation Questions
1 DP call processes	1.1 Which global challenges have been identified and selected, and on what basis?
	1.2 How have DPs framed the calls?
	1.3 Overview analysis of responses: volume, financial value, models of partnership, interdisciplinarity, research questions, pathways to impact, inclusivity.
	1.4 Do responses fit the frame of the call adequately?
2 Selection process by DPs	2.1 How do partners ensure ODA compliance?
	2.2 What selection processes have operated, including for sifting to invite full proposals?
	2.3 How are selection panels composed (academics, Southern representation, development experts and so forth) and how in practice do they reach decisions?
	2.4 To what extent have factors beyond research excellence influenced decisions (the development focus, likely impact, southern involvement, value for money)?
	2.5 What scrutiny has been applied to successful applications to ensure appropriate costing and value for public money?
3 Characteristics of grantees	3.1 Which types of bids and which organisations are successful?
	3.2 What research is being funded in which locations?
	3.3 What are the approaches to partnerships and capability building among successful applications?
	3.4 What are the key features of the pathways to impact outlined in successful applications?
	3.5 How inclusive are successful applications in respect to gender and other equality and diversity dimensions?
4 Types of GCRF research	4.1 What are the fields of research and how do they relate to the global challenges?
	4.3 What is the nature of international collaboration?
	4.4 To what extent does it build on existing research platforms? How much co-funding is received and from what sources?
	4.5 To what extent is the research interdisciplinary?
5 BEIS allocation processes	5.1 Has the process by which funds have been distributed to DPs been clear and transparent?
	5.2 How were high-level funding priorities set?
6 Delivery of the collective fund	6.1 How well have the various DPs worked together on the fund?
	6.2 How have bids been handled under the collective fund?
	6.3 How effectively have funds been distributed?
	6.4 Has this process been clear and transparent?
7 Monitoring and evaluation	7.1 How do individual DPs monitor and evaluate their activities within the GCRF and how might these feed into the larger GCRF evaluation?

2. GCRF – background and headline figures

2.1. GCRF: high-level funding priorities

GCRF was announced in November 2015 as part of the UK's aid spending, or Official Development Assistance (ODA). Its stated aims were broad brush and directional, to ensure that "UK research takes a leading role in addressing the problems faced by developing countries" and to "harness the expertise of the UK's world-leading research base to strengthen resilience and response to crisis" in the developing world.

The figure below summarises the key timepoints and processes that influenced how the GCRF has evolved since its inception and where key allocations in funding were made.

Figure 4 GCRF key process timeline

The GCRF's strategy was developed by BEIS in discussion with RCUK and the individual delivery partners development and came together in the publication of the GCRF Strategy (2017), which articulates two headline objectives:

- Promoting UK research excellence: "to ensure UK science takes the lead in addressing the problems faced by developing countries, whilst developing our ability to deliver cutting-edge research"
- Resolving global development challenges: "to generate innovative solutions to intractable development issues and to identify practicable pathways to healthier and safer lives, sustainable development and prosperity for all, equal and effective education, social justice and human rights, and stable institutions".

As part of its involvement in the initial stage of the GCRF/ODA opportunity, RCUK prepared a submission to government, which took the form of an extended presentation. This went through BEIS to the Treasury and was subsequently announced as part of the UK aid

strategy. It defined the core elements of the GCRF in broad terms. RCUK was involved in advising BEIS on what allocations the Research Councils should receive, and the basis on which they were made.

The strategy specifies that the GCRF should be "solutions-focused" and "challenge-led", promote "disciplinary and interdisciplinary research" and "strengthen capacity for research, innovation and knowledge exchange in the UK and developing countries through partnerships." The strategy did not define any high-level funding priorities either thematically or regionally and simply defined the global development challenges by references to the 17 United Nations Sustainable Development Goals, leaving the delivery partners and researchers with a pretty open brief.

The ICAI Rapid Evidence Review expressed concern about the openness of the remit arguing that progress on any of these deeply challenging global development challenges was more likely to be realised with a sharp focus – and concentrated investment – in high-priority areas and a more deliberate targeting of resources towards achieving them. The GCRF Hubs can be seen as one response to this criticism, focusing substantial resources on a narrower set of issues and players. This anxiety about the programme being too diffuse is not widely shared among delivery partners or UK researchers, where we find a positive view of the scale and breadth of the potential impacts that are expected to follow from the funds wide-ranging portfolio of projects.

Although the GCRF is of unprecedented size and complexity, it shares many characteristics with earlier programmes run by the Research Councils, particularly with a set of earlier programmes co-designed and run with the Department for International Development (DfID). Like GCRF, they were designed to be interdisciplinary and to utilise research excellence in the UK science base to address pressing international development challenges. They were also designed with a similar focus on building the capacity of southern researchers and practitioners. Since 2005, the ESRC, NERC, EPSRC, BBSRC and MRC have all been involved in co-developing and co-running programmes of this type.

A prominent example of a pre-GCRF investment was the cross-council Ecosystem Services for Poverty Alleviation programme (£40.5 million from 2009-2018) funded by DFID, NERC and ESRC. This was followed by three smaller, more directed programmes from the same funders which overlap with the timing of GCRF: the Unlocking the Potential of Groundwater in Africa (UPGRo) programme (£12 million from 2012-19), the Science for Humanitarian Emergencies and Resilience programme (£19 million from 2015-2022) and the Future Climate for Africa (FCFA) programme (NERC and DFID only, £20 million from 2014-2019). Also of note was the Zoonosis and Emerging Livestock Systems programme co-funded by BBSRC, Defence Science and Technology Laboratory (DSTL), DfID, ESRC, NERC and MRC (£20.5 million from 2014-2019).

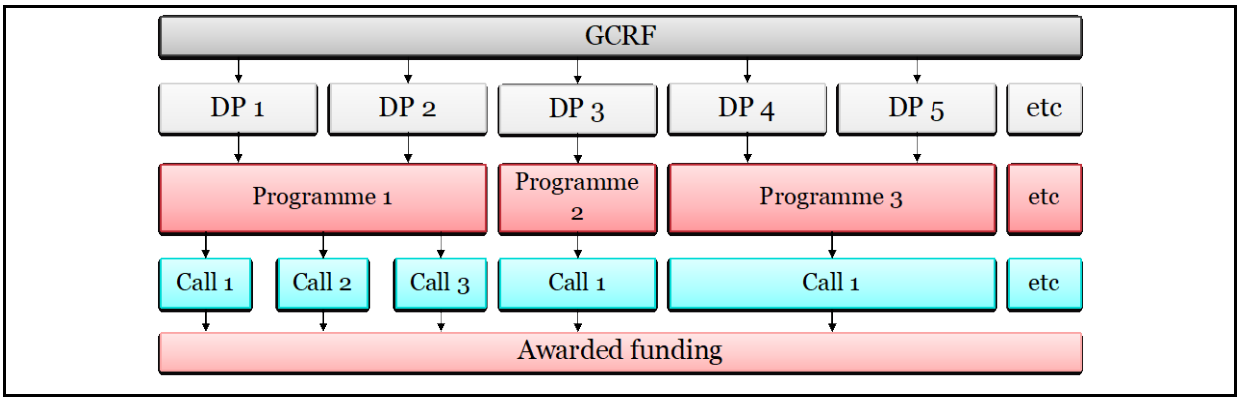
2.2. Headline figures – programmes, calls and projects

As of the end of June 2018, 1,410 awards have been made under GCRF. This includes some awards that were made under Research Councils' 'responsive mode' funding (where relevance to GCRF was determined). However, the great majority of these awards was made under specific GCRF programmes.

It is worth briefly clarifying the distinction between GCRF 'programmes' and 'calls'. 'Programme' refers to DP-led funding instruments for distributing GCRF funding. 'Call' refers

to the specific instance where DPs invite applications under a given programme. There may be multiple calls under one programme (for instance in regular intervals or on different themes/topics), or there may only be a single call under a programme, in which case 'call' and 'programme' are effectively synonymous. We outline the relationship and distinction between these key terms in Figure 5.

Figure 5 The distinction between calls and programmes

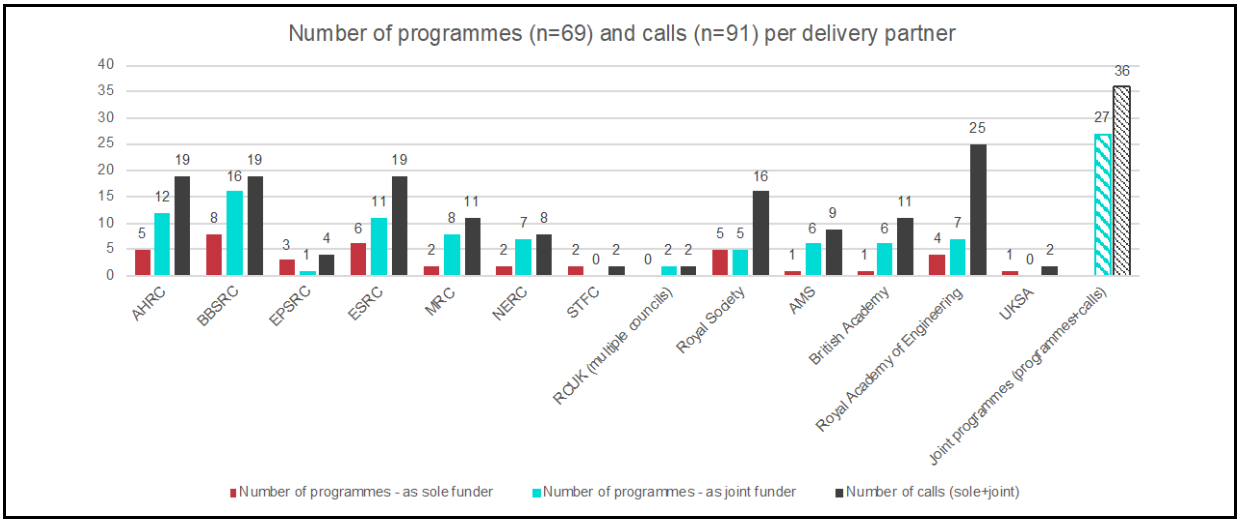


We note the following headline figures on GCRF calls and programmes up until June 2018:

- The 13 Delivery Partners (DPs) have implemented 69 individual GCRF programmes in the period to June 2018 (Figure 6). The programmes are listed in Appendix B
- There were 48 programmes run by the Research Councils, of which 28 were funded by a single Council and 18 jointly with other Councils or non-GCRF DPs. The RCUK-led Collective Fund accounts for the other two programmes
- Twenty-one programmes were run by the National Academies and UKSA of which nine were jointly funded: five under the resilient futures theme (unallocated fund), one between the British Academy and DfID (under the unallocated fund), and three with other non-GCRF partners[21]
- There were 27 joint GCRF DP programmes, of which 13 programmes involved non-GCRF partners
- There were no programmes where Research Councils and National Academies/UKSA were joint funders
- There were 91 calls for proposals made under all programmes combined. Research Councils were involved in 54 calls and the Academies/UKSA were involved in 37

[21] In a small number of cases, research funders who were not GCRF DPs co-funded certain programmes or calls together with GCRF DPs. We refer to these as non-GCRF partners.

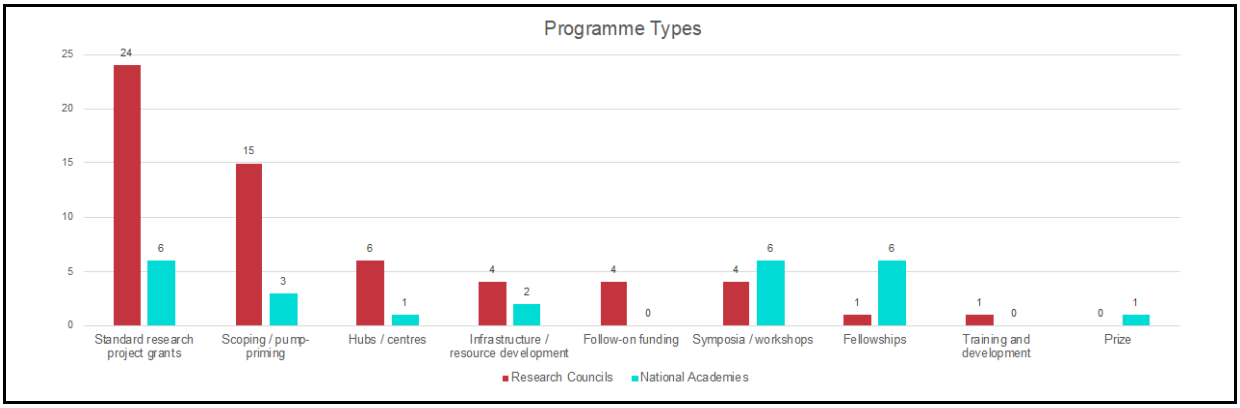
Figure 6 GCRF programmes and calls per DP



NB: 'joint funder' refers to the number of instances where the DP is co-funding a programme with GCRF and/or non-GCRF funders.

The largest share of these programmes is for traditional research grants, which are defined as grants anywhere from £100k upwards supporting investigator led basic research project funding that resembles the typical research funding model (e.g. ESRC's "GCRF New models of sustainable development" programme). However, the spread of programme types indicates that the DPs are by and large 'playing to their strengths': the Research Councils have emphasised large grants, pump-priming (i.e. smaller networking grants designed to facilitate new collaborative projects or test new ideas e.g. RAEng's "Frontiers of Engineering for Development" programme) and hubs (i.e. grants in excess of £1m over around five years for large research centres with many collaborators e.g. the Collective Fund's "Interdisciplinary Hubs" programme), and infrastructures/resources (i.e. those designed to build capacity by creating communal resources or funding infrastructure development through applied research, e.g. BBSRC's "Bioinformatics and Biological Resources Fund"). However, the National Academies focus more on Fellowships (Figure 7) – which is a major part of their remit in non-GCRF funding too. The Research Councils are most represented across most programme types, apart from fellowships and symposia / workshops where the Academies are more active (Table 2).

Figure 7 Frequency of different programme types



The RAEng, ESRC and BBSRC participated in the widest range of programme types whether as sole or joint funders. All DPs were involved in at least two types of programme and the majority were involved in around four different types, on average.

Table 2 Top three funders using corresponding programme types (sole + joint funded)

#	Fellowships / prize	Follow-on funding	Hubs	Scoping / pump-priming / feasibility	Infrastructure / resource development	Traditional research grants	Symposia / workshop	Training and development
1	Royal Society	AHRC	BBSRC	MRC	MRC	ESRC	RAEng	BBSRC
2	RAEng	BBSRC	MRC	AHRC	AHRC	AHRC	BBSRC	-
3	AMS	NERC	ESRC	ESRC	BBSRC	BBSRC	Royal Society	-

Whilst small awards (less than £50,000) make up the largest share of items funded under GCRF, it is large awards (over £1m) that account by far for the largest share of total money invested by the DPs (around 70%). This is to be expected to some extent, however, it should be noted at this early stage that the overall balance of different award sizes (and, therefore, different award types) could be changed without significant rebalancing of budgets: investing, say, 2 rather than 1% of funds available into the very smallest awards would have a profound effect on the availability of such awards. As we establish in the later stages of this report, a 'funding ladder' from small to larger grants is likely needed to help build capability among parts of the research community with little international development experience.

Table 3: Frequency of awards vs money invested

Value of award	Totals Projects awarded	% of projects awarded	Sum of award values (applied for)	% of combined awards value (applied for)
£0-49,999	404	32%	£8,558,112	1%
£50-99,000	208	16%	£17,100,134	3%
£100-199,999	195	15%	£29,921,781	5%
£200-499,999	193	15%	£63,262,701	10%
£500-1,000,000	128	10%	£83,894,579	13%
£1m or more	146	11%	£448,692,569	69%
	1274*		**£651,429,877***	

Around 150 awards (across Research Council and national academy/UKSA awards) do not list an award value. As such these figures are incomplete, but the low number of missing entries means we can be confident that these figures closely represent the 'true' picture.

3. Programme and call processes

3.1. How have DPs framed the programmes and calls?

The BEIS ODA board has had some indirect influence on how the individual programmes were framed through its decisions about the eligibility of different funding agencies and its distribution of funds amongst those bodies. However, the fundamental decisions about the thematic focus of the individual GCRF programmes and the choice of funding instruments was delegated to the Delivery Partners. This is an acknowledgement of the long-standing experience within the research councils and national academies in leading research in the international development arena.

The individual DPs were the prime movers in deciding programmes and the focus of the individual calls. The GCRF Board gave DPs just a few months to implement the first programmes and calls, and as such DPs largely elected to focus on established research fields and mainstream funding instruments in order to move quickly.

Subsequent GCRF programmes and calls extended the range of fields addressed, however, the choice of programmes still relied to a large degree on the good judgement of the individual DPs. The UK and international research communities have not been involved in any open deliberations to prioritise challenge areas or instruments. Under normal circumstances, DPs might take one or two years to develop and test a new type of programme or collaboration and to do so in close discussion with subject experts and their immediate research constituencies.

Most calls adopted an open approach to the GCRF challenges, in order to minimise the need for formal appraisal of thematic priorities, allowing the research base to determine what topics were submitted and the peer review process to determine what awards were made.

This bottom-up approach has resulted in a project portfolio that reflects existing strengths within the UK research base. This is understandable, given the time pressures funders had to contend with, however, a more strategic approach to the selection and prioritisation of programmes may have resulted in a different and stronger portfolio. A top-down approach would likely have been much slower to launch and may have struggled to a greater extent with the quality of applications.

As we show in subsequent sections, the need to rely on existing funding tools and research strengths has somewhat outweighed the possibility to build new international development expertise where it does not yet exist. This is also reflected in the overall choice of funding instruments itself: a majority of calls funded research grants where one might have expected to see much greater use of seminars, training and other pump-priming activities. The need to move quickly to commit the large volume of available funding militated against the widespread use of smaller-scale capability building initiatives. The practical outcome is that much of the GCRF funding has gone to support additional activities among well-established UK-international partnerships.

Many GCRF programmes are directed towards capability building, such as the global public health programmes (AHRC and MRC). DPs running joint programmes dedicated significant

time and effort to writing the call guidance to ensure the language was accessible to multiple disciplinary areas. The DPs encouraged research capability building in LMICs, but also recognised that this takes time to come to fruition.

3.2. Framing calls in relation to global challenges

GCRF was set up to fund research and innovation activities with the potential to ameliorate or overcome global challenges. The Delivery Partners undertook to develop programmes and calls that would address the needs of the global commons, focusing on a series of pre-defined GCRF challenges that echo the UN Sustainable Development Goals (SDGs) and their predecessor (the Millennium Development Goals). The challenges covered by GCRF are as follows:

- **Equitable Access to Sustainable Development**
  1. Affordable, reliable and sustainable energy
  2. Clean air, water and sanitation
  3. Inclusive and equitable quality education
  4. Secure and resilient food systems supported by sustainable marine resources and agriculture
  5. Sustainable health and wellbeing
- **Sustainable Economies and Societies**
  6. Resilience and action on short-term environmental shocks and long-term environmental change
  7. Sustainable cities and communities
  8. Sustainable livelihoods supported by strong foundations for inclusive economic growth and innovation
  9. Sustainable production and consumption of materials and other resources
- **Human Rights, Good Governance and Social Justice**
  10. Reduce conflict and promote peace, justice and humanitarian action
  11. Reduce poverty and inequality, including gender inequalities
  12. Understand and respond effectively to forced displacement and multiple refugee crises[22]

Because of the need to move quickly in response to the first allocation from BEIS, DPs focused on areas where there was a history of international development work (UK research groups with established networks of international partners). As a result, there were some examples where DPs adapted current programmes into GCRF-branded programmes to ensure that GCRF funding could be distributed quickly to researchers. Not only this, but because those programmes were very well-suited to GCRF objectives and had objectives aligning to GCRF already. For example, the UKSA's International Partnership Space Programme (IPSP) was a £32m, 2-year initiative to test an approach to enable UK satellite and other space sector companies to develop international partnerships for mutual benefit. This was the forerunner of the current GCRF International Partnership Programme (IPP) that took the learnings of the IPSP and created fully GCRF focused KPIs and objectives. AMS' Springboard fellowships are a slightly different example by which the programme existed

[22] https://www.ukri.org/research/global-challenges-research-fund/

before GCRF but applicants could check a box for their award to be considered under GCRF support, aside from the main Springboard programme.

According to Research Council data, 84 projects within 25 calls for proposals not originally funded under GCRF were awarded GCRF support and categorised as GCRF awards (e.g. seven projects under STFC's Exploration and Concepts 2016 programme, as well as several individual 'response mode' awards across different Research Councils).

DPs took a broad approach in their call guidance documents, allowing applicants to select any GCRF challenge area / SDG and explicitly encouraging work that covers multiple challenges. In this sense, there has been minimal identification of specific items from the list of challenges at the level of DPs: relevance to the GCRF challenges is always among the evaluation criteria, but it rarely involves narrowing down to any specific challenge from the list. DPs tended to look across their full disciplinary remit when launching new GCRF programmes and framing calls for proposals, and only in a minority of cases did this involve narrowing down to a specific challenge. Examples include:

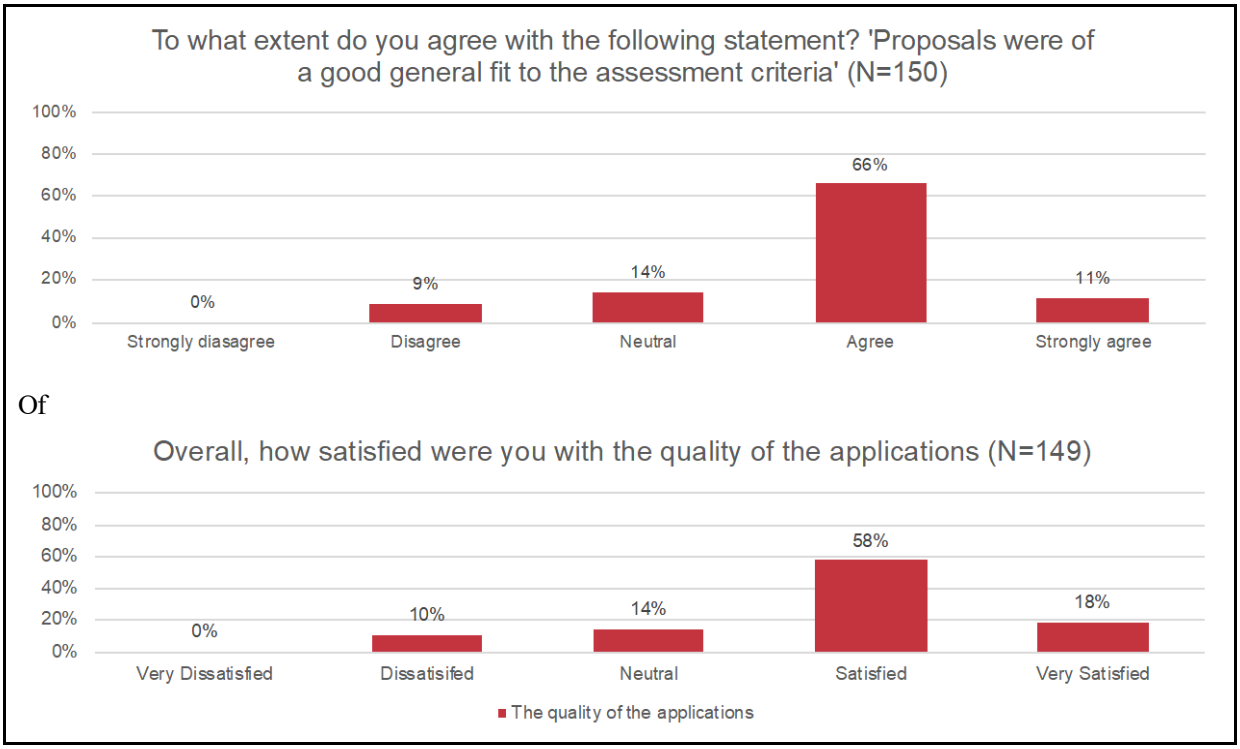
- '**Early Childhood Development Programme**' (British Academy/DFID): the call guidance notes that the topic addressed at least seven SDGs but specifically target 4.2 (access to quality early childhood development, care and pre-primary education). The SDGs were the main focal point for this programme; GCRF challenge areas as such are not mentioned at all
- **'GCRF Foundation Awards for Global Agricultural and Food Systems Research.'** BBSRC identified 'agriculture' (GCRF Challenge 4) as an area where their community would be able to respond quickly to a major new call for proposals – thus the decision to launch a joint foundation call in this area
- '**Resilient and sustainable energy networks for developing countries**' (EPSRC): applicants were asked to focus on research addressing sustainable local energy networks. The call guidance specifically mentioned the SDG on sustainable energy and that the area was chosen to build on existing international work supported by EPSRC and other councils in the RCUK Energy Programme over the last decade

3.3. Appropriateness, awareness and preparation

Our survey responses from assessment panellists suggest that the overall pool of applications appears to fit the assessment criteria well, notably including relevance to the GCRF challenges themselves. There is also widespread satisfaction with the overall quality of applications (Figure 8). 'Fit' in terms of relevance and quality alike is not a source of concern.

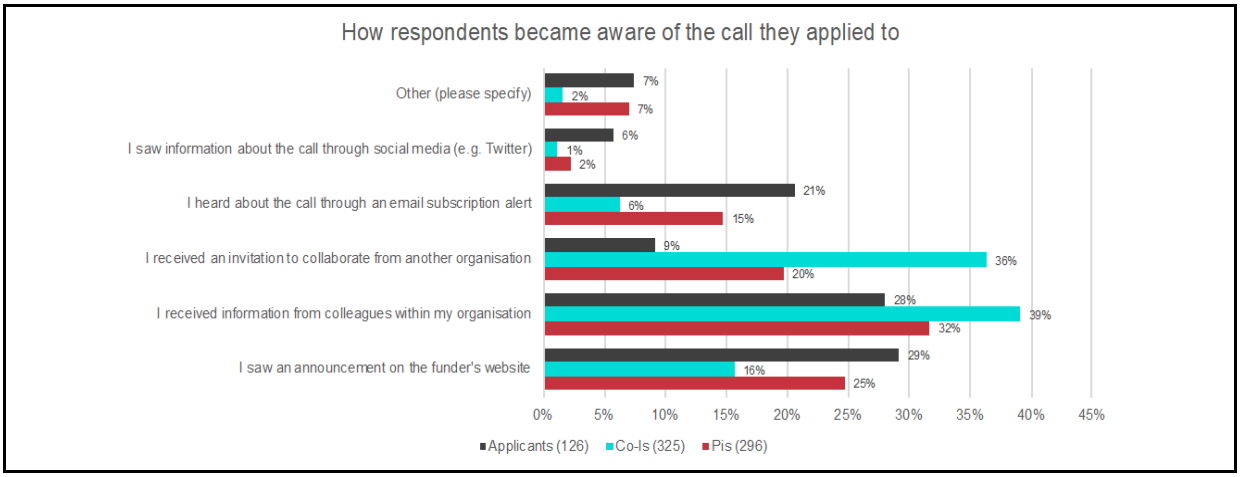
However, some DP representatives and assessment panel representatives note that the weakest proposals were those with weak or tokenistic international partnerships and 'missed the point' of the international development aspect of the call. However, this appears to be a minor concern only, rather than a widespread occurrence.

Figure 8 Applications – quality and fit



Our surveys respectively of PIs, Co-Investigators[23] and unsuccessful applicants reveal contrasting pictures: word-of-mouth and direct invitation to collaborate are the dominant 'ways in' for successful applicants, whilst alerts via e-mail subscriptions and other direct advertising by funders is more common among applicants who were ultimately unsuccessful (Figure 9). This suggests that success is at least somewhat associated with prior embeddedness of applicants in wider networks of the relevant research community. This reflects the wider picture that GCRF funding has enabled continuity of research strengths and networks that were, at least to an extent, already in place – a point we return to later.

Figure 9 How applicants became aware of GCRF calls



Co-investigators in particular often became aware of a call through invitations by colleagues outside their organisations. This was reflected in our interviews where most overseas Co-Is

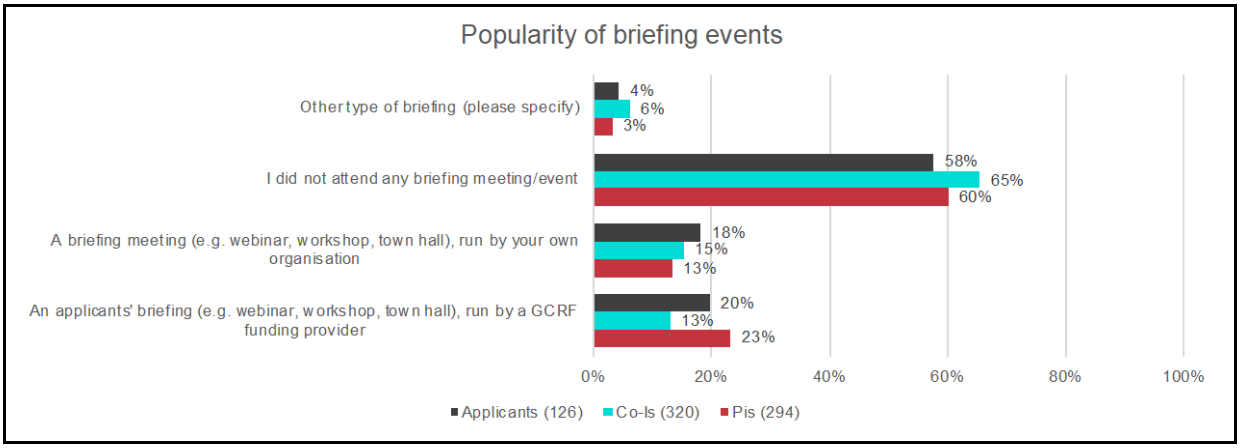
[23] The percentage of non-UK Co-Is responding to the survey was 40% and the proportion from LMICs of those non-UK Co-Is was 92%

described being invited by the UK PI, almost always having worked extensively together previously.[24] Given that in some respects GCRF funding has contributed to the continuity of existing networks and research strengths, it is especially important to consider the extent to which GCRF-specific briefing events played a role in application. We heard from some interviewees that they had attended briefing or networking events and that this allowed them to successfully set up collaborations with their overseas research partners.

DPs have dedicated considerable effort to 'up-skilling' their communities of researchers, not only in how to apply to their GCRF calls but also in how to develop meaningful international collaborations that lead to better quality proposals. BBSRC for instance conducted network events and scoping workshops for industrial biotechnology and bioenergy, and for synthetic biology. Overall, a mixed media approach was used to boost the awareness of GCRF and the processes around it to the research community. These 'up-skilling' efforts had the effect of network building and awareness raising of what would be required for good GCRF proposals.

The events run by DPs and universities intended both to inform applicants about the programmes and to create an opportunity for potential collaborators to network. Our survey data suggest that around 60% of applicants (from any group) did not attend such briefing events. The remainder of all groups is split between events organised by specific institutions, and events organised by GCRF DPs. We note that the difference between PIs and unsuccessful applicants is negligible. Although these briefing events are likely useful for applicants and a good proportion of them attend, our survey data do not suggest a link between attendance of events and winning grants.

Figure 10 Attendance of briefing events



We note that most of our successful PI and Co-I interviewees commented that they could not have funded their projects elsewhere at this scale, involving so many collaborators and different countries. Although many said that they would have tried to fund funding elsewhere, GCRF calls were the ideal choice and seen as unique in the funding landscape. Half of the unsuccessful applicant interviewees had submitted their project elsewhere and one had secured funding (non-GCRF). Others intended to submit their proposals to GCRF calls or similar grants, such as the UKRI Responsive Mode grants. When asked what they would change about their proposals, unsuccessful applicants told us that they would strengthen the

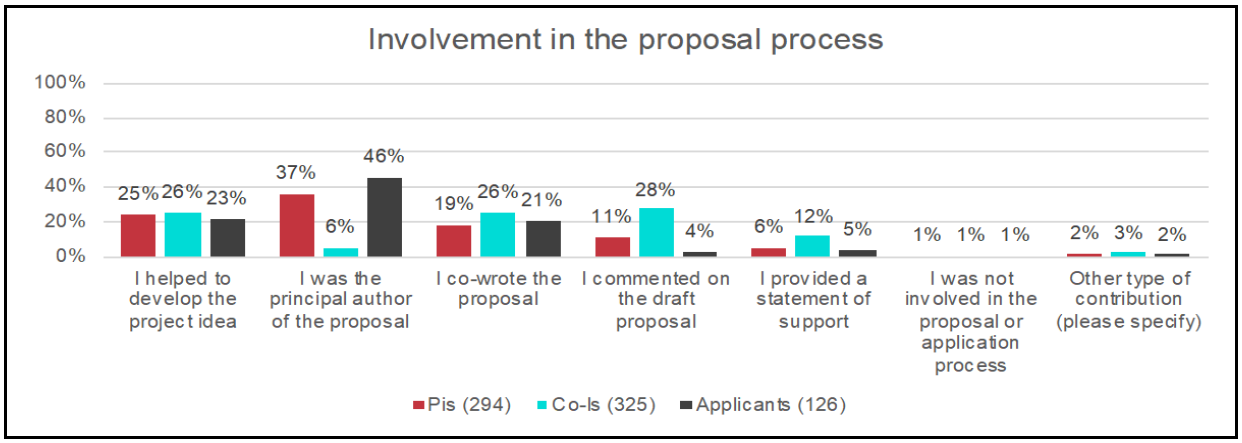
[24] Two Co-I interviews were with UK based Co-Is. This comment does not include those two.

interdisciplinarity and international development expertise of their teams, and some would choose different beneficiary countries.

3.4. International collaborations

A further encouraging finding on the issue of geographical distribution and beneficiary countries is that Co-I's involvement in proposals appears to have been high. Our survey results suggest that large portions of Co-Investigators played a significant role in proposal development, in many cases to the point of co-authoring the proposal. This finding was also reflected in our interviews with Co-Investigators.

Figure 11 Involvement in the proposal process

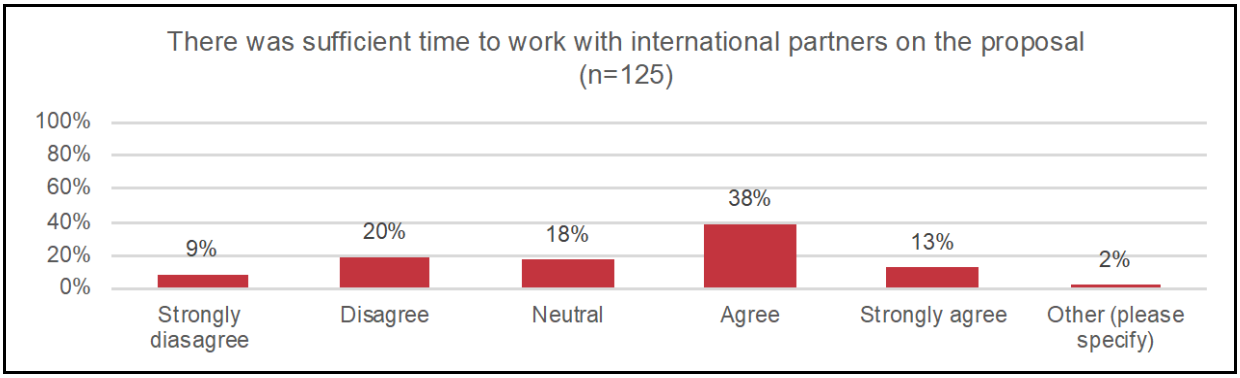


NB: though respondents were invited to 'tick all that apply', we can confirm there is little overlap between the response options. E.g. just 4% of Co-investigators noted no form of involvement at all.

Some particularly notable examples of proposal collaboration between PIs and Co-Investigators were pre-submission face-to-face proposal meetings, where meaningful contributions could take place, the benefits of which were often noted to extend into the funded period. Such activities were underpinned by regular communication between both parties, which interviewees identified as crucial for constructing the project proposal.

Conversely, unsuccessful applicants we spoke to tended to report fewer co-creation activities of the kind described by successful applicants. We also asked unsuccessful applicants to consider whether there had been sufficient time to work with their international partners in developing the proposal (Figure 12). There is more disagreement to this statement (29%) compared to the other two groups, although the majority (51%) did agree with the statement.

Figure 12 Unsuccessful applicants' views on their international collaborations



4. Selection processes

4.1. ODA compliance

Our research shows that GCRF is doing a good job of ensuring the activities supported are ODA compliant. The Fund complements its focus on global challenges and international partnerships with formal tests of ODA compliance at a more granular level

GCRF has followed two broad strategies for ensuring ODA compliance, with one approach that was appropriate to competitive calls for proposals and another that was more suited to the management of institutional GCRF funding. All GCRF programmes and calls included an ODA assessment as the first filter in the review of applications; ODA compliance was a pass / fail criterion. The Funding Councils by contrast relied upon the individual HEIs to ensure the GCRF monies were used appropriately. These initial arrangements were criticised in the ICAI GCRF Rapid Review (September 2017) as being too open, and in response, the Funding Councils have devised a more rigorous assurance process comprising an ex ante assessment of institutional GCRF strategies (a basic eligibility criterion) and an ex post review of detailed, institutional activity-reports.

For competitive calls, all applicants must demonstrate how their proposed activities are ODA compliant against an ODA checklist. This is used across all Delivery Partners. Every GCRF call includes the ODA checklist within its bidders' guidance along with an ODA FAQ sheet developed by ESRC. To show compliance, the applicant must write an ODA statement that lists the countries to benefit from the research (these have to be on the DAC list of ODA recipients), how the research is relevant to the development challenges of the countries, and how the outcomes will benefit the economic development and welfare of those countries. In all cases, ODA compliance is a pass / fail criterion that is run as part of the initial eligibility screening by the programme management teams, which comprise DP staff in most cases. The UKSA is the main exception to this in-house team, having outsourced the management arrangements to a consultancy with wide-ranging experience of delivering management support and technical assistance within an international development setting.

Our interviews found that ODA compliance had been a source of concern initially for many DPs, simply as a result of most staff having had no prior experience with ODA compliance checks. This was not the case universally, and several DPs had already developed their internal procedures and gained familiarity with the ODA principles through their work with the Newton Fund. Nevertheless, a programme of ODA compliance training was implemented in 2017 for all DPs to address this issue. Aside from this, our evaluation work on the GCRF has not highlighted any issues or causes for concern around ensuring ODA compliance.

There has been less concern among applicants, the great majority of whom have managed to comply with the ODA requirements without any great difficulty. Moreover, the interviewed DPs consistently noted that they have a very low rate of rejections on ODA grounds.

The National Funding Councils' (NFC) processes for ensuring ODA compliance have developed considerably since the first allocation in 2016/17. For the first allocations, NFCs simply included the GCRF allocation within their institutional grant letters along with an explanation of their associated obligations and conditionalities. This was either worded as

"ODA eligible" or "GCRF eligible." This general approach held across the four Funding Councils, with minor differences:

- **Research England (formerly HEFCE)** required English HEIs to confirm at the end of the academic year that they had spent their allocations "in accordance with the terms of the funding," which included a stipulation that funds must be spent on GCRF eligible activities

- **The Higher Education Funding Council for Wales (HEFCW)** asked vice-chancellors to sign a 'declaration of expenditure' to confirm they had used their 2016/17 GCRF allocation to support GCRF-eligible activities. In 2017/18, HEFCW asked for reports from each HEI detailing how the funds had been allocated internally, what activities were supported, and the LMICs benefiting from the activities. The reports also required HEIs to prepare case studies to illustrate the use of these funds

- **SFC's** GCRF funding to HEIs also came with the condition that all supported activities must be GCRF eligible. End of year reports from HEIs were sent to SFC, who then checked the activities and countries targeted for ODA compliance

- **DfE NI** asked HEI Vice-Chancellors in the Letter of Offer for GCRF funding to confirm in their response that the funding would be spent on GCRF-eligible activities. DfE NI also asked their HEIs for interim and final reports detailing how funding was allocated, to what activities and what outcomes resulted from the support. ODA compliance was not explicitly checked in the first year. In the second year, profiles of expenditure as well as various data – including countries targeted and GCRF challenges addressed – from each HEI were checked for ODA compliance.

The funding councils' approach to GCRF was fully in line with their more general approach to the administration of institutional research funding, which is unhypothecated and respects institutions' legal autonomy. The block grants (Quality-Related Research) are designed to provide institutions with funds for strategic development on the one hand and matching funds on the other. Institutional funding is determined post hoc by success within the Research Excellence Framework (REF), and not ex ante, as is the case for research councils' project funding. The Funding Councils have no mandate to instruct HEIs as to where and how to spend such block grants. The ICAI GCRF Rapid Review criticised this outcome-based approach and recommended Funding Councils implement ODA assurance procedures that include an ex ante assessment of the planned use of the monies provided. In that sense, the ODA rules have required a change in all of the Funding Councils default arrangements.

ODA compliance is now ensured by NFC staff using the assessment and monitoring of 3-year strategies from each HEI, upon which approval is needed to receive their GCRF allocation. A full explanation of this process, new for 2018/19, is included in Appendix C.

4.2. Demand management

DPs indicated that they have had significant demand from their respective and joint communities for their GCRF programmes. Demand management methods were employed in response to the mix of high demand and implementing a programme with newer elements where processes were not yet fully established. These processes do not apply to the

National Funding Councils, who distribute funding as a block grant. Demand management methods used by the 13 DPs include:

- **Clear call documentation** – These always included separate general applicant guidance, ODA guidance, tailored call FAQs and, crucially, explicit eligibility criteria (see below). This documentation was usefully consistent in layout and form across all DPs, potentially making the process of applying across DPs more seamless for applicants
- **Eligibility criteria** – Criteria were prescriptively stated in both advertising and documentation, these typically included: PI/Co-I requirements, partnerships, ODA, application limit per individual or organisation, and interdisciplinarity (or DP remit). These are explained in more detail in the next sub-section
- **Awareness raising activities** – A significant effort to upskill potential applicants was taken by DPs in an attempt to both manage/gauge demand and enhance the quality of applications. Examples include: pre-announcements for calls, briefing materials disseminated to research offices, briefing/networking events, and online 'explainer' videos. These activities were also supplemented by the global engagement events[25] run by RCUK
- **Expression of interest** – This pre-selection submission stage allowed DPs launching large grants to understand their communities' appetite for a call and to take early inquiries. This was used in the case of the Interdisciplinary Hubs call to gauge demand from the community and to ensure that the in-house team at RCUK could prepare and refine their selection processes – EoI was required to submit the next stage of the application
- **Outline stage application** – Similar to the EoI method, an outline stage was used for larger grants to manage demand by narrowing down high numbers of applications using a simpler set of evaluation criteria and a full set of eligibility criteria. This did require peer review, but did also act as a measure of improving the quality of subsequently awarded projects, as successful applicants were given feedback for the full stage.

4.3. Selection processes in detail

The DPs have followed broadly similar selection processes for all programmes and calls, with a typical application being subjected in the first instance to an eligibility check (e.g. for ODA compliance) before being submitted to peer review and subsequent assessment by a standing panel of international development experts. The selection criteria revolve around research excellence and impact, with the panel's ranked lists and proposal-specific feedback being used as the basis for the final decisions and applicant notices.

The basic selection process reflects the general approach to research competitions in use across UKRI, with no substantive changes in the standard operating procedures. This is not to say that the process was inappropriate, just that the general arrangements allow for the necessary flexibility: for example, the peer reviewers, panellists and evaluation criteria all reflect GCRF-specific qualities.

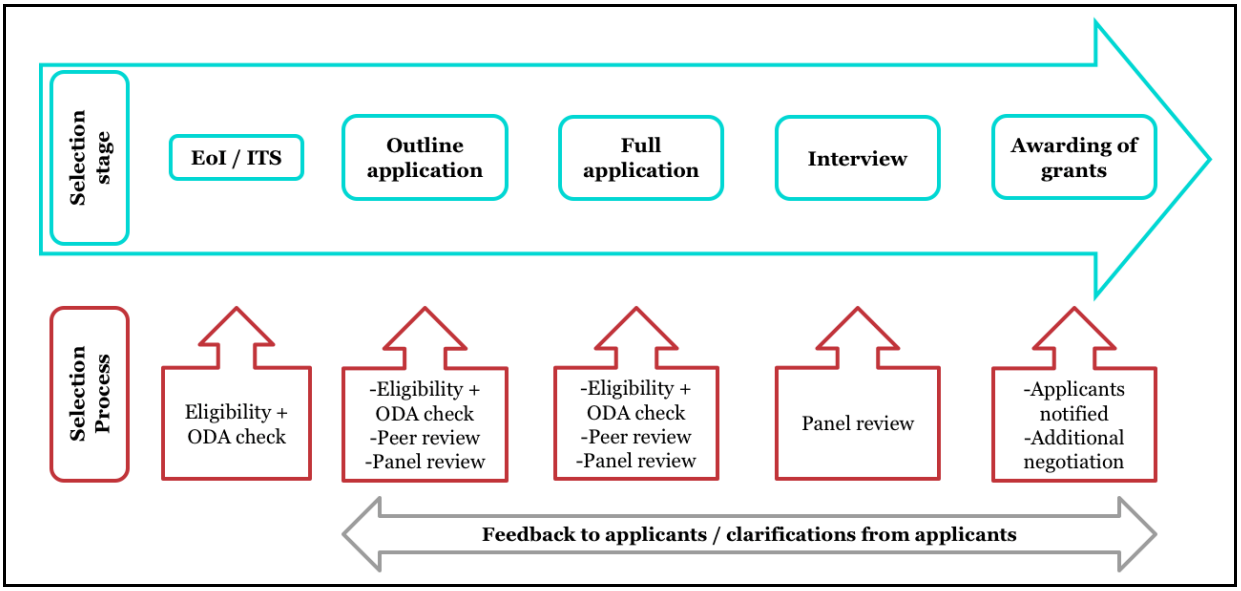
The selection processes do vary slightly across calls, largely reflecting the scale of awards on offer and the types of activity foreseen. In simple terms, smaller pump-priming activities are handled through a single round where larger calls are typically multi-stage with the

[25] http://webarchive.nationalarchives.gov.uk/20180322124117/http://www.rcuk.ac.uk/funding/gcrf/gcrf-global-engagement-events/

largest awards (the hubs) being subject to the closest scrutiny (3 stages). This proportionate approach is well regarded by panellists and appreciated by applicants.

Figure 13 shows a full set of selection stages and processes for the largest GCRF programmes. This, effectively, is the most complex of assessment processes used in GCRF funding, reflecting for example the GROWing capability call under the Collective Fund (£2m-£8m value awards over five years).

Figure 13 Overview of GCRF selection stages and accompanying processes



Most calls (especially those for smaller awards) do not include all the steps outlined above. DPs were particularly cognisant of the peer review burden, so some elements of peer review were avoided: BBSRC's smaller workshop grants were assessed internally by ODA trained staff and ODA trained external contacts, because there is usually not enough time to get panels together that include overseas experts for smaller awards. In these cases, DPs recruit UK ODA experts to cover the ODA compliance element, which is more efficient.

We identified that ten out of the 69 programmes included an outline stage proposal. This is a stage-gate assessment stage for the higher value programme calls that acts as a pre-requisite to the submission of fully-fledged proposals. These are typically called 'Expression of Interest', (EoI), 'outline stage proposal' or 'development stage proposal' and serve the same purpose, that being to ensure that the proposals going to the full stage fit within the scope of the call and meet the crucial ODA stage gate criteria of the GCRF. Feedback is also given to applicants to help further develop their proposals.

In all cases, applicants must submit at this stage to be allowed to submit to the next stage, and rejection is possible. The process for applicants typically involves a shortened application form that vary from simply filling in a short online interest declaration form with applicant details and short abstract to a 3,000 word form with details on the project and the partnerships proposed (e.g. the Foundation Awards funded jointly by five Research Councils).

In most cases, the applications are assessed by DP's internal GCRF teams as they are able to check for ODA eligibility, which is the main purpose of this exercise, along with general fit

to the call. In other cases, such as in the Interdisciplinary Hubs programme, a full outline stage panel is convened to assess proposals.

This approach was used by AHRC and EPSRC in some of their own GCRF programmes, by both the RCUK Collective fund programmes and in the three jointly funded Research Councils 'Foundation Awards' programmes. All of these programmes funded projects with values between £500k and £2m. This approach was not used at all by the Academies/UKSA.

We identified several instances where Delivery Partners had trialled novel approaches with a view to ensuring the assessment process was fit for purpose, including:

- EPSRC - Resilient and sustainable energy networks for developing countries (6-8 projects – £7.5m total budget)
    - An expression of interest stage was used primarily to allow early consideration of potential reviewers and panel members. Those are then invited to the full proposal stage involving external peer review. Eligibility and ODA compliance are assessed as this stage. These scores are sifted by the EPSRC grants team taking into account the total score and the comments from the reviewers and decide to whether to send the proposal on to the panel or not. Proposals that are not rejected at the peer review stage are invited to respond to the anonymous peer reviewers' comments. These rebuts were included with the proposals at the prioritisation panel meeting and considered when ranking the proposals for funding.

        - The Panel Chair for this call found the use of applicant rebuttals useful as it allowed applicants a second chance to make their case. It was also useful for the panel to see those clarifications made by applicants, contributing to a more informed and efficient decision-making process
- MRC-AHRC – Global Public Health: Partnership Awards Call 2 (£2m budget: larger awards up to £200k; smaller awards up to £50k)
    - After eligibility criteria and ODA compliance checks, proposals were assessed by a streamlined peer review process involving consideration by a specially convened multidisciplinary (MRC & AHRC) panel. External peer review was not used for this call as the amount of money awarded per project was small in comparison to other calls (peer review was also bypassed for the 'STFC GCRF Foundation Awards')
        - A lot of Panel Members were convened to assess these relatively small awards, possibly using more labour than needed. The panel scored and fed back into discussions in real time, the smaller awards were decided upon very quickly – using yes/no instead of scoring on a scale. It was commented that a prior process to screen out weak, but eligible, applications using a triage process, like in the MRC infection awards, may have worked better
- RCUK (Collective fund) – Interdisciplinary Research Hubs (£225m–£250m budget, £8–£20m per project over five years)[26]
    - Eligibility criteria and ODA compliance checks, intention to submit followed by an outline application that was reviewed by an outline panel (short-form proposal with reduced assessment criteria). **The Global Engagement budget was used to fund applicants with successful outline proposals to bid for small amounts (£6k-**

[26] NB: As of June 2018, this call has not yet awarded projects. The full proposal panel meets in September 2018.

£10k) of networking funds to further develop their relationships with Co-Investigators in order to strengthen full proposals. External review, a full panel using roaming Panel Members to ensure consistent assessment, then an interview panel follows

- This networking fund for successful outline proposals is unique in the GCRF programme landscape. Our consultations indicate that this feature was added in response to feedback from the previous GROW call that not enough time and resource was given to forming and developing international collaborations for these very large projects that require significant planning

4.4. Selection panels

Selection panels sit at the heart of the GCRF process, working with the scores and feedback from individual peer reviewers to arrive at a collective view as regards the best applications. Panels typically meet to review the full applications and are organised to allow differences in opinion among peer reviewers – and panellists – to be explored and resolved. The typical process involves the creation of an agreed ranked list followed by a more strategic discussion about the portfolio in a second session, looking particularly at the proposals around the funding cut-off point and giving due consideration to any secondary criteria in order to help with the final recommendation. The panel's deliberations are also important as the basis for informed feedback and for lessons learned regarding call requirements or selection process.

The DPs have worked hard on the composition of the panels, in order to arrive at a good balance of people and skills. Based on our desk research and interviews with DPs, we found that the following requirements were commonly used as criteria for convening GCRF panels:

- **Domain experts** – Senior researchers or other leading experts with good knowledge of the state of the art in each of the broad disciplines addressed
- **International development experts** – Senior researchers and other experts with domain expertise and international development experience
- **In-country context** – Senior people with some experience of conducting research in specific LMICs/DAC list countries

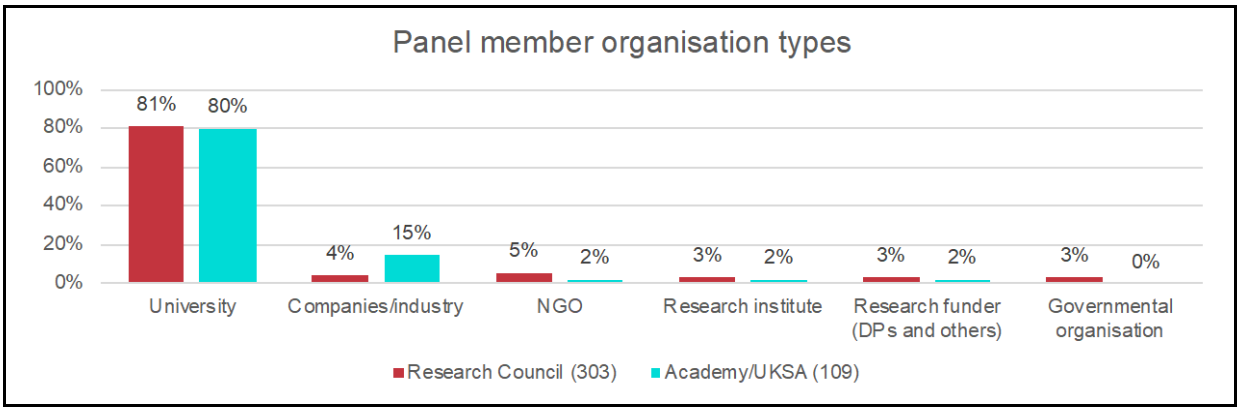
We were provided with data on panel membership for the four National Academies and the UKSA and five of the Research Councils. The data related to 412 individuals, split roughly 25:75 between the Academies and Councils.

These data allowed the team to analyse the source of panel members in terms of their economic sector (e.g. public or private) and location (e.g. UK or international). The data also allowed the team to review the diversity of panels.

In terms of sector of employment, around 80% of all Panel Members were reported to be university staff. Industry experts were the second largest group, albeit they accounted for fewer than 10% of all panel members. There was an even smaller proportion of panel members that were employed in one of several other groups, including NGOs and government. Figure 14 shows the distributions by organisation type ('sector') for the five research councils and four academies / UKSA. The chart reveals two or three small differences in the two distributions, with the academies having appointed proportionately far

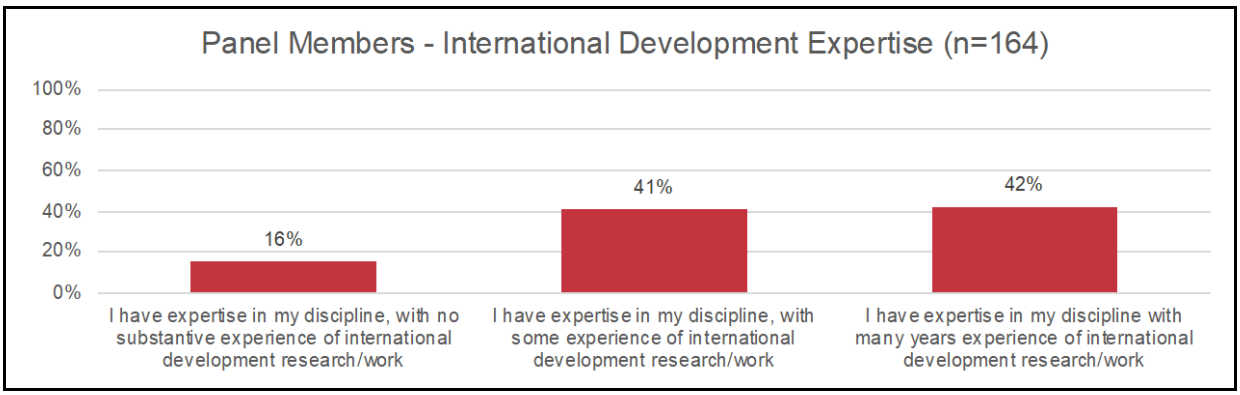
more industry experts than the research councils. This was mostly to the RAEng and UKSA. The Councils made slightly greater use of experts from NGOs (especially AHRC). Lastly, the Research Councils involved government in some small degree whereas the academies and UKSA did not. In terms of location, 92% of Panel Members were UK-based and only 4% of all panel members in our data were based in organisations in the Global South.

Figure 14 Composition of Panel Members' organisations (n=412)



We identified through our survey of Panel Members that 83% had at least some level of experience in international development research and/or work, and 16% of Panel Members who had expertise in their own discipline only (Figure 15).

Figure 15 Panel Members' level of self-declared expertise in international development

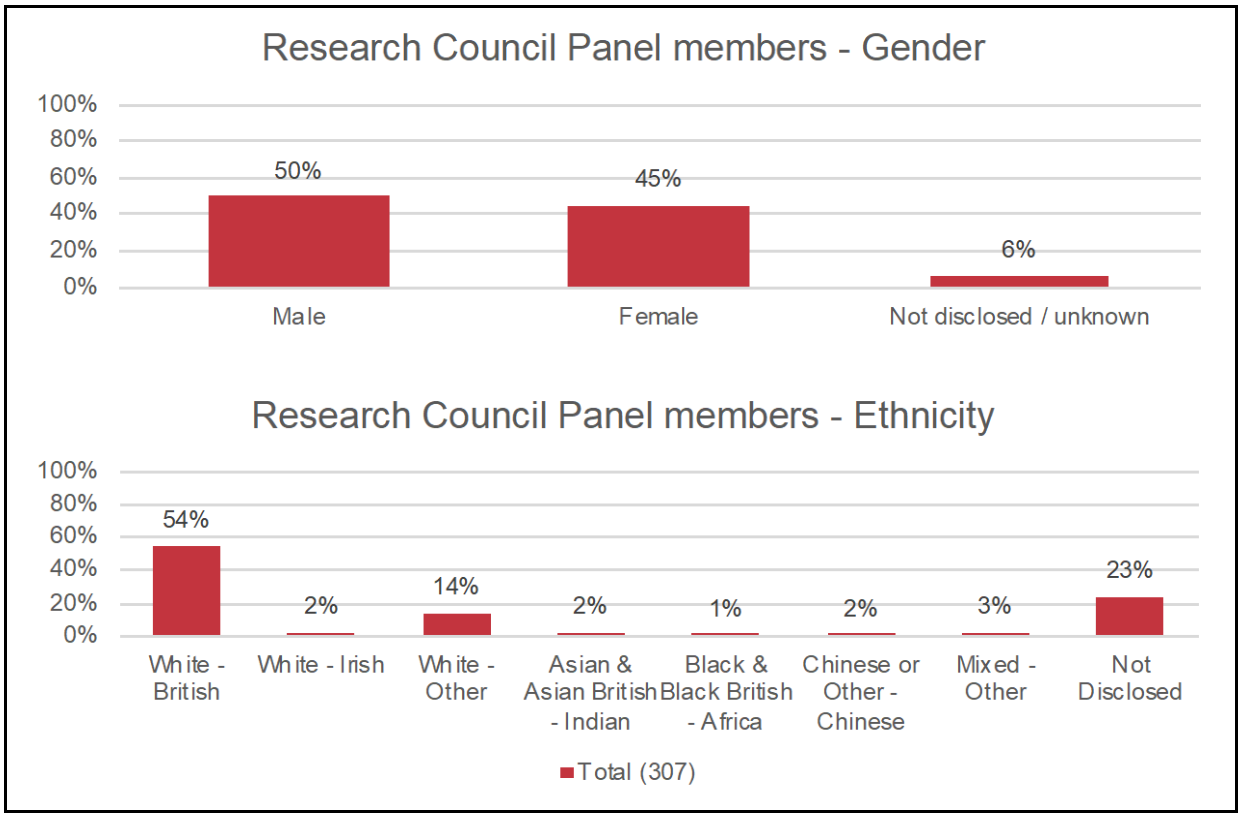


We were provided with data on gender and ethnicity for the Research Council panel members. The statistics suggest the panels overall were able to achieve a reasonable gender balance, with around 47% women and 53% me among the 285 that were content to supply information about their gender. This ratio is higher than the 35% share of women senior academics among all UK senior academics (HESA statistics for academic staff by employment conditions, 2016/17). The ethnicity statistics show that 88% of panel members were 'white-British' or 'white other'. This ratio is broadly in line with statistics from HESA, which show that around 15% of academic staff with known ethnicity were BME (Black Minority Ethnic).

The ethnicity results reflect the fact that most panel members come from UK HEIs (i.e. the white/British majority) as Delivery Partners faced difficulties in recruiting panel members in the global south. Most panels met in person and most chairs considered this to be a critical

part of the process with few expressing any enthusiasm for running these sessions remotely. Without that option, the cost and logistical implications of fully engaging international partners in panels proved to be impractical. We did not receive data for Academy/UKSA panel members, so the overall gender and ethnicity balance may be slightly different than shown here.

Figure 16 Panel members – gender and ethnicity

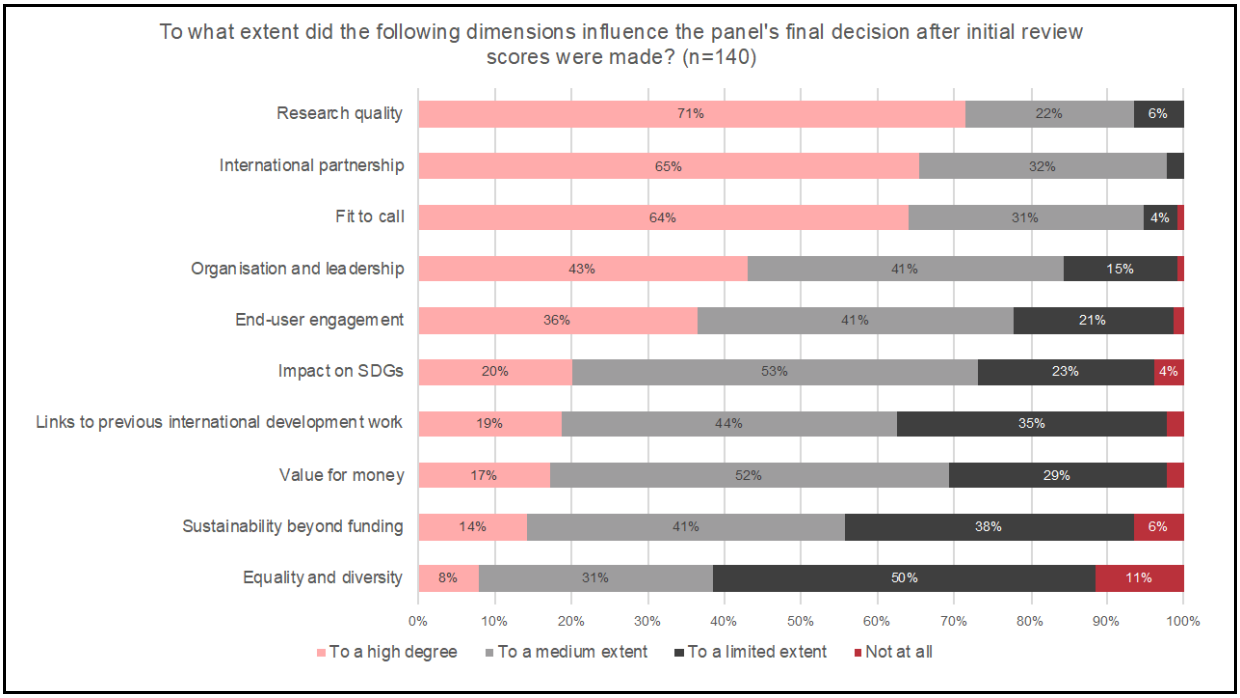


4.5. Factors influencing decision making

GCRF is funding international collaborations in the expectation that a significant proportion of those activities will result in successful outcomes that change the situation on the ground in UK partner countries. As such, the selection criteria used by panels tend to be more extensive than would be the case for a typical grants programme run by a national research council. Research excellence remains the central evaluation criterion in all GCRF calls documents, however, there is also widespread use of other criteria, from the demonstrable relevance of the proposed work to a specific GCRF challenge and through to the equitable nature of the international partnership and engagement of end-users.

We used the various lists of criteria as the basis for a survey question, which we then invited panellists to answer: which criteria were most influential in determining the final selection of successful proposals? Figure 17 presents the survey results and compares the extent to which different factors (including research quality) influence the decision-making process for panels in selecting the final portfolio of projects. It shows the three factors that are most widely considered to influence panel decisions 'to a high degree' are: research quality (71%), international partnerships (65%) and fit to call (64%). Value for money, sustainability beyond funding and diversity were the criteria that were most widely reported to have had limited influence on decision making.

Figure 17 Dimensions influencing the panel's final decision after initial review scores

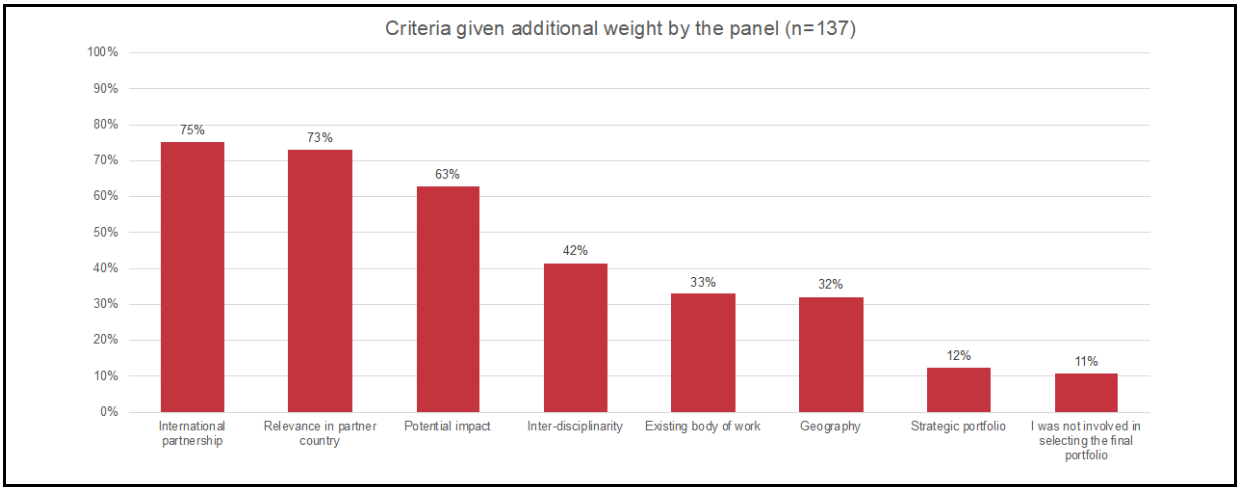


Panel Member survey respondents expressed most concern with the value for money aspects in their free text responses. The feedback suggests there was often **not enough information to properly assess value for money,** making the process for judging this criterion very subjective.

Our consultations suggest there are always careful discussions about the cluster of proposals that sit just above or below the financial cut-off. These proposals are all fundable and even relatively small changes in scoring can lead to a proposal making or missing the cut, and chairs take especial care to arrive at an agree position on these bids. In some of these cases, the chair may be invited to give additional weight to one or more other factors whether that be to prioritise proposals that link the UK with a particular region or country or a particular type of international partnership.

Our survey of Panel Members identified three factors that were widely reported to have been used to help in making the final decision: International Partnerships (75%), the Partner Country (73%) and the Potential Impact (63%) (Figure 18). The least widely reported factor given additional weight was to ensure the strategic coherence of the project portfolio (12%).

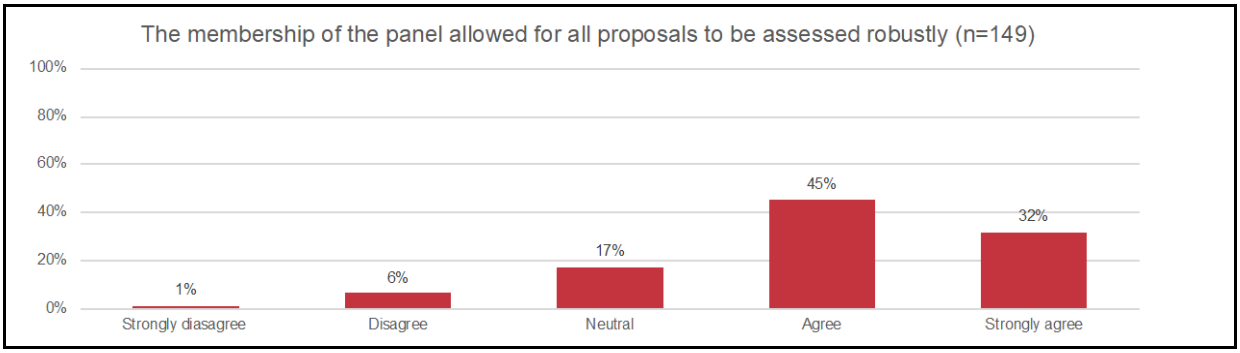
Figure 18 Criteria given additional weight when selecting the final portfolio



Our survey of panellists also invited contributors to rate different aspects of the panel organisation and selection processes and their impact on the robustness of decision making.

The great majority (77%) of Panel Members agreed that the membership composition of their panel had allowed for a robust assessment of proposals. Figure 19 shows the strongly positive results, with just 7% (n=10) disagreeing with the statement.

Figure 19 Ability of panels to robustly assess proposals



The assessment criteria were judged to be appropriate for identifying the best proposals by 78% of surveyed Panel Members, with 8% indicating that the criteria were not appropriate. Seventy-seven per cent of Panel Members indicated that the proposals they assessed were of a good general fit to the criteria, with only 9% indicating that they were not.

Figure 20 Appropriateness of the assessment criteria

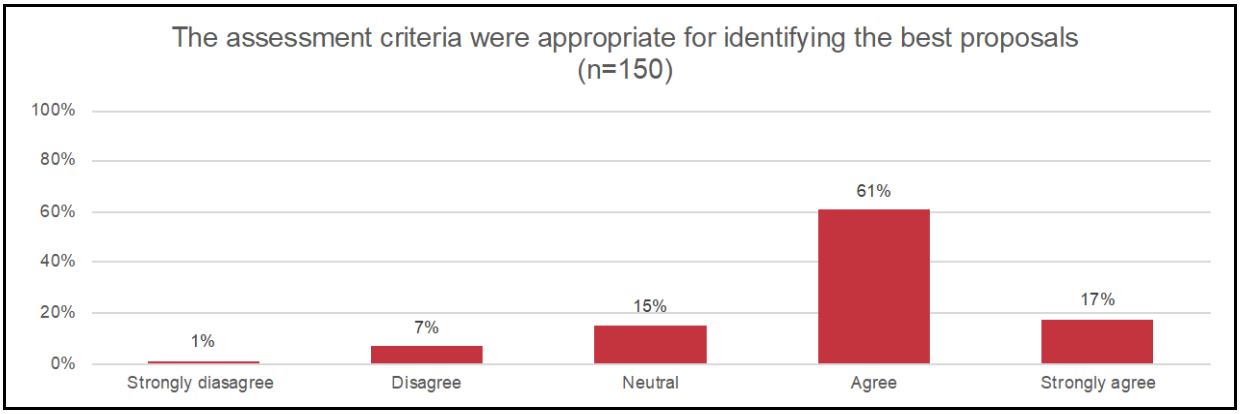
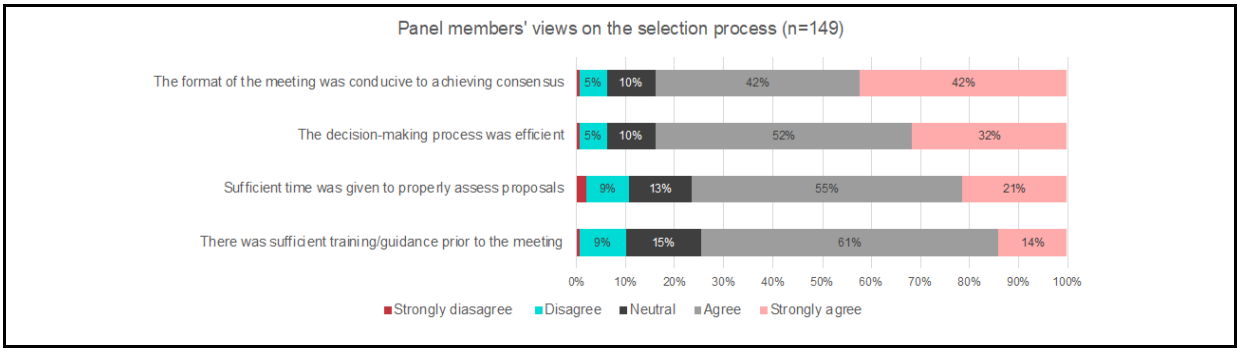


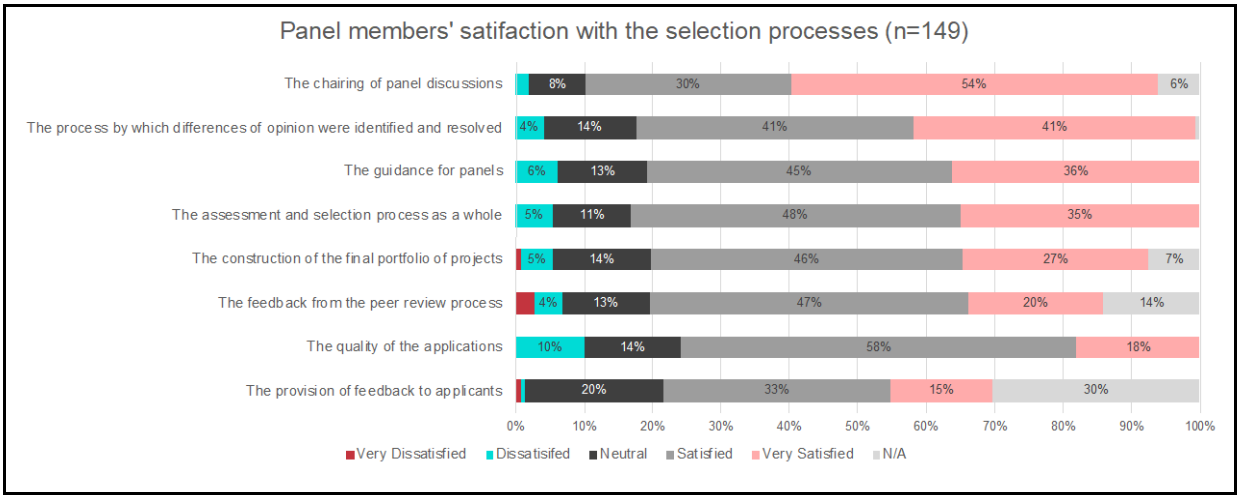
Figure 21 presents Panel Members' views on the selection processes. Eighty-four per cent of Panel Members indicated that they found the format of the meeting to be conducive to achieving consensus and that the decision-making process was efficient. Only 6% in both cases disagreed with these statements. Compared to the first two statements, smaller proportions of Panel Members indicated that sufficient time was available to properly assess proposals (76%) and that there was sufficient training/guidance prior to the meeting (75%).

Figure 21 Panel Members' views on the selection process



Panel Members were 'satisfied' or 'very satisfied' in 70-85% of cases with all aspects of the assessment and awarding process. Respondents were particularly satisfied with the chairing of panel discussions (84%).

Figure 22 Satisfaction with the selection processes



DPs informed us that peer reviewers and panellists will challenge weaknesses where applicants make bold assumptions about potential impacts. As an example, any expected increase in the use of digital technologies would be judged against the local context and the extent to which a proposal has worked through the many barriers and enablers and given due consideration to access and target audiences. If the applicant has not considered these, the proposal will be marked. Evidence of co-production is important. Applicants must show they have taken on board local context; proposals that don't talk about local issues with insight and confidence tend not to perform well.

4.6. Applicants' satisfaction with assessment processes

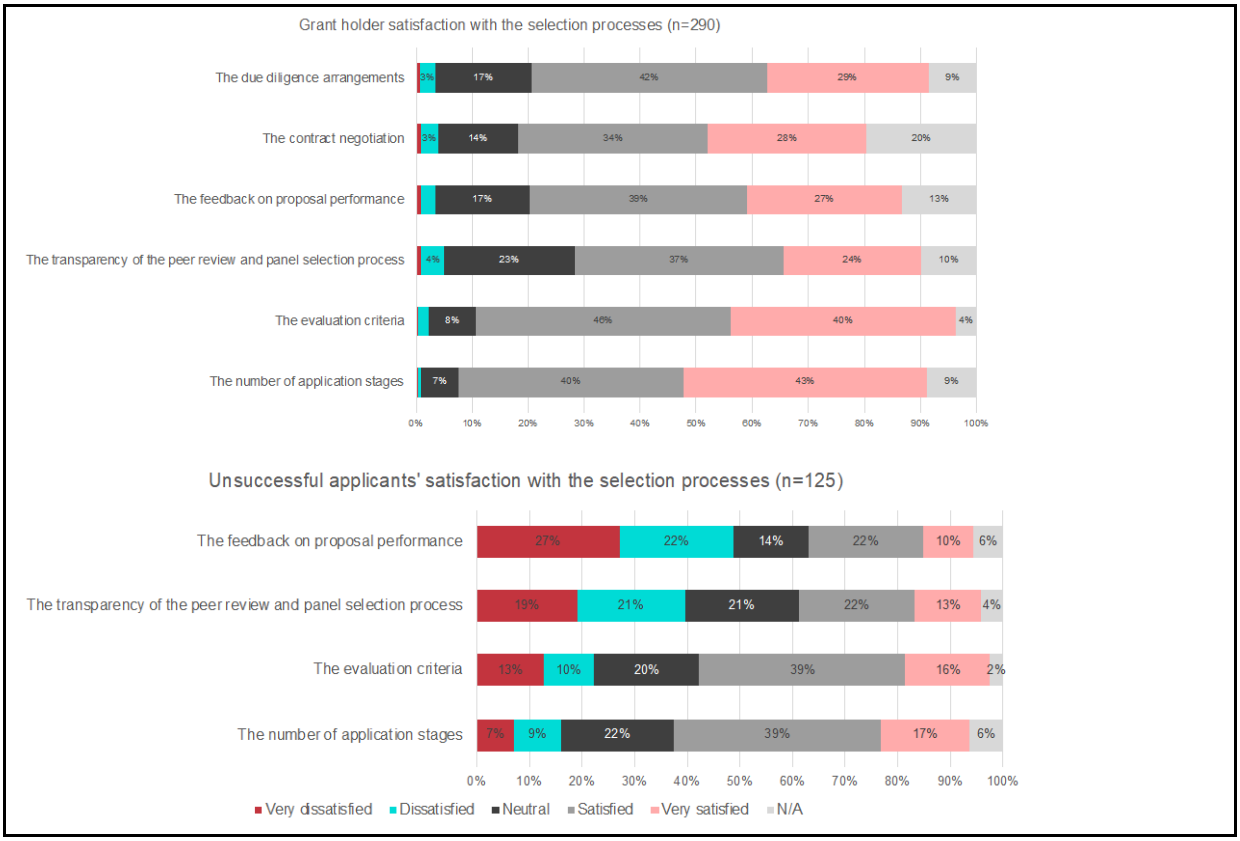
When asked to rate their satisfaction with the various assessment and selection processes for applying to GCRF, the majority of PIs responding to our survey reported being satisfied or very satisfied. Although no rating of dissatisfaction rose above 5%, the 'transparency of the peer review and selection process' had the highest dissatisfaction (5%) and neutral rating (23%), and the lowest proportion of satisfaction (61%) across the six processes surveyed.

We also asked unsuccessful applicants to reflect on these aspects. Whilst the verdicts of unsuccessful applicants are typically more critical than those of awardees in any programme,[27] it is notable in this case that they were especially critical of the extent of feedback received. Around half of unsuccessful applicants note that they were either 'dissatisfied' or 'very dissatisfied' with this aspect.

Unsuccessful applicants are also typically more critical of selection processes than is the case for successful applicants, however, it is notable that the transparency of the peer review and panel processes in this case was rated much less well by unsuccessful applicants compared to grant holders. This specific concern also links to criticisms about feedback to unsuccessful applicants, which was also echoed by a minority of panellists. Given the latter's remarks, there may be merit in DPs looking again at the transparency of decision making and in particular the process by which feedback is compiled and shared with applicants.

[27] This observation is based on over 25 years of research funding scheme evaluations conducted by Technopolis both in and outside of the UK.

Figure 23 Selection process satisfaction – successful and unsuccessful applicants



The main challenge identified by all interview groups in the application process was the timeframe from call launch to submission deadline. Many PIs and unsuccessful applicants commented that the time available was not sufficient for collecting due diligence information from overseas partners. The Co-Investigators mirrored this, telling us that their systems and infrastructures were slow, so even gathering signatures could take months. Assembling the teams themselves and co-creating a proposal also takes a long time. Many interviewees found the time available insufficient for achieving this. A panel member in our survey noted when asked about what would improve the selection process:

> *"I do believe though that many calls do not allow enough time to really engage with partners in developing countries in a meaningful way so more time is often needed to develop proposals. I also think that more information is needed on which calls are coming up and when so that researchers can plan" (Panel member survey respondent – collective fund)*

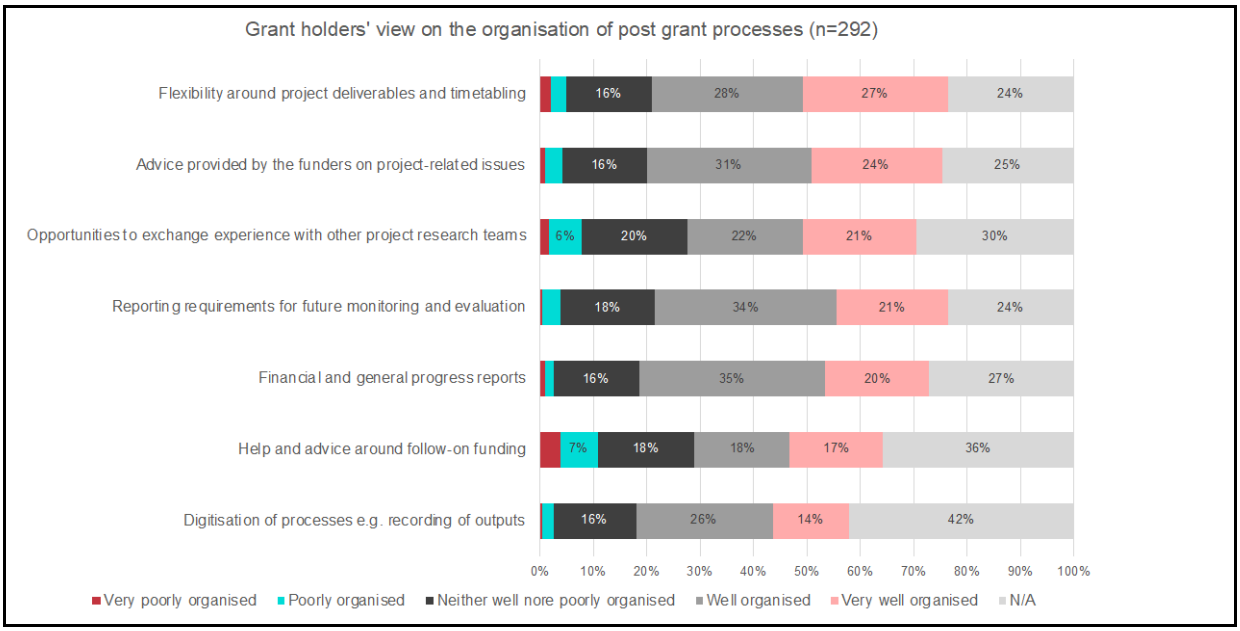
GCRF funders also require financial due diligence information from overseas partners. Not only can this take a long time to procure, many interviewees found that this had a negative impact on relationships between research teams: the extensive checking that UK institutions are required to undertake on overseas Co-Investigators was felt to give the impression of lack of trust. It was recommended that a pre-announcement stage or more outline stages across the calls would help to alleviate these issues.

Of those interviewees who received any feedback at all, around half expressed a negative opinion about the feedback from reviewers, with unsuccessful applicants commenting that it was very difficult to understand where they went wrong and what they should do to improve. One suggestion for helping applicants after receiving an unsuccessful outcome was signposting to other GCRF calls. Many were not aware of any central resource that listed these calls.

Beyond the awarding and assessment process, it is worth also reflecting on the awardees' satisfaction with aspects pertaining to the lifetime-management of awards.

Grant holder survey respondents rated the reporting requirements, the project related advice from funders, flexibility around deliverables and timetabling, and progress reports as equally well or very well organised. Grant holders rated the help and advice around follow-on funding as the least well organised (11%). This question garnered a significant proportion of responses indicating the question was not applicable (between 24%–42%): many respondents had no view of post-grant processes, reflecting the fact that many awards are on-going.

Figure 24 Grant holders' views on post-grant processes and management



5. Responses, volume and success rates

The overall success rate of applications submitted to GCRF programmes is 27%. This is relatively high compared with research and innovation funding instruments elsewhere (around 10-30% would be the norm in most cases, depending on type and size of award). This figure is also almost identical when we split up between Research Councils and the National Academies/UKSA.

However, we note that not all GCRF-awards are included in these headline figures, particularly regarding the Research Councils. Some Research Council awards came as block grants and were not 'competitive' in the traditional sense. Others were made through response mode or other existing schemes, meaning there was no pool of unsuccessful GCRF applications to which to compare them. For a further group of calls, no data on unsuccessful applications could be obtained for this study. Additionally, some calls may have had initial 'expression of interest' or pre-proposal stages, which may not always be included in the applications data.

We also note that attributes such as beneficiary countries targeted and GCRF-challenges addressed are not consistently recorded across applications (for Research Councils and National Academies/UKSA alike), further limiting the amount of analysis that is possible.

Table 4 shows the availability of Research Council data on success rates and unsuccessful applications. As we indicate, Research Council figures are based on 38 calls, accounting for a total of 493 funded projects.

Table 4 Data availability for unsuccessful Research Council applications

Success rate/unsuccessful applications – data availability	No. of Calls	No. of funded projects	Data status
Totals	**103 (100%)***	**1112 (100%)***	
Awards given as block grants/institutional funding; no success rate as such	7	357	Success rate N/A
Awards made in open/responsive mode or other non GCRF-specific call	12	29	Success rate N/A
Retrospectively badged programmes. Success rate data not applicable as no open call issued	25	84	Success rate N/A
No application-level data received; aggregate figures only. Reason unknown (possibly conducted off-system)	2	33	Limited data
No response rate / unsuccessful applications data received. Reason unknown (possibly conducted off-system)	18	115	No data
System error	1	1	No data
No data or limited data	**65 (63%)**	**619 (56%)**	
No data or limited data (excl. block grants, retrospectively badged programmes/projects & response mode – success rate not applicable)	***44 (43%)***	***470 (42%)***	
Full data available	**38 (37%)**	**493 (44%)**	

*Totals include response mode awards and calls, which are not included in other points of in report

5.1. Success rates by DP

Below we present the headline figures on success rates by each DP. We attribute calls by 'scheme owner', yet for many calls there are multiple funders involved. For example, the 'Building Resilience' programme involves NERC (leading), AHRC and ESRC although the call may only be listed with NERC, as it is the 'scheme owner'.

Table 5 DPs, number of calls and number of grants awarded

DP	No. of calls*	Total No. of applications*	Funded*	Success rate	Median amount applied for
AHRC	6	258	117	45%	£ 79,899
BBSRC	5	197	64	32%	£ 552,541
EPSRC	4	266	47	18%	£ 1,134,580
ESRC	7	349	73	21%	£ 199,761
MRC	11	519	132	25%	£ 479,033
NERC	5	274	67	24%	£ 189,094
STFC	2	54	26	48%	£ 99,114
Totals	**40**	**1917**	**526**	**27%**	**£ 332,381**

*Includes only calls for which unsuccessful applications data were supplied

DP	No. of calls	Total No. of applications	Funded	Success rate %	Median amount applied for
AMS	4	158	45	28%	£ 24,950
British Academy	7	289	43	15%	£ 298,490
RAEng	17	399	116	29%	£ 20,000*
Royal Society	9	302	94	28%	£ 215,778
UKSA	2	109	33	30%	£ 2,861,240
Total	**39**	**1257**	**331**	**26%**	**£ 183,000**

*A small share of entries in RAEng applications do not include an award amount

DP-level success rates range from 15% for the British Academy to 48% for STFC. This is a considerable range, but context matters: success rates differ of course between different types of schemes and programmes. As a general rule, very small grants ought to have a higher success rate (so as not to discourage application as a result of low perceived success chances for a small amount of money), whilst for larger awards, where significant additional risk-management is necessary from the funder's point of view, a lower success rate may be expected.

When we consider DPs' success rates alongside the median amount applied for, a more balanced picture emerges: Whilst AHRC and STFC have the highest success rates, they also have the smallest average award sizes. EPSRC has the lowest success rate among the Research Councils, but also a very high median award size, warranting more scrutiny and competition. We also note that success rates are dependent on the number of applications received and the level of investment made available to the funder. However, even in light of this contextual information there is still a lot of variation between the success rates of

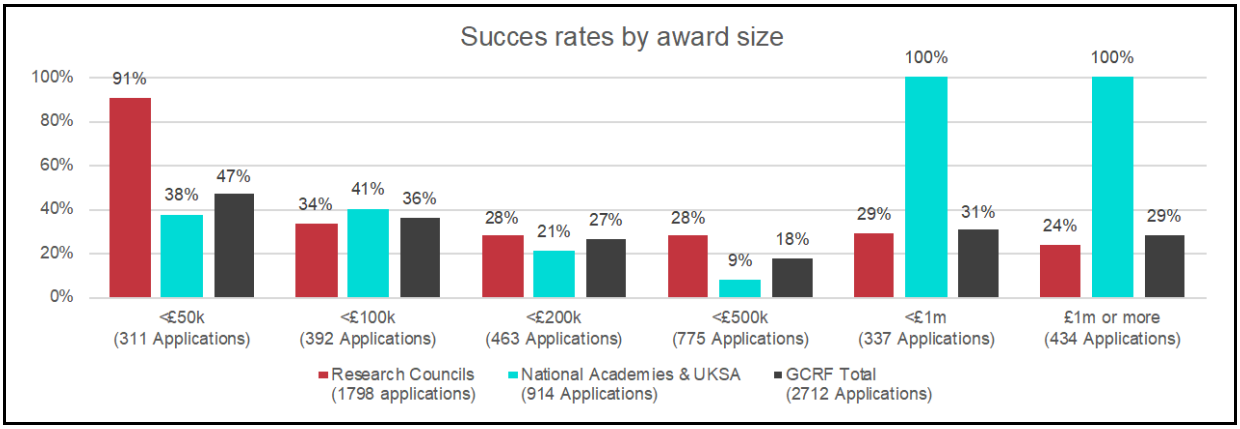
individual DPs. This may be due to differing levels of demand, or indeed of dissemination and publicity activities.

5.2. Success rates by award size

Looking at award size specifically, it is evident that success rates are indeed highest for small awards, most notably for Research Council awards worth less than £50,000, for which the success rate is 91%. Across the spectrum of award sizes, success rates decline markedly and somewhat consistently, excluding a small number of large National Academies/UKSA awards, though for these there may have been a different selection process not captured by the applications data.

These figures suggest a positive picture: the lower success rates of larger awards suggest an increased level of competition and scrutiny, reflecting the greater need for risk management when awarding such large sums of money. But given the ambition of GCRF to broaden the community of researchers working in the international development sphere, higher success rates for small awards (e.g. to start new collaborations) appear suitable: a low success chance for a small amount of money may discourage potentially excellent applications. Across the GCRF portfolio, there is a clear sense of such a 'funding ladder', with accessible small awards and more competitive large ones.

Figure 25 GCRF success rates split by award size



5.3. Success rates by beneficiary countries and regions

There are few notable differences in success rates along lines of what beneficiary countries are targeted by GCRF applications, apart from the fact that applications targeting non-DAC list[28] countries fail ODA-eligibility checks.

We considered available Research Council success rates data[29] for target beneficiary countries, world regions and Development Assistance Committee (DAC) status. Success

[28] The DAC List of ODA Recipients shows all countries and territories eligible to receive ODA. These consist of all low and middle income countries based on gross national income (GNI) per capita as published by the World Bank, with the exception of G8 members, EU members, and countries with a firm date for entry into the EU. The list also includes all of the Least Developed Countries (LDCs) as defined by the United Nations (UN). The list for 2018-2020 can be found here: http://www.oecd.org/dac/financing-sustainable-development/development-finance-standards/DAC_List_ODA_Recipients2018to2020_flows_En.pdf

[29] This refers to the Research Council call data for which a success rate could be reliably obtained. Full data on beneficiary countries on both successful and unsuccessful applications are listed for 21 Research Council calls, accounting for around 25% of total applications. Of this subset, the total success rate stands at 29%, slightly

rates fluctuate between 19% and 39% for applications listing various different countries, though Bangladesh (19%) and Ghana (39%) are considerable outliers in these data. There is no evident patterns regarding certain types of countries being associated with either lower or higher success rates.

Table 6 Research Council success rates by country

Country	DAC status	Awards (288)*	Applications (1005)*	Success rate
India	Lower Middle Income Country or Territory	52	214	24%
Kenya	Lower Middle Income Country or Territory	48	155	31%
South Africa	Upper Middle Income Country or Territory	50	151	33%
Uganda	Least Developed Country	42	130	32%
China	Upper Middle Income Country or Territory	22	94	23%
Tanzania	Least Developed Country	31	94	33%
Bangladesh	Least Developed Country	17	91	19%
Brazil	Upper Middle Income Country or Territory	23	88	26%
Malawi	Least Developed Country	23	88	26%
Nigeria	Lower Middle Income Country or Territory	22	83	27%
Ghana	Lower Middle Income Country or Territory	31	79	39%
Ethiopia	Least Developed Country	21	73	29%
Pakistan	Lower Middle Income Country or Territory	15	66	23%
Nepal	Least Developed Country	12	51	24%

*We include every award and application that lists the country in question. As many applications list multiple beneficiary countries, there is considerable double-counting in these data. We also include only countries listed on at least 50 applications in the available dataset, as lower total numbers will inevitably lead to greater fluctuations.

When we consider regions rather than individual countries, differences in success rates remain marginal. Excluding the less-frequently listed regions (Caribbean/Atlantic, Europe, Asia-pacific), applications listing at least one country in Sub-Saharan Africa have a slightly higher success rate than others. This is encouraging, because the majority of 'Least Developed Countries' on the DAC list are located in that region. At the very least, these figures indicate that applications targeting Sub-Saharan Africa are not at a disadvantage in the GCRF award processes, and may in fact have a slightly higher likelihood of succeeding, though we note that the discrepancies in these data are too marginal to confirm this.

Table 7 Research Council success rates by region

Region: Applications that list at least one country in…	Awards (288)*	Applications (1005)*	Success rate
Sub-Saharan Africa	172	549	31%
Southern Asia	120	451	27%
South/Latin America	48	184	26%
Central Asia	35	133	26%
Middle East and North Africa	33	118	28%
Caribbean/Atlantic	11	30	37%
Europe	5	29	17%

higher than for the total set of Research Council applications data. Data on listed beneficiary countries are not listed for unsuccessful applications to National Academies/UKSA.

Asia-Pacific	5	16	31%

*Many applications list multiple beneficiary countries (potentially covering multiple regions), so there is considerable double-counting in these data

When we consider DAC-status of listed beneficiary countries directly, differences in success rates disappear almost completely (notwithstanding the higher success rate for 'Other Low Income Countries', for which overall numbers are very low). Importantly, this also applies when we consider applications that only list countries in the three 'lowest' DAC categories. In short: the types of DAC-list countries listed on an application in itself has almost no evident effect on assessment outcome.

Table 8 Research Council success rates by DAC status

DAC status: Applications that list…	Awards (288)	Applications (1005)	Success rate
…**at least one** Least Developed Country	336	479	30%
…**at least one** Other Low Income Country	24	40	40%
…**at least one** Lower Middle Income Country or Territory	414	585	29%
…**at least one** Upper Middle Income Country or Territory	343	485	29%
…**ONLY** Least Developed Countries, Other Low Income Countries and Lower Middle Income Countries or Territories	150	530	28%

*Many applications list multiple beneficiary countries (potentially covering multiple DAC-categories), so there is considerable double-counting in these data

5.4. Success rates by challenge area

We also consider success rates by targeted challenge area. As above, this is an area where information on unsuccessful applications is not recorded systematically. We can therefore only analyse data for a sample of National Academies/UKSA applications, and even here only at the level of the three main headline-challenge areas.

Whilst these results are only indicative, we note that there is a large difference between the success rates in the three main challenge areas. Most notably, applications that list 'Sustainable Economies and Societies' have a much lower success rate (15%) than those listing 'Equitable Access to Sustainable Development'.

It is unclear from these figures whether this difference is attributable to different levels of demand or to application quality. However, it is clear that, in addition to the uneven distribution of funded projects across the various GCRF challenge areas (see section 6), there is also a lot of variation between the underlying success rates.

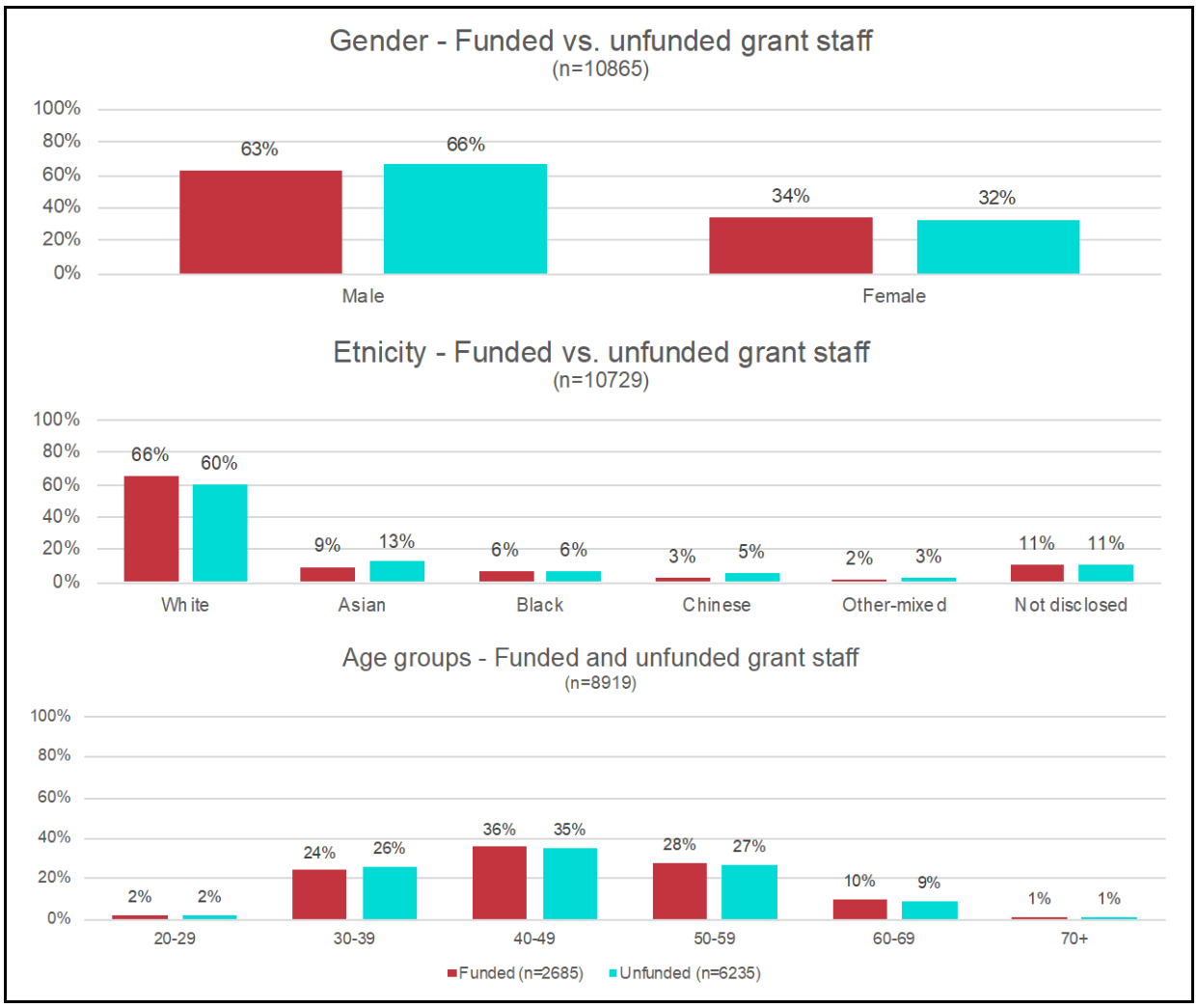
Table 9 Success rate by main challenge area (National academies/UKSA only)

Challenge area	Applications	Funded awards	Success rate
Equitable Access to Sustainable Development	394	174	31%
Sustainable Economies and Societies	270	46	15%
Human Rights, Good Governance and Social Justice	27	7	21%

5.5. Success rates: Inclusivity

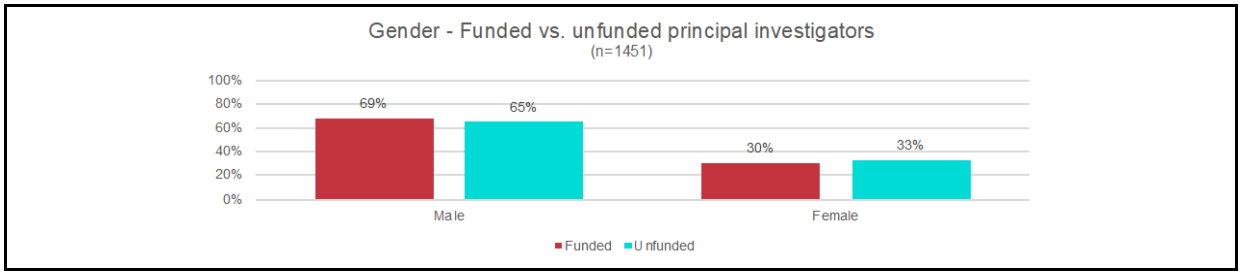
GCRF Research Council applicants (of both successful and unsuccessful applications) are predominantly white, male and in the 40-49 age bracket, somewhat reflecting the composition of the UK researcher base. Importantly, there is very little evidence of any differing success rates between various gender, ethnicity or age groups.

Figure 26 Funded vs. unfunded grant holders – by gender, age and ethnicity



It is worth noting that the picture changes slightly when we consider only principal investigators, specifically in relation to gender. All other ratios between funded and unfunded applicants remain broadly the same. However, male PIs do have a slightly higher success rate than female ones. It is unclear from our research why this might be the case.

Figure 27 Funded vs. unfunded principal investigators – by gender



6. Characteristics of GCRF grants and grantees

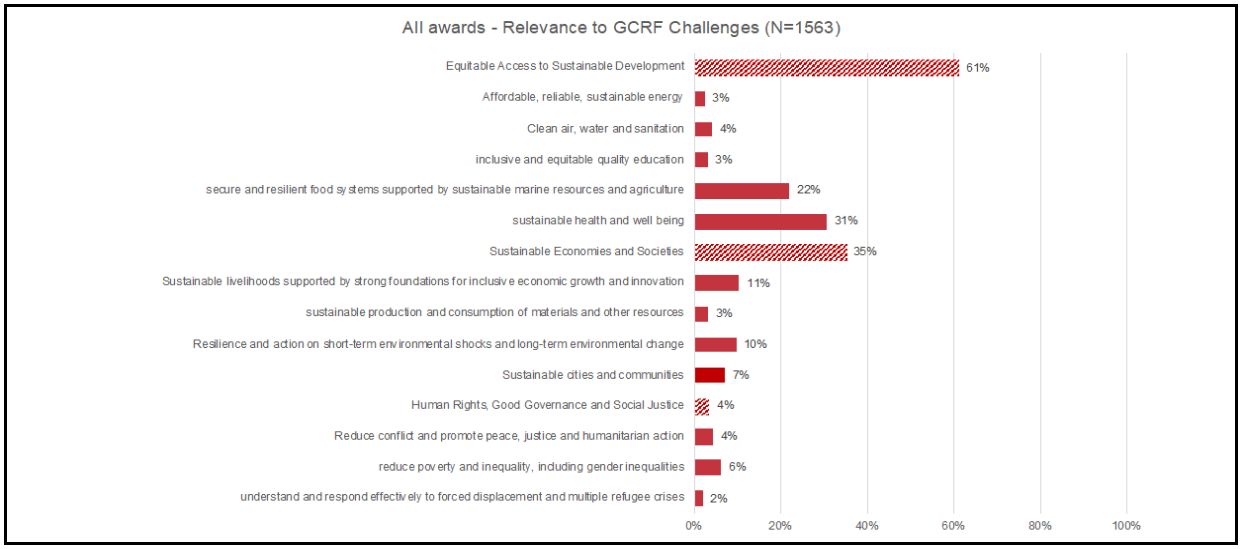
6.1. GCRF-funded awards – challenge areas

Figure 28 shows GCRF has funded projects in each of the 15 GCRF challenge areas, from the 30 or so awards that indicate their work relates in whole or in part to refugees all the way through to the 450 projects that have tagged sustainable health and wellbeing.

These counts are based on applicants' self-reported thematic focus.[30] At the level of the three headline challenges, 'Equitable access to sustainable development' is by far the most commonly selected (Figure 28). At the level of sub-challenges, the highest proportion of grants is focused on 'Sustainable health and wellbeing' (31%) and 'Secure and resilient food systems' (20%). Contributing to this are large joint programmes focusing on health, such as the Foundation awards (Infections and Non-communicable diseases), and food systems focused programmes, such as BBSRC's Sustainable Agriculture for Sub-Saharan Africa (SASSA) programme.

The data presented are for all delivery partners. The distributions are almost identical for Research Council and for the National Academies/UKSA, with the exception of 'Sustainable health and wellbeing', where there is a higher proportion of awards within all research council awards, driven by MRC calls.

Figure 28 Distribution of GCRF awards across GCRF challenges



NB: We tested the assumption that the number of projects per challenge area would correlate with the amount of awarded funding within each challenge area. The exponential trend line indicates a weak positive relationship between number of grants and funds awarded.

[30] For all GCRF-funded programmes, applicants need to state which of the GCRF challenges their research relates to. Across the application and awards data we have received, this is consistently the case, although there is a lot of variation in terms of whether applicants select only one of the three 'headline' challenges, or also the 'sub-challenges' under each headline. Overall there is also variation in terms of whether applicants select one or the other, or several challenges at both levels.

In terms of relevance to GCRF challenge areas, the funded awards skew heavily towards 'Equitable access to sustainable development', whilst 'Human rights, good governance and social justice' features as a listed challenge area in only 4% of awards. Looking at our analysis of success rates in the previous section, this uneven distribution of listed challenges is driven to an extent by differing success rates: National academy/UKSA applications listing 'Human rights, good governance and social justice' and especially 'Sustainable economies and societies' have a far lower success rate than those listing 'Equitable access to sustainable development' (see section 5.4). However, differing levels of demand and existing research capacity are almost certainly additional influences here.

It may be prudent for DPs to explore avenues to funding more work specifically in the currently 'under-served' challenge areas, for example through more programmes targeting those challenges, or indeed through greater publicity and networking activities to ensure researchers working in these areas will apply in greater numbers. Ultimately, it is however a strategic rather than an evaluative question whether such uneven distribution of awards across the list of GCRF challenges ought to be deemed problematic.

6.2. GCRF-funded research – beneficiary countries

GCRF programmes and calls are funding projects that involve UK researchers collaborating with researchers and end-user organisations based in one or more of the OECD DAC list countries; the 'Global South.'

Figure 29 maps the listed beneficiary countries and regions of GCRF-funded research, based on our analysis of grant data. The database includes 1,091 grants – out of 1,410 in total – where beneficiary countries have been recorded by DPs. The 320 missing data points may relate to a sub-set of GCRF grants results will be of general relevance to developing countries and which do not specify individual beneficiary countries.

It shows GCRF programmes and calls have launched projects that have involved research and innovation partners from countries and regions across the global south. Sub-Saharan Africa is revealed as the region with the greatest number of points of collaboration: more than 60% of those 1,091 grants include one or more collaborators from one or more countries in sub-Saharan Africa. Southern Asia and South/Latin America figure prominently too.

From this regional perspective, the Fund has done a good job of engaging with stakeholders from around the world (researchers, the third sector, the public and private sector). The partnerships cluster a little more when we switch to a country-perspective, with the top five countries (Kenya, India, South Africa, Uganda and Tanzania) accounting for around two-thirds of all listed beneficiary countries.

The three main DAC country categories – upper-middle income, lower-middle income and least developed – are represented to a roughly equal extent across the pool of funded awards, with around half of awards listing at least one country from each category (there is considerable overlap as many awards list multiple countries). The three main DAC categories of course contain different numbers of countries, and that average country size and populations likewise differ considerably.[31] However, our analysis of success rates by

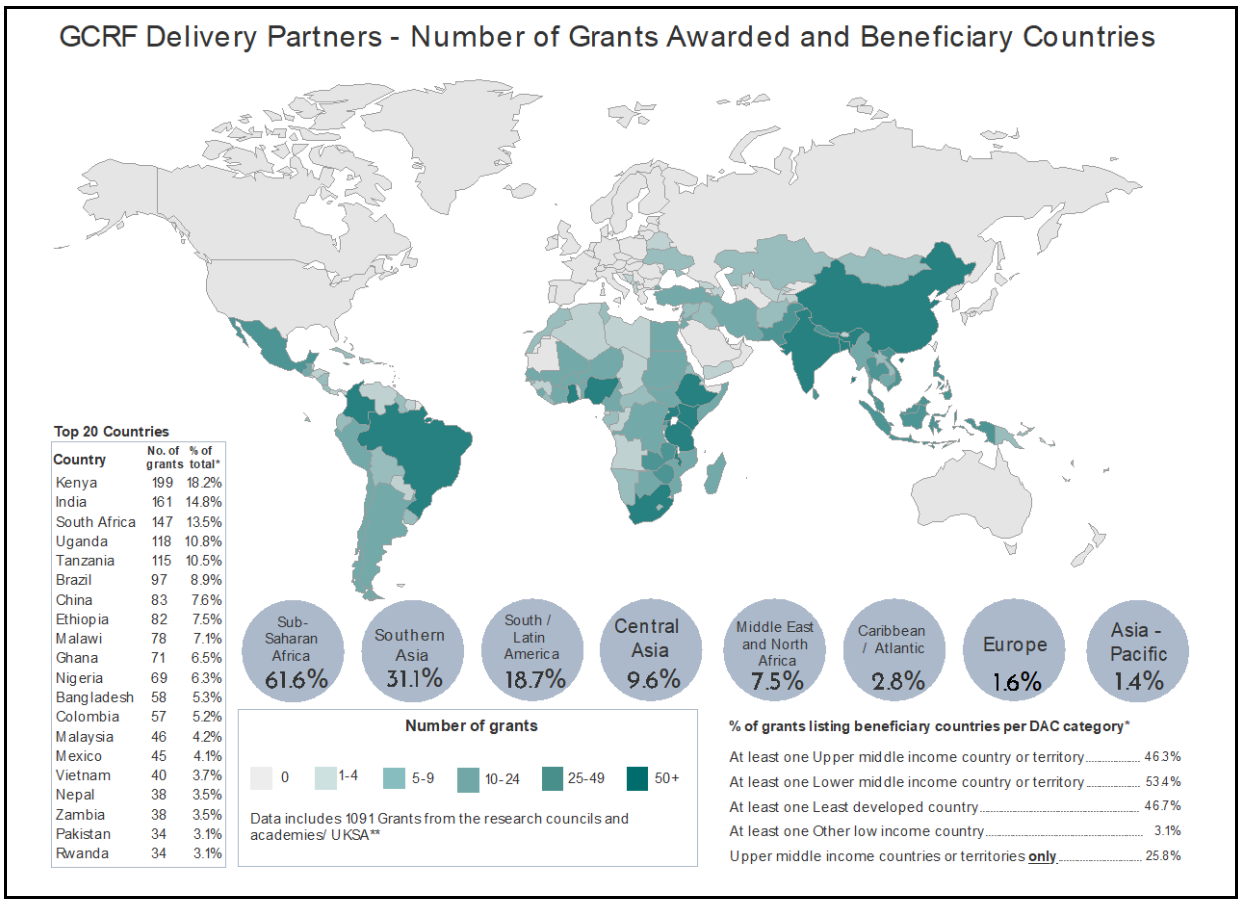
[31] Current DAC country list: https://www.oecd.org/dac/financing-sustainable-development/development-finance-standards/DAC_List_ODA_Recipients2018to2020_flows_En.pdf

beneficiary country and region (see section 5.3) underscores that the observed broad geographical spread of GCRF-funded research is not impeded by any obvious drivers in the selection processes.

It is worth noting that around a quarter of GCRF awards only list beneficiary countries in the 'top tier' of DAC countries ('Upper middle income'), suggesting that these involve only collaborations in what may broadly be termed 'emerging economies'. Once again, there is a strategic question here that goes beyond the scope of this evaluation: if the intention is to target GCRF-funding more decisively at countries in lower DAC-list categories, then more targeted efforts (e.g. in the shape of new programmes) may be necessary.

Given the rapid roll-out of GCRF, we considered the possibility of whether earlier awards have a different geographical spread compared with awards given later in the GCRF cycle. Splitting all Research Council GCRF awards with start date information (n=1011) into two evenly sized groups and a cut-off point of 01/11/2016, we found very similar geographical spread of the awards, meaning there is no evidence of increased targeting of particular beneficiary countries in the later stages of GCRF (data for countries with more than 20 projects in Table 30 in Appendix B). Thirteen more countries were targeted in the most recently awarded projects, representing a small expansion in terms of countries targeted.

Figure 29 Beneficiary countries targeted by grants from all GCRF delivery partners



*Country, Region and DAC category percentages are calculated based on the number of individual grants that target them, rather than the overall number of times they are mentioned as being targeted. This is why percentages may exceed 100%.
**1,091 awards (out of a total of 1,410) specify beneficiary countries in the Research Councils' and National Academies/UKSA awards data. This map is therefore not based on all GCRF awards.
NB: The separate maps for the Research Councils and Academies/UKSA included in the Appendix (Figure 60) are largely similar in the targeted DAC categories. The raw data for these comparisons is included in Figure 61 in the Appendix.

Fourteen unfunded applications (0.03% of total) targeted non-DAC list countries (mostly small Caribbean islands) which may have been unsuccessful due to that fact. This finding is encouraging in that only a vanishingly small proportion of applications misunderstood the ODA requirements for GCRF and targeted non-DAC beneficiaries. Our interviews with DPs told us that applicants rarely if ever make the mistake of targeting non-DAC list countries, so these few data points must be those exceptions.

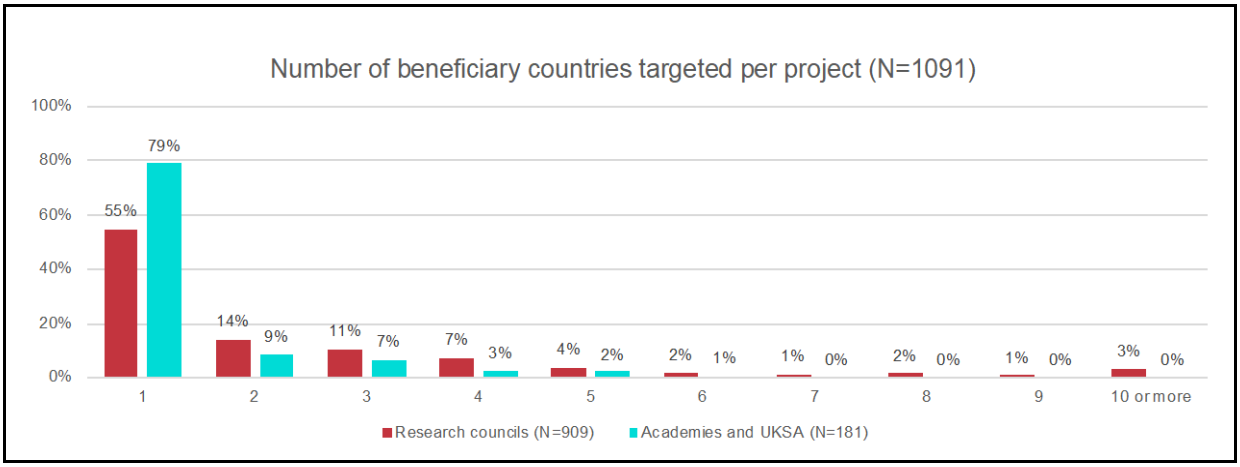
There is the possibility that the number of times a country is mentioned does not correspond well to the amount of funding from which that country actually benefitted (for example, if certain countries appear more often on very small awards). However, we calculated an estimation of the average funded grant value per beneficiary country per project. As we do not have data on the precise funding amount per beneficiary country, per grant, it was necessary to simplify by dividing total award sum equally among beneficiary countries, so our findings here are indicative only. These additional calculations found that the top 20 countries with the highest value grant per project did not differ significantly from the top 20 beneficiary countries list in the map above. In other words, the evidence available to us suggests that no country benefits disproportionately from larger grants than others.

Of the awards made by Research Council DPs, 55% target a single DAC list beneficiary country, whereas the figure is much higher at 79% for the Academies/UKSA. The remaining projects list multiple beneficiary countries. At the very top of the 'scale', around 3% of Research Council awards have ten or more DAC list beneficiary countries – compared to 0% of Academy/UKSA awards.

This reflects the different types of awards given out by these two groups, with larger research grants – multi-country, multi-partner – being more common among the Research Council calls, where individual Fellowships are the most common type of Academy/UKSA award.

Comparing funded and unfunded projects, we find no significant difference between the number of beneficiary countries targeted and whether or not applications were successful.

Figure 30 Number of beneficiary countries targeted per project



If we consider each individual mention of beneficiary countries across all awards, around 60% fall into the 'least developed' and 'lower middle income' country categories. The proportion of awards that list only 'upper middle income' countries as beneficiaries is 26%,

though we note that the figure for Research Council awards is 22%, contrasting strongly with 43% for National Academies/UKSA awards. No awards list any beneficiary countries that are not listed in the DAC-list. This aligns with the ODA requirements of GCRF programmes that at least one country from the DAC list must benefit from the work conducted in each project.

6.3. Critical success factors for pathways to impact

Research impact is more likely where two factors hold true: firstly, that the underpinning research is of a high quality; and, secondly, that there is substantial and thoughtful effort devoted to the pathways to impact. This may take many forms, from stakeholder engagement within the project lifetime through to various post-grant activities, from dissemination to translation.[32] Research funders have well-established procedures for evaluating the research quality of proposals, however there is less confidence as to what amounts to a robust, ex ante test of research impact. In light of this, the evaluation team has sought to identify the key features of the pathways to impact elaborated in the successful GCRF proposals. We have done this subjectively, inviting feedback from grant holders and panel members.

Qualitative survey data for PI grant holders and Co-Investigators suggest the following main approaches towards achieving non-academic impacts in GCRF-funded projects:

- **Engagement with key stakeholders** (project partners, government agencies and those in the communities) is often noted as a critical aspect of project success. Securing wider impacts requires engagement of the key influencers at various points in a project's lifecycle, from the inception phase (sharing in the co-creation of the project's detailed objectives and programme of work) and on through to the post-project phase and the need to develop specific engagement plans to ensure implementation and follow-on activity
    - Policy makers are often cited as the key stakeholders involved in ensuring projects have lasting impact. Their significant involvement from the start, as partners, and beyond the end of the project is frequently suggested as the best model to achieve this
    - Workshops are most often cited as the best medium for engagement, particularly with policy makers, where information can be quickly presented and solutions discussed
- **Training** of researchers, doctoral students and other stakeholders is a commonly noted element of capacity building in beneficiary countries for lasting impact beyond the projects
    - An important part of the development of in-country researchers are networking activities, leading researchers to begin to develop new collaborative projects rather than just receive training in techniques
- **Follow-on funding** is cited by many as a critical success factor. GCRF projects can only go so far, by design. The dissemination of project findings or adoption of their recommendations will always require some further endeavour and financial investment. A good implementation plan will give careful thought to funding options available,

[32] Newson R, King L, Rychetnik L, et al. A mixed-methods study of the factors that influence whether intervention research has policy and practice impacts: perceptions of Australian researchers. BMJ Open 2015;5:e008153. doi: 10.1136/bmjopen-2015-008153

whether that is a self-financing by a project partner or a grant from a national development fund or international agency

- **Continuing collaboration.** Many respondents comment that achieving impact would take considerable time, and may also be dependent on whether they are able to continue working with their project partners into the future, rather than 'one-off' collaborations

Our PI and Co-I interviewees reflected all of these points, focusing chiefly on how the availability of follow-on funding would determine whether long-term impact could be achieved. This viewpoint was sufficiently widespread to suggest that 'follow-on funding' should be considered as a potential key performance indicator (KPI) for the programme overall, including counting subsequent GCRF awards as 'follow on funding'. Workshops were likewise seen by Co-Investigators as an ideal way to bring together local stakeholders and government representatives to raise awareness about the research, its applications and to provide training in implementing a particular intervention (e.g. new water filters, using disease mapping databases to inform health policy).

In a small number of cases, Co-Investigators also described partnering up with other GCRF projects to conduct work for each other that could not have been done alone, extending the outcomes of both projects. Inter-project interactions may be an interesting phenomenon worthy of exploring further in the full GCRF evaluation.

Panel members were asked in the survey to briefly describe the qualities that characterised the best impact statements in applications. They suggest the following key characteristics:

- The strongest impact statements demonstrated local **demand** and set out **a realistic and measurable implementation plan** that addressed concretely the specific need, including figures/targets across the project timeline

> *"The statements that demonstrated that there is demand, or potential demand, for the research and how research findings could impact on ultimate beneficiaries. For example, it was all very well focusing on cutting edge research on crop varieties, but how would that benefit small-scale farmers necessarily or would even be appropriate? Impact statements that were specific about who would be targeted, included engagement very early on and utilised a variety of means as a pathway to impact."* (Panel member survey respondent)

- The best proposals involved **clearly identified local stakeholders, and especially policy makers, at all stages of the project** to ensure political buy-in. **Co-creative workshops, press releases, 'lessons learned' themed conferences and in-country training** are considered the best media for engaging with stakeholders to encourage real change
- The weakest proposals **focused disproportionately on outputs (mainly scientific publications) rather than tangible impacts in-country**. These were often characterised as research that was "a solution looking for a problem" and tended to be too descriptive and unspecific when describing impact.

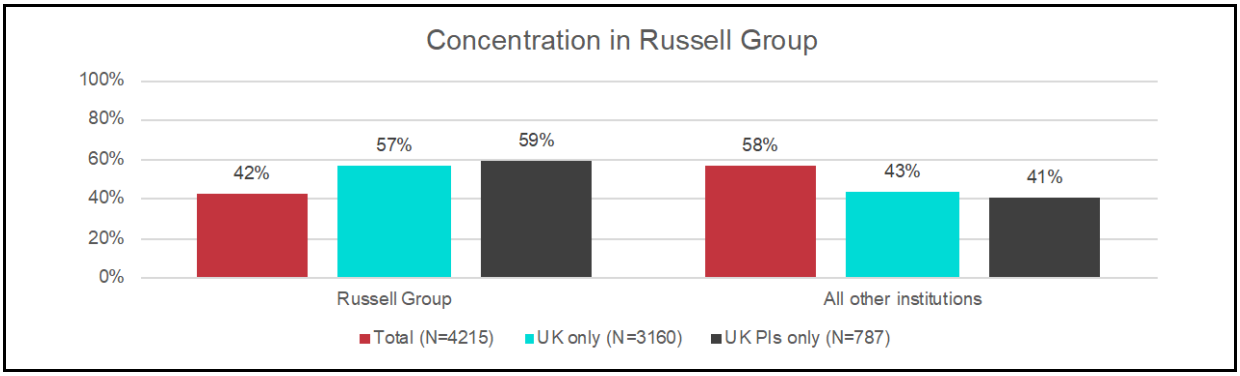
> *"The best impact statements were the ones that did not segregate 'impact' into a separate category to be viewed at the end of the project, but looked at impact in a phased and graded manner, emphasising the transformative capacity of the project as process, rather than as leading to a product."* (Panel member survey respondent)

6.4. Organisation types

The great majority of grant holders across all Research Council GCRF programmes are from the UK university sector. Further, around 60% of grant holders are based at Russell Group Universities (Figure 31). This is not an unusual level of concentration, given the dominance more generally of these institutions in the UK research funding landscape.

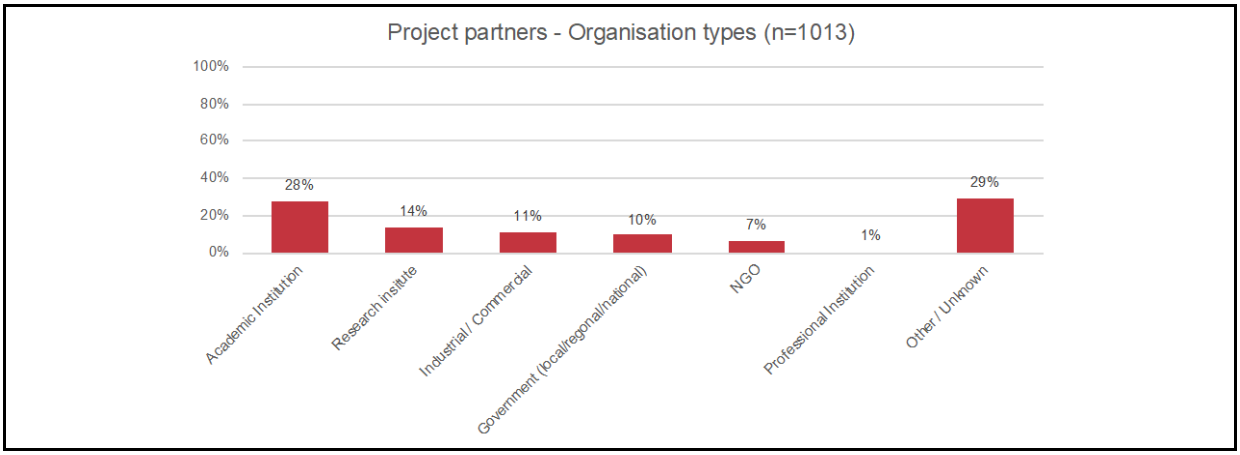
These data indicate that GCRF research largely takes place in those UK universities known as 'research intensive', but that participation in GCRF is also essentially 'in reach' of those individuals based at other institutions. It should be noted that these figures hardly change between all PIs and Co-Is, and PIs only. It may be expected that awards are more often led by academics in high-ranking universities, with individuals from more peripheral organisations likelier to join as a Co-investigator. However, the headline data do not indicate this to be the case.

Figure 31 Research Council grant holders – concentration in Russell Group universities



We received project partner information for 333 successful Research Council funded awards. 'Project partner' in this specific case refers to those stakeholders who were not listed on projects as 'staff' with specific hours and tasks to contribute, but were involved in the implementation of the project in some other way but not in direct receipt of GCRF funds. We found that an average of three partners were included per project. These are mostly academic or research institutes (42%) and mostly from the UK (26%), as shown below. Industryial partners, government and NGOs from outside the UK make up 38% of all project partners, which indicates a strong local stakeholder engagement approach from these successful projects. Only four of the top twenty project partner countries were non-DAC, also indicating positive international collaboration efforts in these projects.

Figure 32 Research Council funded Project Partners – Organisation types

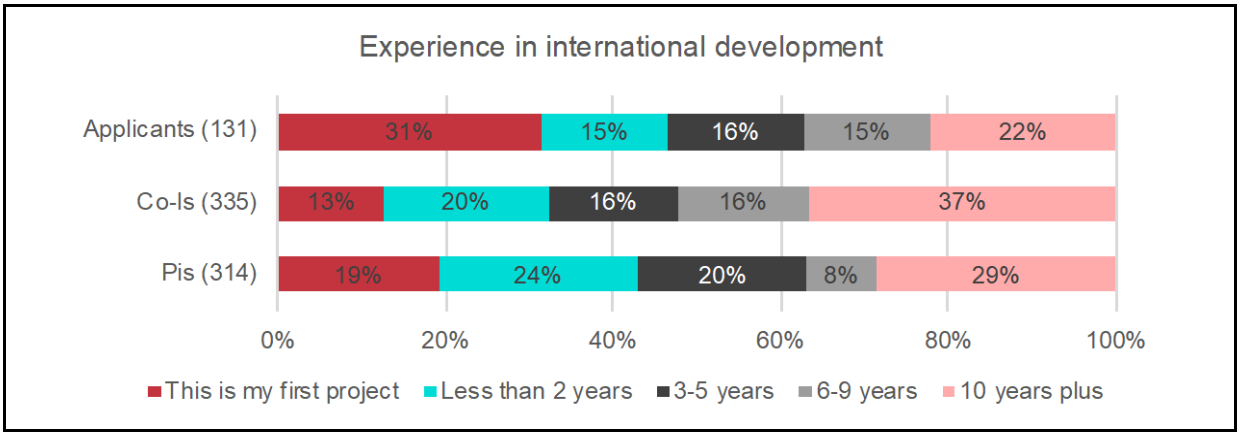


Of the 1,013 project partners for whom we have information, 26% are UK-based. The great majority of the remaining share are based in DAC-listed countries, though there are also several in non-DAC list countries, notably in the USA.

6.5. International development experience

The great majority of grant holders have at least some prior experience in international development. Indeed, such experience is associated with application success: unsuccessful applicants noted significantly more frequently that their application was their first attempt at securing funding in the field of international development, which drops to 13% and 19% for Co-Is and PIs respectively. This signals that experience in international development is an important success factor (though far from absolute). The survey findings suggest that Co-Investigators in particular tend to bring additional levels of international development expertise into the projects.

Figure 33 Levels of international development experience



Our follow-up interviews corroborate this finding: most unsuccessful applicants note that their proposals were based mostly on new or early stage collaborations with little research expertise in international development. Successful PIs and Co-Investigators describe years and often decades of international development experience, often involving their current GCRF collaborators. GCRF allowed them to expand their prior projects together to include more beneficiary countries and collaborators. Unsuccessful applicants note that it is difficult to gain international development experience without grant funding in this area, potentially shutting out those who do not have the experience to enter the field. However, this is not

supported by our survey data which showed that for almost a fifth of PIs this was their first project in the international development arena. We do not have these data for the whole pool of grant holders to confirm the survey finding, but the fact that many programmes are pump-priming supports the survey data here.

We asked successful PIs, Co-Investigators and unsuccessful applicants about their motivations were for applying to GCRF calls. The opportunity to develop their research careers, to participate in interdisciplinary research, and to upscale current projects through GCRF were strong motivators across all three groups.

PIs in particular viewed GCRF as a unique funding opportunity, typically not being able to find available or suitable alternative sources for their specific research projects, which motivated them to apply to the GCRF. Co-Investigators described being motivated chiefly by a desire to address societal challenges within their country with an international team. Unsuccessful applicants were the only group to describe applying to the GCRF to gain more international development experience, reflecting our survey results that point to lower experience in this group compared to the others. These findings indicate the GCRF's strength in attracting applicants to what is viewed as a unique funding opportunity to develop research careers and address societal challenges.

6.6. Equality and diversity

GCRF calls require applicants to show to what extent their project teams are diverse, both in terms of gender and ethnicity. For example, one of the RAEng's Africa Catalyst programme's cross cutting objectives is diversity, and it is a requirement for applicants to have or develop a gender equality / diversity policy for their project.

We summarise the gender and ethnicity data for successful Research Council applicants below (Figure 34).[33] There are some imbalances along various diversity dimensions. However, these are not of an especially concerning magnitude: for the most part, they reflect inequalities in the UK research funding landscape as a whole.[34]

The overall proportion of female grant holders also drops slightly when we consider only UK-based PIs, rather than wider pools of grant holders. This shows that there is a slightly higher tendency for males to lead projects (again reflecting more general trends in the research landscape), though we stress that the tendency is slight. Clearly, there is more work to do on equality in the UK research system as a whole, but GCRF does not appear to present any concerns other than in the sense that it reflects existing inequalities.

Similar trends are evident when it comes to ethnicity: diversity levels among UK-based grant holders (PIs and Co-Is) are quite low and drop further when we consider only UK-based PIs. As above, there is room for improvement, but no particular failings attributable to GCRF specifically.

We also present below the headline data on academic seniority, denoted by stated title. The great majority of grant holders are evenly split between 'Prof' and 'Dr' titles, indicating a low

[33] We have not been provided with any diversity data for the national academies/UKSA, and have therefore run this analysis for the Research Councils only.
[34] See for example, She Figures 2015: https://ec.europa.eu/research/swafs/pdf/pub_gender_equality/she_figures_2015-final.pdf

presence of non-academics in the pool of grant holders, but also a strong presence of non-senior academics (i.e. individuals who are not professors).

Figure 34 Diversity (Research Councils only) – Gender, ethnicity & academic seniority

Grant holders were asked about critical success factors in how they ensured a strong collaboration with respect to equality and diversity. The responses to this question often focused less on gender and ethnicity and more on UK/LMIC partner relations. However, where these issues were considered, the noted success factors were as follows:

- Ensuring a **diverse team in terms of UK/international and proactively building in a gender balance of members**
- The development of an **Equality, Diversity and Inclusion policy** at the outset of the project, which is central to the allocation of work packages (i.e. to ensure a diverse spread of people in leadership positions)

- Ensuring **a mix of researchers at different career stages** and creating opportunities for learning alongside project work, contributing to a pipeline of new international development experts from different backgrounds

7. Types of GCRF research

7.1. Topics, disciplines and interdisciplinarity

GCRF-funded awards cover a broad range of different disciplines. We note that only a portion of Research Council funded awards data contains entries for the discipline-field, whilst the National Academies have varying classifications, making it impossible to create a robust picture of the full breadth of all 1,410 GCRF awards. However, we are able to analyse those 527 Research Council awards that do specify the disciplinary field, which is indicative of the full GCRF picture.

The table below shows the top-20 most commonly noted disciplinary areas. A total of 283 different disciplinary areas are listed across the Research Council awards. Importantly, projects can list more than one disciplinary area, which is an issue we consider below. The average number of disciplines listed per project was six and the median was five. STFC projects had the highest average rate of disciplines per project (10) and NERC projects had the lowest rate (three).

Figure 35 Disciplinary area coverage of Research Council funded GCRF projects*

#	Disciplinary area	%**	#	Disciplinary area	%**
1	Development studies	22%	11	Geosciences	6%
2	Climate & climate change	8%	12	Infection	5%
3	Visual arts	7%	13	Sociology	5%
4	History	7%	14	Area Studies	5%
5	Human Geography	7%	15	Medical & health interface	5%
6	Cultural & museum studies	7%	16	Languages & Literature	4%
7	Crop science	6%	17	Pol. sci. & internat. studies	4%
8	Generic Health Relevance	6%	18	Civil eng. & built environment	4%
9	Plant Science	6%	19	Social policy	4%
10	Social anthropology	6%	20	Microbiology	4%

*The MRC use thirteen separate classifications that do not align with the other DPs' classifications. All health-related classifications above belong to the MRC. **percentage of total projects that include disciplinary area data (Listed as 'thematic area' in the Research Council data)

The most widely cited discipline is development studies but this is due to the AHRC, ESRC and NERC projects, the other DPs only list a few projects with this discipline. We also broke down disciplinary areas by each individual Research Council. These numbers do tend to match up with what might be expected (e.g. crop science is the most common area listed for BBSRC awards).

Table 10 Disciplinary area top five coverage by DP

AHRC	% of total	BBSRC	% of total	EPSRC	% of EPSRC total	ESRC	% of total
Development studies	45%	Crop science	66%	Civil eng. & built environment	33%	Development studies	29%
Cultural & museum studies	26%	Plant Science	66%	Medical & health interface	25%	Social policy	15%
Visual arts	25%	Microbiology	32%	Energy	21%	Economic Development	14%
History	23%	Animal Health	26%	Medical Imaging (inc medical image and vision computing)	19%	Global Health and Medicine	11%
Human Geography	18%	Soil science	12%	Sensors and Instrumentation	17%	Social anthropology	10%

MRC	% of total	NERC	% of total	STFC	% of total
Generic Health Relevance	37%	Climate & climate change	48%	Data Handling & Storage	25%
Infection	30%	Geosciences	41%	Part. Phys/Astron. Instrument.	21%
Mental Health	13%	Development studies	34%	Science and Technology Studies	14%
Cancer	4%	Terrest. & freshwater environ.	21%	Climate & climate change	11%
Oral and Gastrointestinal	4%	Agri-environmental science	21%	Agricultural systems	11%

A further breakdown of the analysis into common topics is not feasible, given the extraordinary breadth. The range of disciplines covered by the funded awards is in itself indicative of the breadth of GCRF-funded research. Belowwe present a work cloud of all GCRF funded project titles (Research Councils and National Academies/UKSA), giving an impression of the kinds of research being conducted in GCRF. It features much of the same language that pervades GCRF programme titles.

Figure 36 The top-100 key terms in all funded project titles

Besides wide disciplinary coverage of GCRF-funded research as a whole, it is also important to consider the level of interdisciplinarity of individual awards, especially as it is part of the intention of GCRF to fund interdisciplinary undertakings, owing in part to the known association between interdisciplinary research and scope for non-academic impact.[35]

Analysis of Research Council data shows that 23% of awards list only one disciplinary area (though even these may list more than one sub-field). The remainder list at least two, with 20% listing more than five areas. This latter group of awards is likely to be very strongly interdisciplinary, though more generally, a high degree of interdisciplinary activity is evident in most GCRF-funded projects.

Number of disciplinary areas targeted	Number of projects	%
1	120	23%
2	106	20%
3	108	20%
4	88	17%
5 or more	105	20%

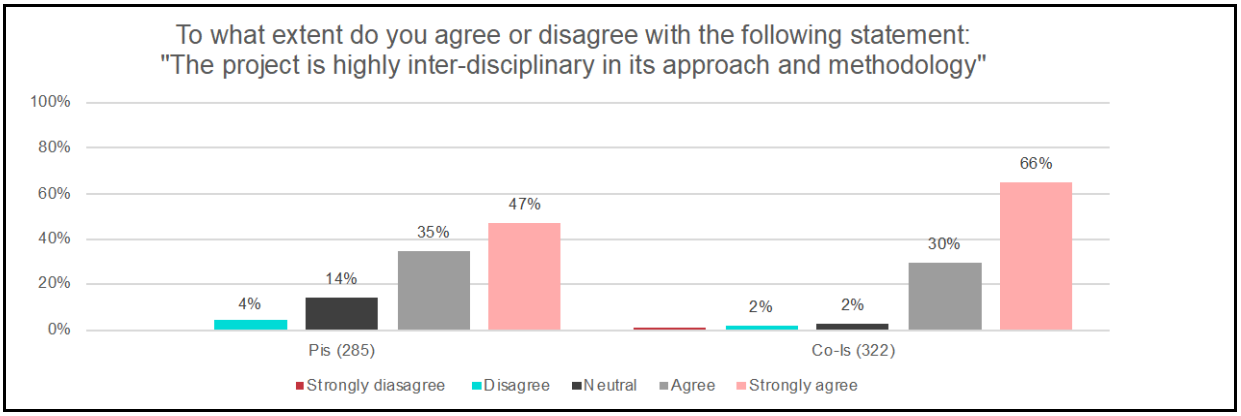
*Based on Research Council grants data, includes only 527 awards for which disciplinary and thematic areas are entered

[35] See e.g. King's College London and Digital Science. (2015). *The nature, scale and beneficiaries of research impact: An initial analysis of Research Excellence Framework (REF) 2014 impact case studies.* London: King's College London.

These figures may hide the fact that projects often involve disciplinary areas that are closely related. However, our survey data further indicate a strongly interdisciplinary character of the funded research.

We asked PIs and Co-Is to rate the interdisciplinary nature of their project. The great majority of both groups signal strong interdisciplinarity in their responses. The share of responses indicating mono-disciplinary work is vanishingly small.

Figure 37 Survey findings on interdisciplinary approaches



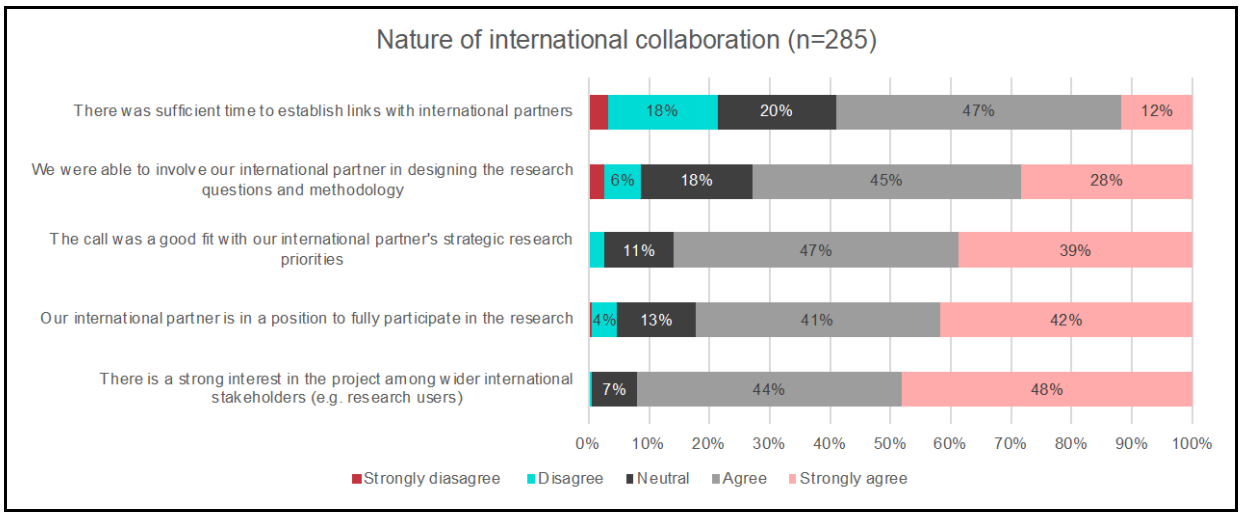
Our PI and Co-I interviewees report that the interdisciplinarity of the project team led to tangible benefits to how the research was conducted, many of which were unplanned. For example, we heard about the use of a new method of storytelling to understand the experiences of immigration lawyers, only possible with the inclusion of an ethnographer, which was described as a helpful innovation by the law researchers.

The main challenge raised for interdisciplinary working were the "growing pains" of getting to understand other researchers' ways of working and overcoming disciplinary "languages" (i.e. shorthand technical terms and jargon used within disciplines). Our interviewees described a positive learning curve for all partners in overcoming these challenges and benefiting from this by gaining more research skills and knowledge about unfamiliar disciplines. Although most interviewees had interdisciplinary experience before GCRF, many commented that they had never worked with so many disciplines at such scale. This feature of GCRF (i.e. requiring interdisciplinary research) was also a key motivator and perceived strength of the fund itself.

7.2. The nature of international collaborations – funded projects

Grant holders are overwhelmingly positive about the nature of their international collaboration (Figure 38). There is particularly strong acknowledgement of interest in the project from wider stakeholders (92%) and of partners being able to participate fully in the research (83%). The highest disagreement rating is around the question of time to establish international partnerships (21%), although even here the majority agree there was sufficient time for this (59%).

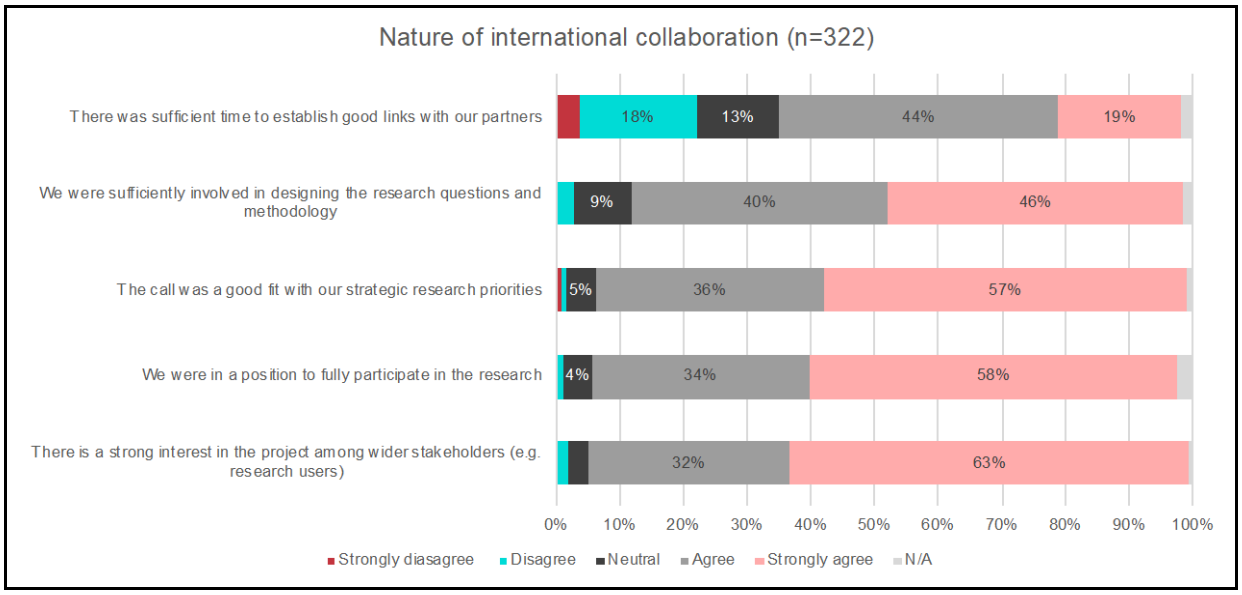
Figure 38 Grant holders' views on the nature of their international collaborations



The proportions of responses to the question of sufficient time to establish links with partners was similar across PIs and Co-investigators (

Figure 39), indicating a potential issue in lead in time for some.

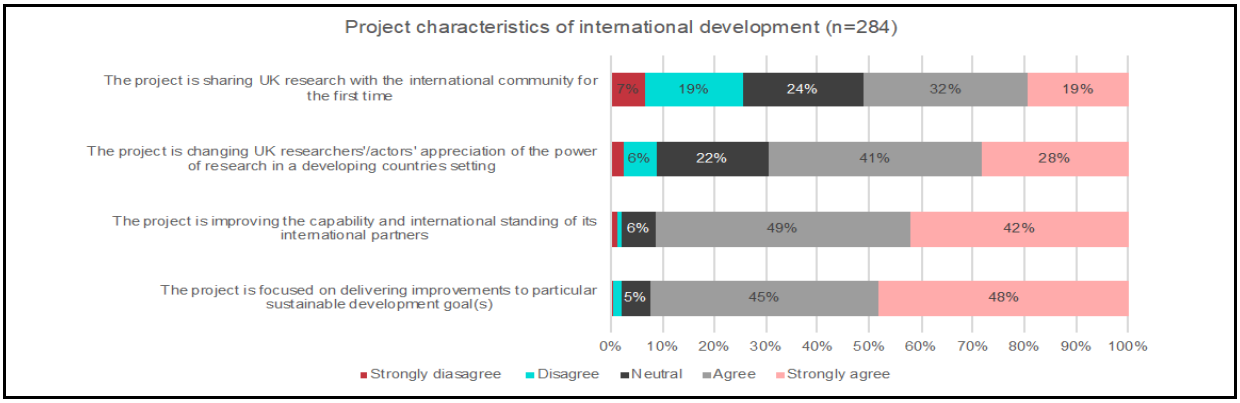
Figure 39 Views on the nature of international collaborations



Grant holder survey respondents indicate that their projects are improving the capability and international standing of their international partners (91%) and are focused on delivering specific SDGs (93%) (Figure 40).

Agreement levels are lowest on the statement that projects were sharing UK research with the international community for the first time, reflecting to an extent our findings above on prior experience in international development, which may in many cases have been specific to the substance of the funded project itself. Indeed, we find that 44% of PIs had worked with their current partners before and would work with 91% of their partners again in the future (n=262 responses). This is an encouraging indicator of the partnerships being built and maintained through GCRF research.

Figure 40 PI Grant holder funded projects – relevance to international development



Our consultations indicate that poor proposals are associated with tokenistic inclusion of partners instead of building them in from the start. Those that did not focus and build up from the GCRF challenges were also less successful, and some struggled with the partnerships and internationalisation side.

7.3. Successful approaches to international partnerships

GCRF's ultimate success may hinge on its ability to create lasting partnerships that facilitate capability building on the one hand while underpinning fruitful future collaboration on the other. The study team therefore asked panellists and grant holders to provide feedback on the approaches taken to forming those partnerships among successful applicants. What qualities distinguished successful partnership formation?

We have conducted an analysis of the qualitative survey data for PIs and Co-Is (via free-text entry fields in the surveys) on the question asking about critical success factors for their international partnerships. Findings of this analysis include:

- **Regular, meaningful communication** is most often cited as the primary critical success factor for cultivating international partnerships. This involves exploring motivations of each party and establishing expectations for the project early to ensure everyone is 'on the same page'. This often contributed decisively to trust, openness and transparency
- **Delivering and participating in in-country networking workshops/events** is frequently cited as important in bringing the partners together to actually begin developing proposals
- **Co-creation of proposals, and of the research itself**, appears to be a key factor in ensuring a successful international partnership. Continued engagement on an involved and equal basis is noted as important at each stage to ensure all partners are continually invested in the work

The above points relate to both PIs and Co-Investigators. However, a point made by Co-Investigators only is that a previous relationship with the PI was important for the success of the partnership. This is a useful additional reflection, inasmuch as it underlines the need to get to know partners over time, to build trust and shared understanding, such that people understand one another's interests and the areas of common ground, as well as developing a shared modus operandi. Research collaborations are not reducible to simple informational transactions, and demand all parties invest in the relationship to a much greater extent than

may appear necessary, to ensure they add value.[36] This may be especially true for north-south research collaborations, and the need to work through the inevitable asymmetry in capacities and resources.

Our interview data corroborate these findings, particularly the first and third points. Communication and trust are vital foundations for the partnerships and even helped to alleviate some of the challenges that came up during the projects, including: visa issues, difficulties in securing paperwork for proposals from overseas partners, and the GCRF limitation on directly funding the overseas researcher's time. The challenges described here are echoed by all interviewee groups as serious barriers to developing and maintaining international collaborations.

Panel members offered their perspectives (also from free-text entry fields ion their survey) on what made the best partnerships in proposals:

- The strongest examples were of **well-established UK-LMIC links that specifically involved local NGOs/community representatives and industry partners**, which produce lasting and sustainable impact as a result
- **Co-creation of proposals and research** where the international partners had 'added-value' roles leading to mutual benefits for UK and non-UK partners. Panel members assessed this through the letters of support.

> *[answering to: 'Please briefly describe the qualities that characterised the best proposed international partnerships' - "Those where applicants already had deep connections, collaborations and knowledge of the countries involved. Those that were cognisant of the difficulties of operating in certain countries and mitigated well against that particularly through interdisciplinarity and local connections. Those that co-created the proposal with overseas partners"* (Panel member survey respondent)

- **Interdisciplinary partnerships that were 'genuine'** were judged to be of better quality, meaning that the disciplines included were crucial to the production of quality science rather than 'add-ons'
- The weakest applications were those that proposed **'tokenistic' partnerships where the UK lead dominated** in the intellectual design of the research as well as the actual fieldwork. However, there was also a concern about only allowing established partnerships, which risks **shutting out any new collaborations in GCRF**

> *"The better international partnerships are those that exhibit clearly defined and creative value-adding roles for the international partners, accompanied by realistic commitments of resources, both in cash and in kind, from the International partners. I also looked for collaborative agreements that showed clear areas of joint working across the international team." (Panel member survey respondent)*

7.4. Building on past success

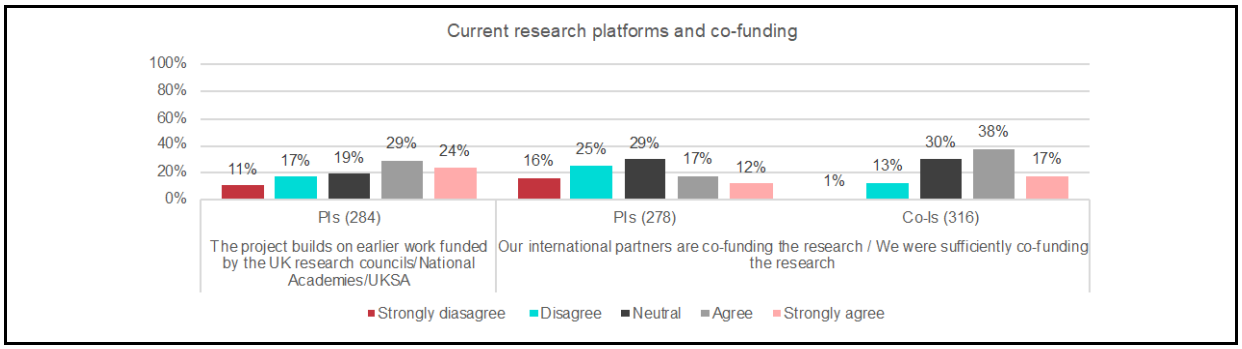
Our survey of PIs suggests that in the majority of cases, projects built on earlier work (53%). Our interviews also found that successful PIs and Co-Investigators typically had extensive

[36] For a recent article on international collaboration, see https://www.nature.com/articles/d41586-018-05944-x

experience in the international development arena (more so with Co-Investigators), and also of working together on research projects. In such cases, their research portfolio had culminated to what was considered a larger continuation of their prior research, expanding wider than before into new countries or having the potential to deliver more impact. There were also cases of prior employment / study at their partner's organisation or having contact through a post-doctoral researcher that had a mutual link. Some unsuccessful applicants described submitting proposals with very new partners where the research idea was equally in its infancy.

There is a more mixed picture in terms of international partners' financial involvement: 41% of PIs disagreed with the statement that their international partner was sufficiently funding the research and 29% agreed, a large proportion of responses were neutral on this point (29%). The second statement was worded slightly differently for PIs and Co-Is but still allows some comparison. Co-Investigators agreed in more cases (55%) than PIs (29%) that they were sufficiently co-funding the research. The low response rate to this question by Co-Investigators (48%) should be noted: many respondents may not have a view of co-funding levels.

Figure 41 Current research platforms and co-funding



Several examples were given during the DP interviews illustrating the kinds of projects that tended to be successful based upon existing prior work in international development. Some examples came from the RCUK Collective Fund GROW call:

- The £7.7m One Health Regional Network for the Horn of Africa[37] led by the University of Liverpool will look to grow the capability of research institutes and researchers across the region to undertake high quality research into the link between people's health and wealth and that of livestock and the environment. The network is being built on previous work with partners in several East African countries, however, the GCRF funding will allow the network to expand greatly its training and research activities and has also allowed the partnership to be expanded to include two new countries, including Eritrea (usually difficult to access)
- The £7m GCRF Drugs and (dis)order project[38] being led by SOAS at the University of London will allow researchers in border regions of Afghanistan, Colombia and Myanmar to carry out wide-ranging and rigorous empirical research into the relationships between drugs and various wider social and economic factors (from people's livelihoods to health). The new project builds on work that has been running for around ten years, with the GCRF funding providing the scale of investment needed to transform the quality of

[37] http://www.zoonotic-diseases.org/what-we-do/flagship-projects/one-health-research-network-for-the-horn-of-africa-horn/
[38] https://www.soas.ac.uk/drugs-and-disorder/

the available evidence base, develop practical policy responses and enlarge / formalise a global network of researchers studying illicit economies

This 'upscaling' phenomenon was apparent in our conversations with others; MRC explained that some of their awardees were building upon a decade of work by using the GCRF to extend their reach and impact across DAC list countries and regions.

8. BEIS allocation processes

8.1. Distribution of GCRF funding to Delivery Partners

The BEIS Research & Innovation ODA Board, chaired by the Minister of State for Universities, Science, Research and Innovation, provides the high-level strategic oversight for GCRF and is supported by an officials' working group. There is also a Strategic Advisory Group (SAG), comprised of independent academics which advises BEIS and deliver partners on the fund. Individual delivery partners also have their own governance processes.

A portfolio approach is applied at all levels of the GCRF and is implemented by both BEIS and delivery partners, working in partnership. Overall responsibility for the coherence and strategic alignment of the GCRF portfolio sits with the BEIS Research and Innovation ODA Board. The ODA Board is supported in its portfolio management through a number of groups, most significantly the ODA Officials Group, the Strategic Advisory Group and the GCRF delivery forum. Delivery bodies have responsibility for the coherence of the GCRF portfolio at the thematic level, ensuring alignment with GCRF aims and complementarity with existing and planned work under other relevant funds including non-ODA work.

The delivery partners receive funding from the GCRF in two ways. The largest share of the funding is given to them individually as annual allocations, from which they award grants onwards to research institutions, industry or non-profit organisations (individually or in consortia) through a competitive process. Most of the remaining 'unallocated pot' is placed in two 'Collective Funds' – one for the Research Councils and one for the Academies. The Collective Funds accept joint bids from all the Research Councils or all the Academies, bringing together different sectors and disciplines to tackle multi-faceted development challenges. The four UK Higher Education Funding Councils for England, Scotland, Wales and Northern Ireland also receive GCRF funding, which they allocate to their respective research institutions based on the overall quality of research.

The GCRF Unallocated Funds Assessment Panel reviews the programme proposals generated by GCRF delivery partners. Based on the Panel's assessment, proposals were agreed, rejected or modified and this informed a submission by BEIS officials to the Minister of State. The Assessment Panel is comprised of BEIS and DfID officials and the Chair of the Strategic Advisory Group. The Assessment Panel consider delivery partners' proposals based on the criteria listed below:

ODA eligibility Strategic alignment Clear pathways to impacts Additionality	Value for money Scalability UK Gains Performance Consideration of any political sensitivities

BEIS leaves it to the individual Delivery Partners to decide where the funding will be spent, subject to review by the ODA board.

ICAI (2017) summarise the current and planned high-level allocations of GCRF funding, separating between the National Academies, Research Councils, NFCs and UKSA. From the same report, ICAI note:

> *'The allocation of the budget between Research Councils was based on a formula developed by the Research Councils themselves, considering their previous allocation and absorptive capacity for ODA funds.'*

Table 11 GCRF original annual allocation across DPs

Programme	2016-17	2017-18	2018-19	2019-20	2020-21	Totals*
Research Councils	3.2%	6.6%	6.6%	6.6%	6.6%	29.6%
Academies	0.7%	0.7%	0.7%	0.7%	0.7%	3.5%
UK Space Agency	2.1%	2%	2%	2%	2%	10.1%
UK Funding Councils	1.3%	2.4%	2.4%	2.4%	2.4%	10.9%
Unallocated	-	2.5%	8.1%	14.2%	20.8%	45.6%
Total funding (£ million)	£112	£215	£299	£393	£492	£1,511

*Total percentages have been rounded to one decimal place, which explains why totals do not add up to 100%.

Source: ICAI, 2017

After this, the National Funding Councils, UKSA, the Research Councils and the Academies were included as Delivery Partners on the fund. RCUK also oversaw the first stage of consultation with UK universities around the GCRF strategy and used a piece of work from DFID as a starting point on their own research priorities. It was used as a way to engage participants in the consultation on international development topics. This also included events in several UK cities (e.g. London, Birmingham, Cardiff, and Swansea).

The results of these activities fed into the GCRF strategy. RCUK started to develop the central GCRF team, so it could build capacity to run the large collective fund calls. This also involved setting up the SAG as a collective strategic focus for GCRF. The SAG looked at what programme eligibility criteria the GCRF should have and identified four main criteria, which included 'capacity building and equitable partnerships', an important element picked up from other global funders. BEIS then encouraged RCUK to facilitate working across all DPs, leading to the creation of the Delivery Forum shortly after the GCRF strategy was published with the Research Councils and National Academies (and UKSA).

To better engage with the international community, RCUK implemented the GCRF Global Engagement Programme in 2017, organising international networking events (Global Engagement Meetings) bringing together UK researchers with international development funding agencies and LMIC partner organisations to promote collaboration and raise awareness of the GCRF.

Our interviews highlighted three key points of criticism in relation to the GCRF funding allocation process:

- Interviewees identified a lack of transparency in how funds have been distributed across DPs, specifically around the amounts allocated to each DP.
- GCRF was launched at short notice: the fund launched with little prior notice and with instruction that the money had to be spent quickly. This was an issue for DPs, including for the National Funding Councils (NFCs) who had to allocate GCRF funding to their HEIs after regular QR funding had been distributed.

  The speed of the initial allocation also made it difficult for DPs to work together on creating programmes. The larger joint programmes between academies for example have only happened more recently under the Resilient Futures theme, which is still launching programmes in 2018. Another indirect consequence of spending money quickly was that academies were more inclined to fund established researchers in international development with existing collaborations, rather than develop new relationships.
- GCRF allocations are made annually: DPs also requested a longer-term view from BEIS in terms of indicative funding amounts over the years, and to be allocated funding at intervals longer than the current annual model of allocation. This would allow them to commit more to funding long-term projects without the risk that budgets may be cut off due to fluctuations in annual GCRF funding allocations.

The GCRF has provided a substantial increase in the volumes of 'development' funding being awarded by all of the Research Councils, Academies and the UK Space Agency, which has attracted the attention of a majority of public research organisations and encouraged thousands of UK researchers to develop or expand their international development networks. The GCRF programmes have also launched many longer-term projects such as Research Hubs where the ultimate benefits will be realised over a 10-20 year period.

Delivery partners, panellists and researchers are concerned about follow-on funding beyond the 5-year GCRF funding cycle and see a risk that the funding will not be renewed or will be redirected. If this were to happen the various networks and relationships being built up right now may not be sustainable, which would be a wasted opportunity on the one hand and possibly reputationally damaging (for the UK) on the other. Perhaps most importantly, given the metabolic rate of research-led transformation, a cliff-edge drop in funding is likely to compromise the longer-term impact of GCRF. We are rapidly approaching the point in time where these issues will need to be decided upon in order to allow funders and researchers sufficient time to make any necessary adjustments, whether that is preparing to launch follow-on activities or beginning to switch attention to other funds and other research questions. These are financially dependent communities, on all sides, and people must inevitably follow the money.

Although DPs understand that the GCRF support is dependent on the renewal of the fund under the spending review, a view of the support extending beyond 2021 would be helpful in setting long-term agendas for what have been viewed as very successful programmes so far. Many DPs have funded projects extending up to or beyond 2021, indicating their individual commitments to the effectiveness of GCRF.

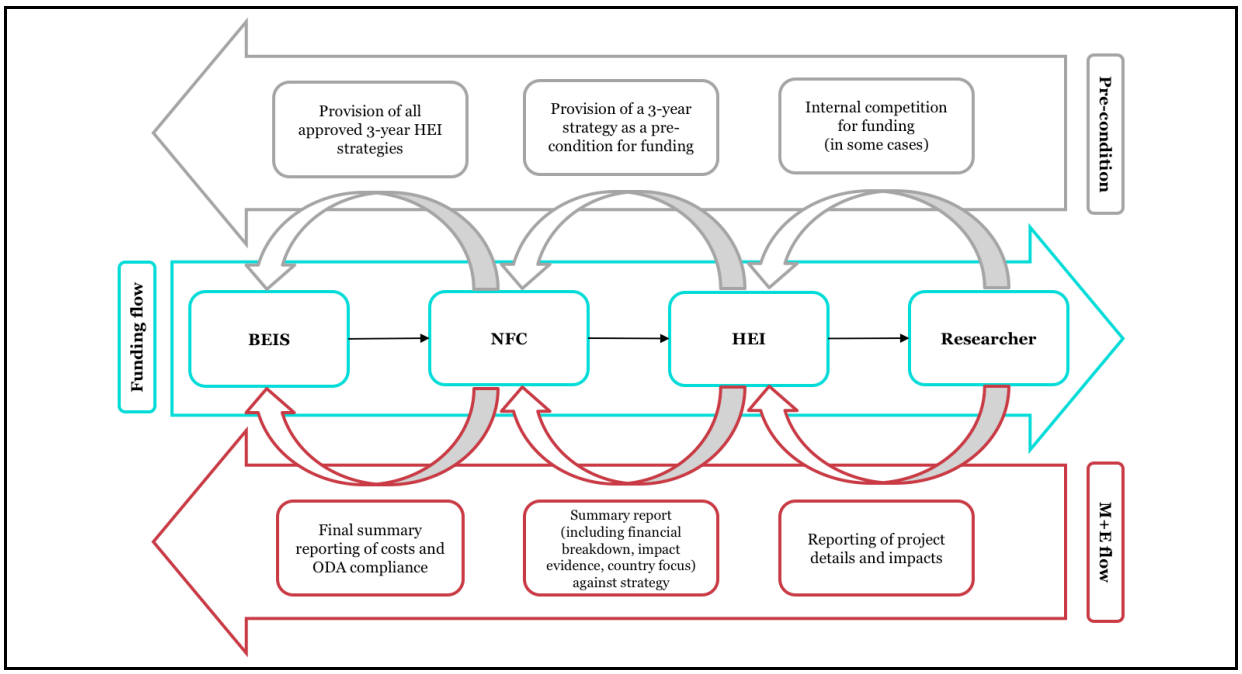
8.2. A note on the Funding Councils

Much of this evaluation has focused on those DPs that provide grant funding and similar competitive awards. A separate category of organisations involved are the National Funding Councils (NFCs). The role of NFCs in the GCRF is to allocate funding for the GCRF to their respective HEIs in England, Scotland, Wales and Northern Ireland.

We provide a detailed description of the funding allocation processes of each NFC to their respective HEIs in Appendix C. In brief, we note the following headline points about this process:

- NFC allocations came directly from BEIS with the guidance that NFCs distribute the funding to HEIs, whether through their Quality Related (QR) or equivalent route, or otherwise (detailed in the appendix). The purpose of this was to support UK HEIs in various ways: capacity building, pump priming, interdisciplinary and collaborative research, generating impact, rapid response, and providing GCRF delivery activities in HEIs such as governance and due diligence. It is intended to cover, at least in part, the remaining 20% of costs not covered by the DP GCRF funds (paid at 80% FEC). However, HEIs are free to use this funding on any GCRF-related (ODA compliant) activity and from 2018 are required to plan this spending in three-year strategies that are reported against at the end of that period (discussed below).
- The total amount of funding allocated to HEIs through NFCs across the five-year GCRF period (2016–2021) will be almost £230m (increasing year-on-year), with £80m already distributed in the first two years. HEFCE (and since April 2018 Research England, which assumed the research and knowledge exchange functions of HEFCE) receives the most funding as they service the largest proportion of HEIs across the UK
- In the first two years, the NFC allocations to HEIs were made rapidly and, in all cases, meant that no common monitoring and evaluation approach was used across NFCs. More ways to better implement standards of ODA and BEIS were developed in the following years. This was also scrutinised in the review by ICAI
- In response, HEIs must submit three-year strategies to their respective NFC for allocations starting in 2018/19, demonstrating how they will ensure the funds are spent on ODA compliant activities. The amount of GCRF support that individual HEIs receive is not based on the strength of their strategy. They simply receive their pre-determined allocation only if their strategy is assessed as ODA compliant. A summary of this allocation and monitoring processes is below.

Figure 42 NFC funding allocation flow



We contacted all NFCs after the three year strategy deadline to check whether the process had gone well and how many HEIs had submitted strategies.

The strategy submission and review process had been successful with no major issues raised. All HEIs who had submitted strategies were approved (n=131). All HEIs eligible to submit a strategy did so, except in the case of England, where 15 HEIs (12%) did not. RE advised that all of these cited a small indicative allocation not being deemed significant enough, and/or a lack of ODA activity to warrant the burden of submitting to the strategies process. These tended to be small specialist institutions such as arts colleges.

Table 12 HEI 3-year strategy submissions across the Funding Councils (2018-19)

NFC	Total eligible HEIs*	HEIs who submitted strategies	HEIs asked to re-submit	Total HEIs approved (success rate)
RE	122	107	28	107*** (100%)
SFC	18	18	3**	18 (100%)
HEFCW	4	4	1	4 (100%)
DfE NI	2	2	0	2 (100%)

*These refer to HEIs deemed eligible by the specific national Funding Council. HEFCW excluded a number of institutions by applying a funding threshold.
**Seven additional HEIs resubmitted to better clarify and strengthen their strategies.
***Twelve of these HEIs will be subject to an additional monitoring exercise in 2018-19 to address some outstanding issues with their strategies and to provide further assurance of ODA compliance.

After initial assessment, HEIs not meeting ODA compliance criteria were invited to revise and resubmit their strategies. The main reasons for NFCs requesting the resubmission of a strategy were

- A lack of detail on specific activities, partner countries and intended outputs/impacts
- Not enough explanation of internal processes for distributing QR GCRF, monitoring activity, or assuring ODA compliance

- A need to articulate more clearly how both the strategy as a whole and funded activities through QR GCRF primarily benefit DAC list countries, as opposed to the HEI itself
- Assigning GCRF bid writing time as covered by the HEIs GCRF allocation, which was ruled as not being an ODA-eligible activity; however, preparatory work such as developing datasets or building relationships was acceptable
- Lists of projects that would be supported with the GCRF allocation were incomplete or missing entries, partly due to uncertainty around what would come through the funding pipeline over the 3 years.

Feedback was given to each HEI to allow refinement and resubmission of their strategy for approval, and all did so. In the case of SFC, a number of HEIs who had not been asked to resubmit did so simply to improve the quality of their submission. SFC, HEFCW and DfE NI found RE's practice of sharing a sample of strategies with assessors' comments to be helpful in assessing the strategies within their own countries. All of the NFCs sent a sample of strategies to UKRI's ODA Compliance Group for comments on ODA eligibility, which was deemed to be of great help and roundly praised.

A concern raised by one of the NFCs was that the time allowed for HEIs to submit and resubmit strategies was perhaps too short for HEIs to optimally develop their strategies. Another NFC suggested that the pressure for HEIs to quickly allocate their funding to fixed activities limited their opportunity to develop new overseas relationships, build internal ODA capacity and develop new activities with other UK HEIs. The next opportunity to submit strategies would be for 2021-22, but that would be dependent on a second tranche of renewed GCRF funding to allocate.

9. Delivery of the unallocated/collective fund

Aside from the individual allocations to DPs, a £691m unallocated pot is split into two 'collective funds', one for the Research Councils and one for the National Academies (Table 13).[39] Three separate bids to launch programmes were funded by BEIS as part of the unallocated fund. These then formed into eight separate programmes.

Table 13 Programmes launched as part of the unallocated fund (phase 1 and 2)

Delivery Partner(s)	Call/programme title
GCRF-RCUK	GROWing research capability to meet the challenges faced by developing countries
GCRF-RCUK	Interdisciplinary Research Hubs to address intractable challenges faced by developing countries
Royal Society and AMS	FLAIR (including ODA in Good Practice)
Royal Society	Resilient Futures: Challenge Grants
RAEng (leading), AMS, British Academy, and the Royal Society	Resilient Futures: Frontiers of Development symposia
British Academy (leading), AMS, RAEng and the Royal Society	Resilient Futures: Cities & Infrastructure
AMS (leading), British Academy, RAEng and the Royal Society	Resilient Futures: Networking Grants
British Academy	Early Childhood Development Programme (50/50 GCRF and DFID funded)

[39] BEIS R&I ODA board 27 October 2016 Paper 4 – GCRF Unallocated Funds

9.1. DP's collaboration on the collective fund

The Resilient Futures bid involved all the academies and the consequent programmes within the initiative are steered by them, with one taking the lead on behalf of the others. The programmes were developed through scoping and networking activities. Programmes were typically led by the DP most suited to the type of funding instrument in question (e.g. the Royal Society led the Challenge Grants, as they have conducted many similar programmes in the past). Both collective fund programmes are led by RCUK on behalf of the other councils, more centrally managed than the Resilient Futures initiative.

The four National Academies were encouraged to work together on their collective fund bid, which resulted in programmes that were led by the most suitable DP depending on the funding instrument. Each call was timed with other academy calls, so the community had a choice between suitable programmes at the same time; they could bid into whichever one was most suitable rather than waiting months or years before a suitable call came up.

Our interviews with DPs indicate almost across the board that collaboration between the DPs has worked well and been collegial, efficient and, in particular, enriching in terms of avoiding disciplinary silos. There appears to be an issue around those DPs most closely associated with basic science and basic science infrastructure – who may have struggled somewhat to 'find their place' in these funding actions and ensure their researcher communities could respond with fully fledged relevant applications within the allocated time.

Table 14 summarises the number of projects awarded to researchers under each DP and their corresponding value in relation to the GROW call total. ESRC and MRC researchers have the highest proportion of projects funded. Although these DPs' communities may also be more experienced in ODA eligible work, they have also been most active in terms of programmes and calls, particularly joint programmes.

There were examples given where internal proposal prioritising at universities meant that researchers in universities from the STFC community were often screened out of submitting their proposals to the GROW call, because of the limit of two applications per university and those conducting the screening favouring researchers in other DP communities as having better success chances. Upon securing proposal rights for the STFC facilities through RCUK to allow each of their major facilities to submit two bids each, none were selected for the final stages of assessment, leaving the STFC community with only one small project (0.02% of the total funding allocated) in the GROW call despite submitting 11 applications. However, STFC's Diamond Light Source funded two unsuccessful bids using other STFC GCRF allocation through another peer review process (£3.6m over three years), to ensure STFC would have GCRF flagship projects.

Other DPs are conscious that the large collective fund programmes, like GROW, are often out of reach for their communities in terms of the sheer size of the award. AHRC commented that many of their awards were small (around £100k) and they were concerned that their community might not be able to scale up to multi-million pound projects so quickly. Indeed, AHRC had the lowest amount of applications to GROW, though two out of the three responses were funded.

Table 14 GROW call funded projects per DP and award values

DP	Applications	Projects funded	Success rate	Award amount	% of total award amount
AHRC	3	2	67%	£7,591,551.26	4%
EPSRC	22	2	9%	£11,469,935.69	6%
ESRC	37	12	32%	£75,781,529.05	42%
MRC	24	9	38%	£55,187,070.41	30%
NERC	18	5	28%	£31,376,805.50	17%
STFC	11	1	9%	£33,952.81	0.02%
Total	**115**	**31**	**100%**	**£181,440,844.73**	**100%**

9.2. How have bids been handled under the collective fund?

The unallocated fund had governance in the form of an ODA board chaired by the Minister of State for Universities, Research, Science and Innovation. A process was set up to decide on which programmes would receive funding through the unallocated fund and a paper to the minister explained that BEIS would use that unallocated fund to support interdisciplinary transformative research (decided at the ODA board). The minister gave the steer that it should be used for the DPs to run programmes collectively, rather than by individual entities.

Once this approval from the minister and the ODA board was given, BEIS opened up a call for proposals and received four bids from GCRF delivery partners that amounted to £770m.[41] Bids were received from RCUK (collective councils bid), a collective academies bid, the British Academy, and the UKSA (2 distinct bids). A bespoke assessment panel was established with specific Terms of Reference and statement of intent:

> "Our primary objective for BEIS ODA research and innovation funding is to reduce poverty by generating and putting into use knowledge and technology to address development challenges and advance development for the poorest people and countries. We will seek to **maximise** the practical impact of research and innovation to improve the lives and opportunities of the global poor"

This panel was formed of ten individuals from across BEIS (GCRF SAG, policy, finance, academies and UKSA sponsors, directorates of science, research and education) and one from DFID. The assessment criteria were based on the strategy, sustainability and impact that the funded initiatives might have:[40]

[40] BEIS R&I ODA Unallocated Funds Assessment Panel 26 January 2017 Paper 3 – GCRF Unallocated Funds Assessment Panel Criteria for Decision-Making

1. ODA eligibility
2. Strategic alignment
3. Clear pathways to impacts
4. Additionality
5. Value for money
6. Scalability
7. UK gains
8. Performance
9. Consideration of any political or media sensitivities

In addition, DPs had to assure the panel that their proposed programmes were aligned to the GCRF strategy and addressed the GCRF challenge areas. Research excellence and effective programme governance also had to be at the heart of those programmes. BEIS understood that DPs had their own peer review processes prior to submission.

After decisions were made, DPs were contacted to negotiate the requested funding to fit the budget of this first tranche of unallocated funding. The discussion from the assessment panel then informed the final recommendation on allocations by BEIS officials to the Minister of State for Universities, Research, Science and Innovation.

9.3. Effective distribution of funds

Three tranches are planned to be allocated across the five years of the current GCRF programme lifecycle, two of which have been allocated as of June 2018. This funding operates on an increasing scale, starting in 2017/18 at £38m and increasing for 2020/21 to £315m.[41] This first tranche of the unallocated fund, which focused on supporting a more transformative approach to research, amounted to around £400m over four years. The final allocation will focus on filling gaps in the strategic priorities of GCRF that have not yet been fulfilled or addressed adequately enough. As with the GCRF awards more broadly, the awards made under the collective fund show relevance to a broad range of challenges.

Table 15 Challenge areas and the distribution of projects for the unallocated fund

Challenge area	All GCRF awards N=1,563	Resilient Futures N=103	GROW N=37
Equitable Access to Sustainable Development	**61%**	**33%**	**0%**
Affordable, reliable, sustainable energy	3%	4%	4%
Clean air, water and sanitation	4%	10%	7%
Inclusive and equitable quality education	3%	0%	3%
Secure and resilient food systems supported by sustainable marine resources and agriculture	22%	15%	17%
Sustainable health and wellbeing	31%	16%	27%
Sustainable Economies and Societies	**35%**	**10%**	**0%**
Sustainable livelihoods supported by strong foundations for inclusive economic growth and innovation	11%	0%	9%

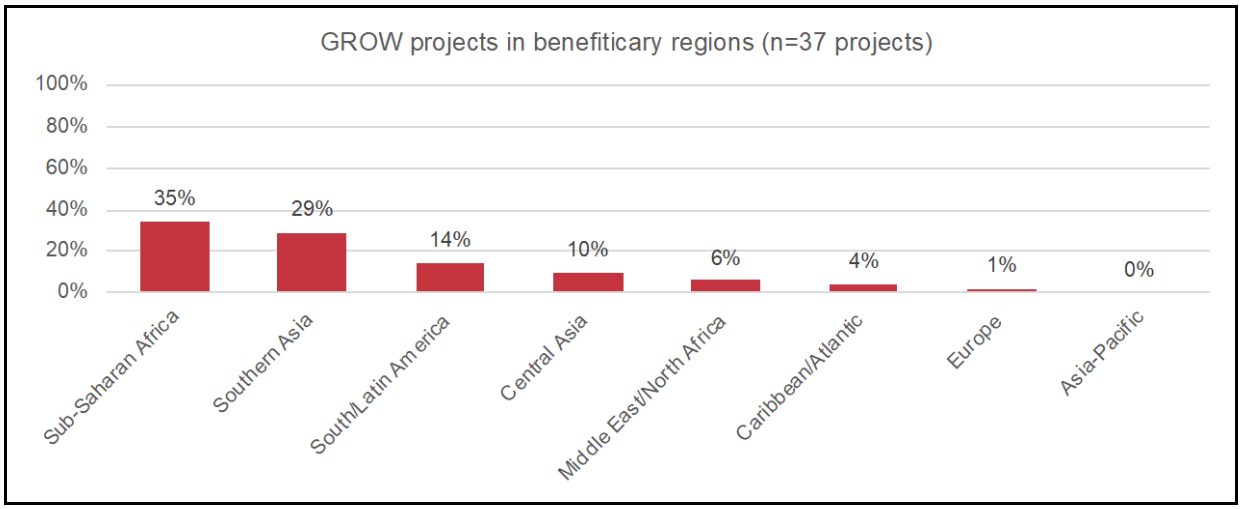
[41] BEIS R&I ODA board 22 February 2017 Paper 3 – GCRF Unallocated Fund allocations

Challenge area	All GCRF awards N=1,563	Resilient Futures N=103	GROW N=37
Sustainable production and consumption of materials and other resources	3%	1%	0%
Resilience and action on short-term environmental shocks and long-term environmental change	10%	10%	12%
Sustainable cities and communities	7%	3%	4%
Human Rights, Good Governance and Social Justice	**4%**	**0%**	**0%**
Reduce conflict and promote peace, justice and humanitarian action	4%	0%	5%
Reduce poverty and inequality, including gender inequalities	6%	0%	11%
Understand and respond effectively to forced displacement and multiple refugee crises	2%	0%	1%

NB: for Resilient Futures and GROW, applicants only ever selected a single challenge, whereas multiple challenges could be selected across the wider GCRF spectrum. This explains why the first column adds up to more than 100%.

Likewise, there is some indication that the geographical distribution of collective fund awards reflects that of GCRF awards more broadly. At present, there are only data on GROW, which indicates strong concentration on sub-Saharan Africa.

Figure 43 Number of GROW awards focusing on specific regions



Source: RCUK (UKRI). Projects benefit multiple country/regions

In June 2018, the ODA board agreed that the remaining GCRF unallocated funds, amounting to around £200m (£4.6m in 2018-19; £51m in 2019-20; and £146m in 2020-21), should focus on three thematic strands (outlined below).

1. Maximising Coherence and Impact:

Supporting Challenge Leaders to bring coherence, strategic focus and overall impact across the GCRF portfolio, working across all delivery partners. Funding for this area could facilitate:

- Consolidation and dissemination of findings:
- Strategic partnerships development for impact on policy and practice
- Targeted new research
- Sustainable Research Capacity in developing countries

2. Innovation and Commercialisation:

Maximising the opportunities and potential for commercialisation from existing GCRF programmes and projects and building stronger public-private sector partnerships with a focus on lower income countries. It envisages key roles for Innovate UK and the UK Space Agency.

3. International Partnerships:

To build on GCRF's growing international visibility and support strategic partnerships with other countries active in ODA-funded development research, philanthropic funds and multilateral bodies to maximise impacts from the fund and increase the UK's global influence.

Source: BEIS Research and Innovation Official Development Assistance (ODA) Ministerial Board (14th June 2018). Annex B strategic priorities for use of remaining GCRF Unallocated Funds Paper - 1 Page Summary.

9.4. Has this process been clear and transparent?

Our interviews with DPs themselves indicate strong consensus that the process around allocation of funding within the collective/unallocated fund was transparent, and no concerns were raised in this respect.

A small number of our survey responses came from PIs on the GROW programme. Whilst the numbers by no means allow for robust statistical findings, these respondents rate the transparency of the selection process just as highly as survey respondents from other GCRF programmes. From this 'outside perspective', there is therefore likewise some evidence of the transparency noted by the DPs.

10. Monitoring and Evaluation

Process evolution and lessons learned pre-GCRF

The cumulative experience from joint programmes preceding GCRF (outlined in section 0) and similar initiatives has been captured in programme annual and mid-term reviews, independently commissioned learning reports and a small number of policy studies. Together these documents form a corpus of practical knowledge relevant to questions of how to design and run development focused interdisciplinary research programmes in the UK context. The lesson learning is wide ranging and covers many issues relevant to GCRF programming. Two important examples will be given here.

Firstly, over the course of the NERC, ESRC and DFID programmes important lessons were learned around how to create programme-wide knowledge management and co-ordination units. If designed well and properly resourced, these units have been shown to facilitate valuable cross project learning and also allow projects to co-ordinate and increase the impact of capacity building and knowledge brokering activities.[42] Key to the success of the units in these programmes was securing buy-in from project PIs through giving them a role in the set-up and running of the units (see the UPGRo programme in particular). Also key was recognising the importance of carefully matching the interests, skills and networks of the knowledge management organisation with that of the programme (see the FCFA programme).

A second important lesson relates to equitable research partnerships between southern and northern research partners. The overall lesson from previous programmes has been that to achieve more equitable research partnerships requires attending to this issue in every single aspect of the programme from application procedures, to peer review, to financial management arrangements and monitoring and evaluation. Although this is a particularly difficult issue there are now a wide range of programme models and practices that can be drawn on and considered in each individual programme design (see the UKCDR report *Building Partnerships of Equals*[43] that covers this issue in detail).

The current state of GCRF monitoring and evaluation

In our interviews with DP representatives, we heard that a limited number of internal evaluations had been conducted and that learning call-to-call is informal. Efforts through the delivery forum and GCRF evaluation group have been of significant help to DP staff in sharing best practice. DPs expressed an intention to conduct work on assessing their portfolio of projects now that the fund has progressed over some years to identify gaps that might inform their future calls.

Evaluation strategies for specific GCRF programmes were not in place in most DPs, although some were in progress (e.g. at MRC). Instead, GCRF programmes were included in regular rounds of internal evaluations that are conducted on all programmes of the DP in question. Currently, most DPs rely on shared research output databases – such as researchfish® and Gateway to Research – for data on evaluating their programmes. GCRF

[42] Jones, L. and Harvey, B. et al (2018) "Designing the Next Generation of climate adaptation research for development" *Regional Environmental Change* 18.1
[43] Dodson, J. (2017) *Building Partnerships of Equals: the role of funders in equitable and effective international development collaborations* Report published by UK Collaborative on Development Sciences

tagging for researchfish® is now common practice for DP, which we heard has not always been the case.

Selection processes, and specifically peer review, was a particular area of monitoring and evaluation that had been considered more formally by DPs. This had led to the establishment of GCRF peer review colleges, recruitment of other disciplines to those colleges, and more focused call documentation.

In the monitoring and evaluation of projects, UKSA provides a notable example of novel practice in their International Partnership Programme. Provision of advice on ODA and M&E was deemed not to be a core capability of UKSA, and is outsourced to a specialist provider, currently Caribou Digital, who produced an evaluation strategy for the IPP. This plan includes a programme level Theory of Change (ToC) and logic model. Caribou Digital has structured a continual quality assurance process with each successful project to ensure that their projects align to the programme level M&E framework and processes. All projects provide a Monitoring and Evaluation (M&E) strategy in their bids, a project ToC and a logframe, which (if they are selected) are then refined in M&E workshops and documented into detailed M&E plans.

Whilst there are good practices evident at individual DPs, our continuous appraisal of grants and applications data over the course of this evaluation has shown that there are some difficulties in terms of standardisation and comparability between various DPs. In particular, we note the following issues, all of which may impact on the feasibility of various analyses in an eventual full GCRF evaluation:

- For some Research Council programmes, there are no data on unsuccessful applications. In some cases this owes to the fact that GCRF awards were made through 'response mode' funding streams alongside non-GCRF projects, meaning that no meaningful comparison to unfunded applications is possible. In others, we understand that calls were conducted 'off-system', owing to limitations of the research Council's grants management system. These limitations were the subject of a recent piece of support work by Technopolis for UKRI and we understand that there are plans to address these[44]
- For those calls where unsuccessful applications are logged on-system, many application characteristics are not always included. Aspects such as challenge areas targeted, primary and secondary disciplinary/thematic areas and various others are often missing
- Perhaps most importantly, there are considerable differences in how Research Councils and National Academies/UKSA respectively log applications and grants information. Discipline/thematic classifications in particular are very different between these two groups of DPs
- The names of various programmes and calls are not standardised between Research Councils and National Academies/UKSA. This is problematic in cases where multiple DPs are involved.

All these points mean that consistent, systematic comparison between the various DPs, as well as calculations of success rates – and more generally of understanding the characteristics of funded vs unfunded applications – may prove difficult in a full GCRF evaluation. Identifying suitable control groups for counterfactual experiments may also prove

[44] Kolarz P et al (2018) Visioning work for a new research and innovation funding service (RIFS). Report by Technopolis for UKRI, Unpublished

challenging, if these are to be selected, for instance, from applicants that narrowly failed to be awarded GCRF funding. Ensuring complete and comparable applications and awards data across all DPs is therefore a key future consideration that we expand upon in the concluding section of this report.

The ESRC Insights team, on behalf of the Research Councils, undertook an internal light-touch review of early GCRF commissioning processes in the seven Councils at the behest of the Research Councils' GCRF Coordination Group. Their findings were published in February 2017.[45] Many of the findings in our process evaluation reflect and expand on those in that report, a few choice examples below:

- **Rapid spend profiles at the beginning of the fund** (described as 'aggressive spending' by several interviewees) meant that time allowed to develop new calls and processes was limited, leading to the distribution of funds through established channels at first
- There was a concern that **not enough time and resource was given to developing proposals between international partners** during the call and selection process. Since this report, RCUK's interdisciplinary hubs has specifically funded networking between partners to better develop their proposals after the outline stage
- Applicants misinterpreting call requirements and **'bolting on' international development elements onto proposals**. We have heard from panel chairs that this only seems to be true for weaker proposals that do not get funded, and that this applies only to a minority of proposals that reach panels in the first place
- A difficulty in **identifying and including the right interdisciplinary mix of reviewers and in-country representatives on panels.** Our conversations with panel chairs reflect the view that in-country representation is still not as good as it should be and that having those individuals on panels makes a significant positive difference to the decision-making process. Despite this, out panel survey found that the membership of panels was very much conducive for effective decision making

[45] ESRC Insights team 'GCRF: Review of Research Councils' Commissioning Process' – February 2017

11. Conclusions from the Process Evaluation

Fundamentally, the process evaluation finds that the GCRF is in good health: a broad and diverse range of different funding tools have been deployed within a very short space of time, given the size of the fund. BEIS, the 13 DPs and four NFCs have successfully launched a major new initiative that will expand UK researchers' engagement with global development challenges and thereby help to accelerate or otherwise increase the creation of innovative solutions to intractable development issues.

In the early stage of GCRF, programmes resemble 'business as usual' for the DPs who are implementing them. DPs have largely played to their strengths: those who typically funded research centres conducting basic research have likewise done so under GCRF and DPs who have historically funded many fellowship programmes (notably the national academies) have continued to do so here. In short, there is little variation from the 'norm' across the piece. While not concerning in and of itself, 84 pre-existing projects within 25 calls for proposals were funded under GCRF as a way to distribute funds through existing channels at the beginning, this includes more recent programmes that have 'GCRF options' for applicants. Much of the programming focuses on building capacity simply through academic means at the individual researcher level (training of researchers, generation of knowledge through publication, access to information), rather than alternative methods of capacity building at higher levels (e.g. targeting policy makers directly, institutional development outside of academia, public sector innovation). These points taken together indicate very little innovation in terms of programme design and process. Changing this requires different ways of working and breaking the mould of what came before.

".....capacity building is a risky, messy business, with unpredictable and unquantifiable outcomes, uncertain methodologies, contested objectives, many unintended consequences, little credit to its champions and long time lags" (Morgan, 1998, p6)

However, we have seen some excellent examples of innovative programmes across DPs that genuinely step outside the boundaries of usual practice. DPs might continue to think creatively about programme design to target under-served areas, in under-served locations using approaches accessible to partners in the Global South who could input at each stage.

Additionally, this process evaluation of GCRF has led to a number of specific conclusions.

Instruments of funding

GCRF has implemented a mixed portfolio of instruments, from small pump-priming initiatives to much larger strategic investments in major new international centres of excellence (and everything in between). This flexibility is well judged given the diversity of challenges and contexts; it also creates the opportunity for a 'funding ladder' where issues can be dimensioned and relationships built using seed funding before progressing to more substantial collaborations - albeit the 5-year programming period limits how far new initiatives can be expected to progress across the stages of ascending financial support.

On the other hand, most of the programmes resemble long-established research funding instruments re-worked sufficiently to achieve GCRF compliance. No jointly funded

programmes currently exist between any Research Council and a National Academies/UKSA, despite significant GCRF joint funding activity within those two groups (barring UKSA). Although these two groups do not traditionally co-fund programmes, there are clear interdisciplinary opportunities that are currently unexplored.

Although small awards (potentially useful to build new capacity in a low-risk approach) make up the largest share of the total number of awards funded, they only account for a very small share of money spent (1% for <50k, 3% for 50-100k). Making more funds available for smaller endeavours where new partnerships may be trialled could therefore be done without much budget re-organisation.

Another aspect is that there is only one example of a programme designed to provide an agile response to emergencies where there is an urgent research need (NERC's 'El Niño' programme) despite this being a key element of GCRF.

On the issue of funding instruments:

1. Collaboration outside of the norm between DPs, such as between the groups of Councils, Academies and UKSA, is currently not occurring. GCRF presents the opportunity for DPs focusing on research infrastructure and innovation (i.e. UKSA, STFC, NERC and, in future, Innovate UK) to work with those traditionally funding basic research (e.g. ESRC, Royal Society, BBSRC) to truly embody the interdisciplinary and collaborative nature of the GCRF. These new cross-DP collaborations will go far in finding new and transformational ways of tackling global challenges by more explicitly funding research *and* innovation between more DP constituencies who might not otherwise work together in other GCRF joint programmes

2. Instruments focusing on research that builds capacity through science infrastructure/capital are few and far between in GCRF. Instruments used by RAEng (Frontiers for Engineering) and UKSA (IPP) are exceptions that focus on alternative means of capacity building not seen across other programmes in GCRF. To some extent, research hubs/centres begin this type of work. Creative, co-produced (for community buy-in) and problem-focused programmes specifically including societal institutions and stakeholders as key (and equally represented) players provide a way forward. This may take the form of programmes targeting public health systems using researchers, practitioners and policy makers in the team to work in an interdisciplinary and inter-sector manner to solve major problems in society that can be sustainable beyond the grant period, and learned from

3. NFCs also have a role in encouraging innovative programmes of work in their allocations to institutions. Their responsibility for assessing three-year strategies for GCRF puts them in a unique position to push institutions to focus their researchers on new and innovative approaches for GCRF, and then to monitor their achievements based upon those strategies

4. Small awards in particular might be a suitable vehicle for funding groups with less experience (thus expanding the overall international development experience base), whilst ensuring that larger awards presuppose advanced experience of international development and collaboration. The notion of a 'funding ladder' may be helpful in structuring award size and importance of prior experience and engagement. In this

context, there is a case to revisit the balance between small and large GCRF awards: awards under £50,000 currently make up the majority of total awards in numerical terms, but only 1% of total spend. Increasing this share to 2% or even 3% would not impinge overly on the Fund's ability to make strategic investments, however, it would provide a much broader platform from which to engage a much larger proportion of those many UK-based researchers with little prior international development experience in the GCRF 'landscape'

5. Encouraging grant holders under different projects to network may lead to spill over benefits and spin-off projects at the end of the grants. This could be done in several different ways: a programme level 'kick-off' where each PI presents the plan for their project; programme level conferences within or at the end of the programmes to disseminate findings and discuss next steps; a small percentage of the overall programme budget could be set aside for inter-project applications to complete small collaborative add-on activities (e.g. a joint policy briefing paper, joint workshops, exchanges of materials or a small amount of collaborative data collection/analysis). This further encourages interdisciplinarity, networking and could result in more outputs per programme, including funding leveraged at the end

Set-up time for programmes, calls and applications

A more explicit process of co-production in programme/call design between UK and Global South partners/stakeholders would better reflect the intrinsic principles of the GCRF and would likely lead to more buy-in, awareness and innovation in the partner countries. Co-creation is a good way of ensuring that programmes and research funded within them are actually relevant to the GCRF mission.

Demand is overall of an appropriate level, as evidenced by the success rates, and applications are suited to calls both thematically and in terms of quality and expertise. Notwithstanding its complex governance structure, GCRF's distributed delivery arrangements made it possible to launch programmes and calls quickly and helped to raise awareness among UK researchers from across the disciplinary spectrum.

However, the Fund's set up time was shorter than would be typical for such a major new investment and the research funders had to find ways of spending money through existing funding streams. This also meant there was limited time for many applicants to set up their networks and collaborations with partners in the Global South. Likewise, the necessary level of collaboration between various funding agencies presented a challenge, as did the necessity to ensure ODA-compliance, which required training and checking-processes to be set up, which were not established across the board at launch.

These issues have also meant that robust consultation periods with experts in the Global South (e.g. to get their input at the design stage of programmes and calls) have only occurred in a few select cases.[46]

6. It is important to ensure more time for applicants to apply for to GCRF programmes, which would allow them to construct international partnerships and co-create the proposals with them. This would especially benefit overseas partners as we heard

[46] For example, the Wilton Park meetings informed the development of the International Development Hubs programme and included such experts. We also saw these kinds of consultations facilitated through RCUK's Global Engagement Programme events.

from many of them in interviews and surveys that institutional processes for providing proposal information can be much longer than in the UK. The International Development Hubs programme used an innovative approach to this during the selection process, which was to make available a small pot of funding after the outline stage to allow applicants to visit their international partners and develop the proposals

7. An 'early warning' system for researchers on DP mailing lists that notifies potential applicants of new calls to facilitate their team building and proposal preparation. This happens to some extent already as part of normal DP practice, but we emphasise that even a pre-notice detailing the topic area of the call would be helpful

Selection processes and panel composition

There is a broad range of international partnerships covering almost all DAC countries in all regions and at all stages of economic development, with as many collaborations involving the least developed countries as the upper middle-income countries. The selection and appraisal processes have worked well and have placed more weight over time on pathways to impact, and in particular on the engagement within projects of end-users and wider stakeholders (those actors that will be critical to ensuring the results are framed appropriately and are taken up beyond the life of the project).

The GCRF Panels have played an important role in complementing the peer review process. However, only 4% of panel members were from organisations based in the Global South. There is some concern around whether this dominance of 'outsider' perspectives is suitable to reliably and consistently identify proposals most relevant to challenges in the target countries. Our survey results and interviews with panellists indicated that panellists from the Global South contributed significantly to decision making, as they were able to provide grounded and informed opinions on whether projects were realistic and likely to have impact.

8. It is important therefore to ensure review panels have adequate representation from experts from the global south. This could be those with expertise in the discipline and/or in international development in their country and could include researchers, representatives of local charities and NGOs, or even policy makers. These decisions for inclusion should be made in light of the specific aims of the call and who the intended beneficiary groups might be (it is important of course not to simply include a 'token' representative simply because they are based in the Global South). This can be challenging in terms of logistics and remuneration, but digital methods are being used to tackle these problems (e.g. remote reviewing either in real time or in structured time slots for busy practitioners). Ex-grant holders may also provide a source for this, we are aware this is already being done in some cases by some GCRF DPs[47]

9. Given GCRF's ambition to change the outlook and experience of all UK research, a better balance must be struck between awarding grants to those applicants who already have long histories in international development and with their co-applicants,

[47] Though un-connected to GCRF, the ESRC's Transformative Research scheme is one example where award holders of early rounds were recruited to act as panellists (and even panel chairs) in later rounds. The benefits of this approach have been documented in the programme's evaluation: https://esrc.ukri.org/files/research/research-and-impact-evaluation/esrc-transformative-research-scheme-evaluation/

and allowing those inexperienced, and maybe junior researchers, to begin gaining experience in the area and with new partners. We noted in our findings that it tends to be the latter in most cases, but newer collaborations must be supported to build capacity both in LMICs and the UK. As we already mention, smaller grants are a low risk way of road-testing new collaborations and building new expertise

Challenge areas and target countries/regions

GCRF-funded projects tended to focus disproportionately on a small number of GCRF challenge areas. This may have been an effect of the DPs allowing applicants to pick any challenge(s) in their applications and not attempting to focus their programmes on specific under-served challenge areas. The most under-served area was: 'Human rights, good governance and social justice', which may lend itself in particular to the work of the AHRC, ESRC and the British Academy but does not necessarily preclude other DPs from getting involved to tackle issues related to that challenge area. We are also not aware of any groups within the governance of GCRF or the DPs focusing on under-served challenges.

On the other hand, we acknowledge that an open call will tend to award grants that reflect the nature and extent of the research base. The UK research base has more researchers and more experience in some GCRF challenge areas as compared with others, and the SDGs they link to are not all equivalent in scale or scope.

As with the challenge areas, there is also a need to consider the geographical focus of GCRF awards: a quarter of awards to date list only 'upper middle income' countries from the DAC-list as beneficiaries.

10. GCRF governance groups could do some work in parallel to determine which of the challenge areas the UK's research capacity is best placed to make a big contribution. That would need to be a view based on an understanding of what others are doing too (e.g. Gates, SIDA, World Bank) and what our partners in the Global South are prioritising

11. Through a portfolio level view at the Fund level and DP level, more focus could be dedicated to specific challenge areas through the programme design and call guidance to address those under-served areas. Single or multi-DP programmes could be used to achieve this to also ensure multidisciplinarity

12. Whilst it is encouraging that the great majority of awards list beneficiary countries in the 'lower' categories of the DAC-list, there may be a case to stipulate more engagement with those countries specifically, rather than leaving researchers to always choose specific countries for themselves, which may lead to certain countries disproportionately being targeted as we have seen with the key leaders in our beneficiary country maps

Equality, Diversity and Inclusion

The diversity levels of grant holders (and PIs in particular) are currently weighted disproportionately towards white men, and while this reflects the general situation in the UK research landscape as a whole, this could be improved. Additionally, the only mention of any element of EDI in the challenge areas is combined with education (3rd challenge – 3% of

total awards) and reducing poverty and inequality (11th challenge – 6% of total awards), which receive very little attention from GCRF awards. No challenge leader currently deals with topics around EDI at the portfolio level, with no mention of EDI in the list of responsibilities either, meaning that EDI is unlikely to receive much focused attention at the portfolio level.

13. A specific programme/call addressing issues around EDI, designed with experts from that area in the Global South would provide an opportunity to fund projects in this area
14. A gender audit of the GCRF, as suggested in the evaluation framework section of this report, would provide an excellent opportunity to identify and target any problem areas regarding the processes used by DPs to design and launch programmes/calls, and select and award projects
15. Recruiting a challenge leader to focus on issues surrounding EDI (or just on the poverty and equality challenge area) would help to address EDI topics more often from the top down. The responsibilities of the challenge leaders may be extended to ensure that they are working to implement more explicit EDI considerations in any portfolio level recommendations they make to DPs or to governance groups of the GCRF
16. A possible approach would be to require applicants to submit Equality, Diversity and Inclusion (EDI) statements along with their ODA statements in proposals across all calls and programmes to assess the proposed teams and approach to carrying out the research with regard to good practice EDI

Strategic direction

Given the scale of its ambitions, the GCRF has implemented a thematically open strategy addressing any aspect of the SDGs and allowing all areas of the UK research base to work with their counterparts internationally on the development of proposals.

The BEIS Research and Innovation ODA Board has given Delivery Partners the space to determine where they want to act, in part to move forward quickly but also in recognition that the research councils, national academies and UKSA knew best how to mobilise their respective communities and add value to the many and varied pre-existing schemes and investments. The Collective Fund sought to inject more scale and strategic intent to proceedings. However, the process was still allowed to work bottom-up in order to minimise the problems seen in earlier cross-council programmes where government defined the strategic research agendas top-down. In short, in the collective fund the DPs have been successful in targeting and prescribing, but have done so via consultation with the Global South and other stake holders, so there is some targeting, but not 'picking winners' from the top level without considering what 'can be done' on the ground.

GCRF has supported work in all challenge areas, albeit the portfolio is unevenly balanced across the list of GCRF challenges. This may be a reflection of the UK's pre-existing strengths in development research that relates to a certain set of challenges.

The absence of any published commitment for a further cycle of GCRF funding risks reversing the substantial progress being made in animating UK researchers and developing more extensive and stronger UK-international networks. A cliff-edge in funding is a risk that may compromise the ultimate impact. The Fund also makes its allocations annually, which can be problematic for delivery partners' medium-term planning and militates against a more strategic approach.

17. Time was limited for all DPs (and NFCs) at the beginning of the fund to develop programmes and distribute GCRF funds, which resulted in the distribution of some GCRF funding through pre-existing streams, rather than awarding grants to new projects designed originally for GCRF. Longer lead-in time for DPs in terms of what GCRF funding they can expect to receive year-on-year will help them to plan how to invest that money into their portfolios

18. The focus on impact and innovation related activities coordinated by the Challenge Leaders and through the third tranche of the Unallocated fund is a welcome development. DPs should aim to facilitate this type of programming and offer more advice to grant holders at the end of their grant periods to point them towards new opportunities to translate their work into impact. New or adapted programmes focusing on impact and innovation activities should aim to encourage involvement of non-academic partners, including the private sector. This will help to commercialise or otherwise implement the solutions created as a result of the research conducted
19. Follow-on funding will therefore almost certainly be an important step to achieve genuine impacts. However, following the rapid roll-out of GCRF, any follow-on activities should be characterised by a tighter link between the evaluation of achievements and the design of new programmes and calls. We have heard arguments that the programme should be more strategic in its framing of calls, investing flexibly at scale in areas of pressing urgency for the global south, while others continue to argue for supporting larger numbers of smaller initiatives. Both may still be necessary in the future, but robust evaluation procedures will ensure sophisticated framing of calls and strategic planning around what types of follow-on instrument may be needed (and with what foci)

20. There have been some collaborations outside of GCRF in terms of non-DP involvement, particularly with DfID who are able to provide expertise in international development. There is scope for including other international development funders outside of the UK (e.g. Gates Foundation) who could contribute equivalent funds targeting specific issues. Only one example of this exists outside DfID with the BBSRC and the International Wheat Yield Partnership, which ran for one year only. It could take form as the 'GCRF-X partnership' and take advantage of those non-GCRF partners with international development expertise

Monitoring and evaluation

Some difficulties remain particularly around harmonised monitoring of grants and applications data, ensuring that programmes and individual applications have suitable set-up time, and ensuring that GCRF helps to create new expertise and collaborations in addition to supporting existing ones.

21. There are considerable differences in how DPs log and collect data on grants and unsuccessful applications. These are especially evident between Research Council and National Academies/UKSA data sets, but even within individual 'groups' of DPs and individual programmes owned by the same DP there are slightly different ways of organising and collecting GCRF applications and awards data. Especially data on unsuccessful applications is often rudimentary or simply not 'on-system'. If left un-addressed, this risks posing serious difficulties to any future evaluative activities,

most notably in the shape of requiring different levels of analysis between different programmes and DPs, and a reduced ability to select control groups or assess what kind of applications were funded as compared with their unsuccessful counterparts. A 'joined-up' classification system for GCRF programmes and awards across the DPs would allow for more efficient and accurate analyses of GCRF activity

22. Related to the above, DPs could ensure that all applicants, successful and unsuccessful, consent to a rudimentary set of identifiers be stored for use in subsequent evaluation. This might include award type, funding amount requested, listed GCRF challenges and beneficiary countries, and all further information categories also stored for successful awards
23. To ensure optimal evaluability of GCRF outputs, outcomes and impacts, all DPs could ensure that a minimum standard set of indicators is captured uniformly for all GCRF-funded awards. This ought to include scientific outputs (and potentially impacts, especially if linkages to research information systems such as Web of Science can be harnessed for this), as well as information on continuation of collaboration and brief statements of key achievements regarding contribution to SDGs. Where GCRF awards lead to further funding (under GCRF or not), these links should also be traceable in all cases. Information on specific non-academic beneficiaries of the funded activities ought to be a part of this, in order to ensure evaluators can follow up and have a basis on which to contact likely relevant stakeholders. Evaluative endeavours relating to ODA compliance will likewise benefit if the shares of project budget respectively allocated to each overseas partner organisation are uniformly and transparently logged for each funded project
24. In the interest of facilitating future evaluations, it would be helpful if those programmes and calls that have so far been conducted 'off-system' could retrospectively be entered onto the system, so that a full appraisal of successful and unsuccessful applications is possible in future
25. The assessment of HEI three-year strategies is a much-improved and more coordinated way of assessing ODA compliance by the NFCs. A possible improvement on this system could be to collate all GCRF data across the NFCs to better understand what activities are being supported across UK HEIs
26. DPs have conducted various internal evaluation activities, or at least noted an intention to commence such activities, and are beginning to 'take stock' of their project portfolios. We encourage DPs to continue this 'stocktaking' that will help to address any underserved areas now that the fund's timeline is well over halfway

11.1. Direct answers to the evaluation questions

We summarise below in tabular form our headline answers to each of the evaluation questions set for this study.

Table 16 Responses to evaluation questions

	Evaluation Questions	Summary conclusions
DP call processes	1.1 Which global challenges have been identified and selected, and on what basis?	In the great majority of cases, DPs allow applicants to select relevance to any of the GCRF challenges (and typically encourage multiple challenges to be selected, rather than just a single one), meaning there is no 'selection' as such going on. In a small number of cases, programmes or calls are targeted at one specific GCRF challenge, e.g. the BBSRC-led Foundation Awards for agricultural food systems. In the rare cases where such selection of challenges does occur, it is led chiefly by

	Evaluation Questions	Summary conclusions
		considerations around thematic research strength. GCRF-funded projects are therefore by no means equally distributed across the list of GCRF challenges: 'Equitable access to sustainable development' has by far been listed most frequently on funded awards, while 'Human rights, good governance and social justice' is listed rarely.
	1.2 How have DPs framed the calls?	DPs generally build on their existing strengths, whereby GCRF funding often feeds into existing award schemes (which may be modified to fulfil the GCRF mission), or new schemes that strongly resemble the type of funding activities already associated with each Research Councils' GCRF funding is concentrated on traditional research grants, centers and infrastructures, while the National Academies' focus is on fellowships and symposia/workshops. There were 84 Research Council funded projects pre-dating GCRF that had received GCRF funds as renewals or had been re-labelled as GCRF awards. Over a third of all programmes are jointly funded with GCRF DPs and/or other funders, which represents a significant collaboration at the funder level that also contributes to interdisciplinarity. There has been no collaboration on programmes between Research Councils and National Academies/UKSA. Research Councils most often deployed GCRF through traditional research grants or scoping/pump-priming type funding, whereas the National Academies focused on symposia/workshops and fellowships. UKSA delivered one large scale innovation programme. There appears to be an issue around those DPs most closely associated with basic science and basic science infrastructure, who may have struggled to 'find their place' in these funding actions and ensure their researcher communities could respond with fully fledged relevant applications within the allocated time.
	1.3 Overview analysis of responses: volume, financial value, models of partnership, interdisciplinarity, research questions, pathways to impact, inclusivity.	The overall success rate of all competitive GCRF programmes we are able to analyse is 27%. However, there is significant variation in success rates between individual programmes. These variations correlate somewhat with award size (smaller awards have higher success rates), but there may still be some issues around demand management. There are also very limited data on unsuccessful applications, particularly for Research Councils. One of our central recommendations is to ensure more systematic and standardised monitoring of applications data across DPs.
	1.4 Do responses fit the frame of the call adequately?	Yes. The great majority of panelists for GCRF programmes agree that proposals were of a good fit to the call and to the assessment criteria more generally. There is some evidence that GCRF briefing meetings for applicants (especially those organised by DPs themselves) were helpful in this respect. The majority of programmes and calls were rather open thematically and the delivery partners' administrative data show that only a very small fraction of all applications were ineligible, as a result of them having proposed work that was outside the scope of the call or not ODA compliant.
Selection process by DPs	2.1 How do partners ensure ODA compliance?	All DPs apply the standard approach to this (internal office checks ODA compliance as a stage-gate criterion). Aside from initial training needs for DP staff, we do not find any evidence of problems or cause for concern in this respect. Almost all of the applications data we saw was tagged as 'ODA compliant' except a very small number that had selected non-DAC list countries, which were consequently not funded. The NFCs now have a standardised system for checking HEIs' three-year GCRF strategies and reporting against ODA compliance rules.
	2.2 What selection processes have operated, including for sifting to invite full proposals?	Most programmes use a standard assessment process involving an eligibility/ODA check, remote peer review and panel review, in order to arrive at a ranked list and recommendations for the awarding of grants. Interviews at the final stage are common for larger awards, and many programmes also have an EoI stage at the beginning of the process for better demand management. Whilst a small number of programmes have opted for some more innovative approaches (e.g. an opportunity for applicant 'rebuttal' in the EPSRC 'Resilient and sustainable energy networks'), most programmes follow fairly standard processes. Overall satisfaction with application and selection processes is high across all groups consulted, even including unsuccessful applicants. The only major issue is the lack of adequate lead-in time to gather international teams and develop excellent proposals. There was also concern about transparency of decision making and in particular the quality / utility of the feedback provided to unsuccessful applicants
	2.3 How are selection panels composed (academics, Southern representation, development	Panels are largely composed of university-based academics. Our survey results indicate this group makes up around 80% of all panels and that 92% of all panel members are from the UK. Most panelists also note at least some expertise in

	Evaluation Questions	Summary conclusions
	experts and so forth) and how in practice do they reach decisions?	international development, with over 40% noting extensive expertise in this domain. We identified a severe lack of in-country representation on assessment panels, based upon the data we received. Panelists judge the decision-making processes as being efficient, effective and well-organised. From the 'outside' perspective, applicants also voice favourable views on the selection processes (e.g. transparency). However, we note that there are critical views regarding feedback, especially from unsuccessful applicants.
	2.4 To what extent have factors beyond research excellence influenced decisions (the development focus, likely impact, southern involvement, value for money)?	Research excellence dominates across the board in terms of criteria that influence panel decisions. The quality of the international partnership and the relevance of the project to the call (fit with the call) are similarly important top-criteria. Impact on SDGs, value for money, sustainability beyond funding, and equality and diversity are most often medium or small influences on decisions, with the latter ranking bottom in terms of importance on a survey item on this issue.
	2.5 What scrutiny has been applied to successful applications to ensure appropriate costing and value for public money?	All DPs have asked for detailed financial information in proposals, both in terms of the projected research costs and assurances of financial stability from all UK and LMIC organisations on the bids. This information is available to external peer reviewers and panelists. Value for money is a consideration for panelists, with 17% noting it as a 'major' influence and 52% as a medium influence on their decisions. Whilst this is encouraging, we have not found evidence of any incentives to discourage application for the 'highest possible amount' by default.
Characteristics of grantees	3.1 Which types of bids and which organisations are successful?	Prior experience in international development is a significant factor in success chances: unsuccessful applicants have a far higher incidence of no prior experience in this field, indicating that the international development component is rewarded in the selection process. Whilst this is encouraging in the sense that such expertise genuinely affects funding decisions, there is a concern around how, in this context, to ensure that new expertise is likewise fostered through GCRF. Among grantholders, a majority of lead partners had prior experience of international development, but not exclusively. Early GCRF programmes and calls relied on UK researchers with established international networks communities but subsequent calls broadened the reach of the Fund in line with its stated objectives. Prior engagement between UK-based PIs and international partners and strongly collaborative proposal writing appears to be a further success factor. 'Tokenistic' inclusion of overseas partners appears to be more typical of unsuccessful applications. Of all UK-based GCRF grant holders, 57% are based at Russel Group Universities, which rises to 59% when we consider only principal investigators (PIs). Partner organisations are more mixed, also including many public and private sector organisations that are not foremost research performers.
	3.2 What research is being funded in which locations?	Most GCRF projects (55% of Research Council and 79% of National Academies/UKSA projects) list only a single beneficiary country, with Research Council projects more frequently targeting several. Just under three quarters of GCRF-funded awards list at least one 'least developed', 'lower middle income' or 'other low income' country or territory from the DAC list; the remaining quarter of awards list only 'upper middle income' countries. The types of DAC-list beneficiary countries listed (e.g. by region or DAC-category) appears to have little or no effect on application outcomes (funded vs. un-funded).
	3.3 What are the approaches to partnerships and capability building among successful applications?	Co-applicants/partners most often take an active role in the proposal stage (e.g. developing the project idea, co-writing the proposal). In many cases, projects build on prior sharing of UK research with the international community, and improving the standing of international partners is noted as an important feature of projects, almost without exception. There is indicative evidence that 'tokenistic' inclusion of overseas partners as associated with unsuccessful application outcomes. Communication between partners, in-country networking workshops/events, co-creation of proposals and the research, and established relationships were critical factors for successful partnerships and capacity building.
	3.4 What are the key features of the pathways to impact outlined in successful applications?	Continued engagement with key stakeholders, training and development of stakeholders, and securing larger follow-on funding in the future were critical success factors for pathways to impact. However, for many projects it is too early to fully identify the impact of these strategies.
	3.5 How inclusive are successful applications in respect to gender and other equality and diversity dimensions?	There are imbalances in the pool of UK-based GCRF grant holders along lines of gender and ethnicity, which increase when we consider only UK-based PIs. However, these are not of an extreme nature (e.g. 61% male, 36% female, 3% undeclared) and so largely reflect existing inequalities in the UK (and global) research funding landscape.

	Evaluation Questions	Summary conclusions
Types of GCRF research	4.1 What are the fields of research and how do they relate to the global challenges?	In terms of both number of awards and money spent, there is considerable variation in the dominance of the three 'headline' and the 12 sub-challenges of GCRF: 'Equitable access to sustainable development' is by far the most commonly addressed challenge (61% of awards), followed by 'Sustainable economies and societies' (35%), with 'Human rights, good governance and social justice' making up only a very small share (4%). The sub-challenges under each of the three headline challenges follow similar patterns, with 'Secure, resilient food systems' and 'sustainable health and wellbeing' the most commonly selected. High prevalence of the latter is driven largely by MRC awards. With this exception, frequency of relevance to all other challenges is strikingly similar between Research Council and National Academies/UKSA funded GCRF awards. These differences are driven in part by varying success rates, but almost certainly also reflects distribution of UK research expertise and, potentially, the relative importance or demand for research coming from the global south
	4.3 What is the nature of international collaboration?	PIs and Co-Investigators/partners are in strong agreement that there was most often close collaboration on the proposal stage and that the research had a 'good fit' with international partners' strategic research priorities. There is a slight issue in terms of lead time: around 20% of both groups noted that there was not enough time to establish links during the proposal stage to the extent that may have been desired.
	4.4 To what extent does it build on existing research platforms? How much co-funding is received and from what sources?	There is a mixed picture here, ranging from no prior work at all (11%) to clear evidence of prior work funded by UK Research Council or National Academies/UKSA. There is also considerable variation in the extent of international partners' co-funding.
	4.5 To what extent is the research interdisciplinary?	Analysis of grants data suggests that the great majority of projects are at least moderately, if not strongly interdisciplinary. Large shares of PIs and Co-Investigators/Partners also signaled strong degrees of interdisciplinarity in their responses. The share of responses indicating largely, or strictly, mono-disciplinary work is vanishingly small.
BEIS allocation processes	5.1 Has the process by which funds have been distributed to DPs been clear and transparent?	A lack of transparency was identified by DPs in terms of how high-level decisions were made on the amount of support each DP received. The lack of a long-term view and the rapid response that was required to utilise the fund were also issues.
	5.2 How were high-level funding priorities set?	The GCRF strategy is fairly open, encompassing all challenge areas (reflecting the SDGs) and all DAC-list countries. The decision over finding priorities was largely delegated to the individual DPs, who mostly ran open calls (allowing the research base to determine what work was submitted) RCUK coordinated across councils, then BEIS encouraged RCUK to facilitate working across all delivery partners, leading to the creation of the delivery forum with the Research Councils and National Academies. Inclusion of UKSA and the national Funding Councils also occurred at this point. Initially, the focus was only on the UK research landscape, but for the last 18 months the focus has been more global. The NFCs receive yearly allocations, which they distribute to their HEIs using formula funding approaches that are slightly different for each NFC. NFCs will distribute around £220m of GCRF funding to their HEIs – around 15% of the total pot.
Delivery of the collective fund	6.1 How well have the various DPs worked together on the fund?	The Research Councils collaborated in their application to the unallocated fund, resulting in the two programmes being delivered by RCUK on their behalf: GROWing Capability and the Interdisciplinary Hubs. The four National Academies did the same and are delivering five defined programmes between them under the 'Building Resilience' title.
	6.2 How have bids been handled under the collective fund?	The unallocated fund is overseen by the ODA board that was chaired by the Minister of State for Universities, Research, Science and Innovation. A process was set up to decide on which programmes would receive funding through the unallocated fund. DPs had to assure the panel that their proposed programmes were aligned to the GCRF strategy and addressed the GCRF challenge areas. Research excellence and effective programme governance also had to be at the heart of those programmes. After decisions were made, DPs were contacted to negotiate the requested funding to fit the budget of this first tranche of unallocated funding. The discussion from the assessment panel then informed the final recommendation on allocations by BEIS officials to the Minister of State for Universities, Research, Science and Innovation.
	6.3 How effectively have funds been distributed?	The Collective Fund procedures were set up quickly (once approved by the ODA Board) and the selection process were set up and run efficiently in broadly similar time frames to the single council or bilateral programmes. There has been no obvious cost or time penalty. The two main programmes under the collective fund (Resilient Futures and GROW) relate to the GCRF challenges in much the same proportions as the totality of GCRF funding (considered elsewhere in this report). For the GROW programme

	Evaluation Questions	Summary conclusions
		specifically, we also find that awards' beneficiary countries are concentrated in sub-Saharan Africa and southern Asia, indicating high relevance to the GCRF mission.
	6.4 Has this process been clear and transparent?	The individual Delivery Partners were supportive of the process around allocation of funding within the collective/unallocated fund was transparent and no concerns were raised in this respect. A small number of our survey responses came from PIs on the GROW programme. Whilst the numbers by no means allow for robust statistical findings, these respondents rate the transparency of the selection process just as highly as survey respondents from other GCRF programmes.
Monitoring and evaluation	7.1 How do individual DPs monitor and evaluate their activities within the GCRF and how might these feed into the larger GCRF evaluation?	The Delivery Partners have not devoted substantial efforts to monitoring and evaluation, up to this point. Most have handled the issues internally, with informal reviews of calls for proposals in most cases, but with one or two more substantive lessons-learned exercises (e.g. AMS, ESRC). The UKSA is the main exception, having appointed an external evaluator to design an evaluation framework that has been captured in the monitoring and reporting systems. The internal evaluation teams are however paying close attention to the Foundation Stage Evaluation, and would no doubt be ready to take on some activities locally to feed in to the larger GCRF evaluation. There are several cross-DP groups such as the evaluation group and delivery forum are essential for learning and cooperation in monitoring and evaluation. There are also common systems used across some of the DPs (Research Fish and Research Gate), where progress has been made in tagging projects as GCRF-related. A more unified approach would be helpful to the full evaluation, covering the research councils, space agency and the academies. The National Funding Councils have just launched a more robust ex ante evaluation mechanism, prompted by the ICAI Rapid Review, which will evaluate individual HEIs' GCRF activities through the ex ante assessment of 3-year GCRF strategies and annual monitoring of activities and achievements As an additional point, we note that there are major discrepancies in how the Research Councils and National Academies respectively categorise and log application data, leading to limited comparability. There is a case to consider at this point a degree of further harmonisation, so that the pools of applicants and award holders can be suitably compared across DPs in the eventual GCRF evaluation. This will prevent a constant two-track evaluation (i.e. separating between the two groups of DPs at all times), and will also increase the possibility of identifying suitable control groups for counterfactuals.

Part C. Evaluation Strategy

1. This strategy

Scope and Purpose of the Strategy

This strategy is somewhat different in relation to similar documents produced for other non-DFID ODA funds. Those produced for the Newton Fund, the Prosperity Fund and the Fleming Fund have all been produced during inception phases by consultancies contracted to design and deliver an evaluation covering the whole period of the fund.

A key difference is that this strategy has been produced during a Foundation Stage, **separate from the main evaluation**. It's **purpose** is to present: the basis for the GCRF evaluation, the Evaluation Questions (EQs), the outline of the suggested main design and design principles, and proposed modules to address the EQs.

The intention is that the main evaluation will be put out to tender. Therefore, it is anticipated that, following normal procurement processes, elaboration of the evaluation approach and methodology will form a scoring part of the technical proposal in the tenderers' response. These would then will be further developed in detail in the winning bidder's own inception phase.

The **scope** of this strategy is thus not a detailed methodological prescription for conducting the evaluation. It sets out the purpose, principles and strategic direction of GCRF's evaluation. It specifies the broad outline of a suggested approach, and it includes elements of its implementation.

One other aspect in which this evaluation is different is its **timeframe**. Large programmatic and fund evaluations commonly run contemporaneously with the respective programme or fund. They conclude with, or shortly after, the fund does.

This approach suffers two weaknesses:

- it assumes that the fund or programme will have substantively achieved its objectives within its design period, so that, for example, an impact evaluation can be undertaken at the end-point
- it assumes that higher level results are sticky and on a rachet. i.e. that once achieved, they are sustained and don't slip away

These issues are exacerbated in research funds, wherein the pathways-to-impact are long, and impacts may take 10-15 years to arrive. Specifying an evaluation that concludes with GCRF's funding will not provide the best assessment of outcomes and impact, nor their sustainability. The strategy therefore proposes an evaluation that runs until at least the 10 year anniversary of GCRF commencing.

GCRF was announced in 2015, and commenced in 2016. By the end of 2018, it will be nearly 2½ years into its five year funding period. The main evaluation will be commissioned in 2019, when the Fund is approaching the end of year three. However, the Fund's main stakeholders are currently preparing a submission for further funding under the forthcoming

HMG spending review. It is probable that a further tranche of funding will be made available to GCRF. This will anyway extend the lifecycle of GCRF, and it will need to be included in the evaluation.

Development of this Strategy

This strategy was developed through a number of steps:

- Consultation with BEIS and the GCRF evaluation Steering Group
- Review of GCRF documentation
- Interviews with key stakeholders, particularly Delivery Partners and those working in GCRF teams, evaluation units and international development teams in the Delivery Partners
- Interviews with other relevant parties, including evaluators of the Newton Fund, Prosperity Fund and Fleming Fund, and with ICAI
- Involvement in the development of the GCRF Theory of Change
- Interaction and lesson learning from the GCRF Process Evaluation as it progressed
- Literature review on research evaluation and evaluation of research impact
- Literature review on evaluating initiatives dealing with complex problems
- Internal QA
- Presentation, consultation and feedback to Steering Group and Delivery Partners

The following sections present the evaluation strategy. They are structured as follows:

- **Evaluation Background**
  - Evaluation stakeholders
  - Evaluation purposes
    - Learning
    - Accountability, Transparency, and ODA
  - Evaluation governance
- **Evaluation Design**
  - Framing and attributes of the evaluand
    - The nature of GCRF: GCRF as a research and technology fund
    - The nature of GCRF: a complex system?
    - Understanding how GCRF is both complicated and complex
    - GCRF: a two-domain evaluand
    - Implications of a two-domain evaluand for the evaluation
  - Evaluation Questions
  - Suggested Design
    - Stages
    - Modules
    - Methods
  - Evaluation Strategy Map
  - Evaluation strategy principles
- **Evaluation deliverables**
- **Evaluation modules**
- **Methodological considerations**
- **Risks**
- **Evaluation Framework**

2. Evaluation Background

2.1. Evaluation stakeholders

GCRF is a very large fund. Its evaluation has a range of stakeholders, who are the target audience for all or part of the evidence and learning from the evaluation. The main stakeholders are:

- **BEIS** – as sponsor / owner of the Fund. Within BEIS, audiences include: International Directorate, the Strategic Advisory Group, the BEIS Research and Innovation ODA board, Ministers
- **Cross-Whitehall** - Strategic Coherence of ODA-funded Research (SCOR) Board*, HM Treasury, DFID Research and Evidence Division
- **Delivery Partners (DPs)** – UKRI, Research Councils, Academies, devolved funding councils, UKSA (senior management and international and evaluation teams in each of these)
- **GCRF Challenge Leaders**
- **Accountability bodies** – ICAI** and Parliament/the House of Commons International Development Committee (IDC)
- **Grantees** - Recipient universities, and technologies businesses in the UK; PIs
- **Non-grantees in UK science** – UK Collaborative on Development Research (UKCDR), other academics working on SDG-related issues – including unsuccessful GCRF applicants
- **Direct partners in developing countries** – Co-Is and their institutions
- **Intermediaries** – businesses, NGOs, government partners in developing countries

Each of these stakeholders has different interests in the GCRF evaluation. These are outlined in the next section.

Notes:
* The Strategic Coherence of ODA-funded Research (SCOR) Board was formed in November 2017 to provide a mechanism for promoting coherence in UK development science and research. The SCOR Board aims to build coherence across all significant government funded development science and research and to maximise impact, identifying opportunities for joint working, identifying strategic gaps and reducing duplication.

** ICAI has a statutory requirement to scrutinise UK aid spending – all of ODA. It operates independently of government and reports to Parliament through the House of Commons International Development Committee. ICAI has a stated interest in the whole-of-government approach to UK aid, and has paid close attention to non-DFID based ODA. Rapid reviews of GRCF and the Prosperity Fund have been conducted, and full reviews of the Newton Fund and CDC are planned for 2019. It may expected that a full review of GCRF will be undertaken at some stage. Drawing from ICAI's published methods, the GCRF rapid review and its approach paper for the Newton Fund review[48], it can be assumed that they would be interested in:

- the relevance of GCRF's approach to meeting its aims, effectiveness and value for money in achieving results, and how well GCRF learns and adapts
- strategic coherence and orientation towards development impact, and partnering with research institutions in the global South, its results architecture (recommendation areas from the 2017 ICAI rapid review of GCRF[49])

[48] ICAI (2018). *Newton Fund. A performance review - Approach paper*. ICAI, London. https://icai.independent.gov.uk/wp-content/uploads/ICAI-Newton-Fund-AP-1.pdf
[49] ICAI (2017). *Global Challenges Research Fund. A rapid review*. ICAI, London. https://icai.independent.gov.uk/wp-content/uploads/ICAI-GCRF-Review.pdf

2.2. Evaluation Purposes

Across all stakeholders, GRCF needs to be evaluated for four main reasons:

- **Learning** – about how to do this type of research, and how to address SDG-related challenges
- **Learning** – as central to a flexible and adaptive approach to tackling complex and wicked problems
- Good governance of public funds: **accountability and transparency**
- Legal – use of **ODA** must show compliance with the International Development Act, and evaluation is required as part of the UK Aid Strategy

The value of evaluation is predicated on it being useful and used. Given the institutional context for GCRF and its multiple stakeholders, the GCRF evaluation needs to promote learning and inform the following functions at all layers of accountability and oversight for ODA research, as well as its implementation. These are **priority uses** of the evaluation:

- Ministerial **accountability for public funds** to Treasury and to Parliament.
- Ministerial proactive **oversight and management of ODA** spend i.e. ensuring that it is being focused on the SDGs and the poorest, as well as accountability for ODA spend.
- Ministerial proactive **focus on equality, inclusion and poverty** reduction.
- Ministerial and DPs level: Enable **rigorous testing of the complex GCRF model**, learning and adjustment of the model to ensure fitness for purpose and optimise the conditions for the desired impact.
- Ministerial and DP level: Enable tracking of the progress and **contribution of GCRF to the complex real-world development problems** it set out to address in developing country contexts.

2.3. Learning

Stakeholders want to learn what is working and what has worked in GCRF to:

- make course corrections and adapt the programmes
- inform decisions on the design and implementation of current and future research, capacity, and innovation building programmes
- support future bids to the Treasury for further funding and continuation

The first two of these points make an assumption that BEIS, DPs and award recipients are part of a learning system that can make use of evaluation findings. This 'system' may need strengthening to make best use of the evaluation.

An important aspect of the evaluation, will be that the evaluators should work with BEIS to embed learning into GCRF within BEIS and DPs.

Some components of the strategy are seen as formative – these are designed to inform on-going implementation of GCRF. They must feed into learning systems and processes that allow course correction.

Other components have a more summative aspect, but are equally important for learning, if not more so. These components provide a near-continuous evaluative process running from year 5 to end of the GCRF, i.e. the period when from when initial outcomes should be emerging to when substantive impacts start to be seen. In complex adaptive systems, reflexive and social learning is necessary to understand non-linear effects - the evaluation will contribute to this on-going learning and sense-making: "In evaluating complex interventions we should settle for constantly improving understanding and practice by focusing on reducing key uncertainties"[50].

2.4. Accountability, Transparency, and ODA Compliance

At an overarching level, HM Treasury states: "All policies, programmes and projects should be subject to comprehensive but proportionate evaluation, where practicable to do so."[51] When these things are high risk, visible, expensive, and have uncertain or complex delivery, the case for evaluation is stronger. GCRF meets all these criteria.

GCRF was announced as part of the Spending Review 2015[52]. The UK Aid Strategy[53] was published at the same time; it features GCRF as one of the delivery elements of the strategic objective: '*Strengthening resilience and response to crises'*. The accompanying spending forecasts show a plan to allocate 28% of HMG's official development assistance (ODA) outside the Department for International Development (DFID) by 2020. GCRF forms part of the UK's ODA commitment, and is an important part of the non-DFID ODA budget.

ODA funded activity focuses on outcomes that promote the long-term sustainable growth of countries on the OECD Development Assistance Committee (DAC) list and is administered with the promotion of the economic development and welfare of developing countries as its main objective. Its official definition is:

> "ODA is defined as those flows to countries and territories on the DAC List of ODA Recipients and to multilateral development institutions which are:
> - provided by official agencies, including state and local governments, or by their executive agencies; and
> - each transaction of which: a. is administered with the promotion of the economic development and welfare of developing countries as its main objective; and b. is concessional in character and conveys a grant element of at least 25% (discounted at a rate of 10%)."
>
> "ODA compliant research:
> - Only research directly and primarily relevant to the problems of developing countries may be counted as ODA. This includes research into tropical diseases and developing crops designed for developing country conditions. The costs may still be counted as ODA if the research is carried out in a developed country."

Source: OECD (2018)[54]

Box 6. Definition of ODA and ODA compliant research

As an ODA-funded initiative and part of the UK Aid Strategy, GCRF must comply with the requirements in the Strategy that:

[50] Ling (2012). Evaluating complex and unfolding interventions in real time. *Evaluation*, 18 (1), 79-91.
[51] HM Treasury. Magenta Book. https://www.gov.uk/government/publications/the-magenta-book
[52] The Challenges in GCRF should not be confused with the Grand Challenges Capital Projects also announced in the Allocation of Science and Research Funding 2016/17 to 2019/20.
[53] HMT & DFID (2015). *UK aid: tackling global challenges in the national interest*. HM Treasury, London. https://www.gov.uk/government/publications/uk-aid-tackling-global-challenges-in-the-national-interest
[54] OECD DAC (2018). *What is ODA?* OECD, Paris. https://www.oecd.org/dac/financing-sustainable-development/development-finance-standards/What-is-ODA.pdf

> "*4.6 All departments spending ODA will be required to put in place a clear plan to ensure that their programme design, quality assurance, approval, contracting and procurement, monitoring, reporting and evaluation processes represent international best practice.*"
>
> "*4.7 The government will require all departments spending ODA to demonstrate how they are using rigorous evidence to underpin spending decisions. There must be clear lines of accountability for all ODA projects, and project performance must be regularly assessed.*"

This Foundation Stage evaluation, and the planned subsequent main evaluation, are major aspects of these evaluation requirements.

The House of Commons International Development Committee (IDC) recently reviewed the definition and administration of ODA[55]. One of their recommendations was that: "*departments [other than DFID] detail their **plans for monitoring and evaluation of projects**, including how the Independent Commission for Aid Impact (ICAI) will have access to this information*".

All ODA, including GCRF, already comes under the purview of ICAI. Indeed, ICAI has already undertaken one review of GCRF. However, across Whitehall, the IDC made further recommendations regarding oversight of ODA:

> "*67. The existing coordination and oversight groups - notably the cross-Ministerial and Senior Officials Groups - must be more proactive in **targeting their activities explicitly towards poverty reduction** and the SDGs to give greater focus across Whitehall. The Government should set out a process for capturing the added value gained as a result of greater cross-Whitehall working.*
>
> *68. The Government should publish a clear statement outlining individual departmental responsibilities in delivering, **overseeing, monitoring and coordinating ODA**, including how they correspond to the aims of the UK Aid Strategy. This should also state explicitly that the International Development Committee may perform oversight of any ODA spending across Whitehall, including via partnership with other select committees as appropriate."*

Concluding that:

> *"To ensure the primacy of poverty reduction as an objective for all UK ODA, ODA spending departments should conform in practice with the terms of the International Development Act 2002. **All ODA programming should contain theories of change which explicitly link to the SDGs.** The Government should make systematic improvements to coherence, transparency and - most crucially–the poverty focus of cross-government fund projects before increasing their share of UK ODA any further, and ensure that DFID has oversight of all ODA spending."*

Arising from this, it is noted that:

- attention must be paid to proactively targeting poverty reduction and the SGDs in non-DFID ODA funds. [The evaluation will examine **poverty targeting and contribution to achieving the SGDs**]

[55] IDC (2018). *Definition and administration of ODA*. Fifth Report of Session 2017–19. House of Commons International Development Committee. https://publications.parliament.uk/pa/cm201719/cmselect/cmintdev/547/547.pdf

- this evaluation strategy must form part of BEIS' response to stating how it addresses its **responsibilities for oversight of its ODA spend**

The UK Aid Strategy has further requirements about **transparency**. It states that: "*The government will aim for the first time, for all UK government departments to be ranked as 'Good' or 'Very Good' in the international Aid Transparency Index, within the next five years*". This Index currently does not include BEIS, although the FCO is on it. It depends heavily on International Aid Transparency Initiative (IATI) data. IATI is a global initiative to improve the transparency of development and humanitarian resources and their results for addressing poverty and crises. While BEIS is registered with IATI[56], its data appears to be legacy data from the Dept of Energy and Climate Change (DECC).

DFID states: "*DFID's vision is for complete transparency so that anyone, anywhere, can trace our funding through a project's delivery chain. All partners receiving DFID's funding share the responsibility for ensuring the transparency of the work we do together; transparency of their own funding and improving the transparency of their implementing partners*."[57] Given the aim for all Departments to be scored well on the Aid Transparency Index, and IDC's views on ODA oversight, it may be expected that BEIS and thence GCRF will need to comply with IATI publication guidelines. This is not seen as part of the evaluation strategy per se, but aligns with the overall themes of aid transparency and compliance with the UK Aid Strategy, so is mentioned here.

Along similar lines, the Magenta Book, while recognising that Departments have their own protocols and procedures for publication, states: "in general terms the case for publishing the results of evaluations and information about methodological approaches and research instruments is three-fold:

- it is an integral part of public accountability
- it helps to improve the credibility of findings by opening them up for wider peer review
- it contributes towards a learning legacy that transcends the passage of time and people.

Credibility is also served where detailed evaluation reports are produced and made publicly available, where their findings are presented and discussed at academic and research gatherings, and they find their way into public datasets."

The strategy thus foresees the evaluation products emanating as a result of it, being published in the public domain. Therefore, a **communications module** is proposed.

2.5. Evaluation Governance

An evaluation of this scale, duration and multi-module design requires good oversight itself. Assuming an outsourced Evaluation Team, it is considered that the evaluation needs three elements of governance:

- an **owner** in BEIS
- an internal **Steering Group** to guide the evaluation and to act as a broker with the DPs

[56] https://www.iatiregistry.org/publisher/beis
[57] https://www.gov.uk/government/publications/dfid-iati-guidelines/dfid-iati-guidelines-policy

- an **Independent Advisory Panel t**o advise the Steering Group and Evaluation Team on quality, fitness-for-purpose and risk

3. The Evaluation Framework

Summary

This section is a suggested design for the GCRF evaluation.

It starts by analysing the **characteristics of GCRF that influence design choices**. The first of these is the nature of GCRF as a **research and innovation** fund and the challenges of evaluating in this arena. The second is that research and innovation is a complicated system, but to achieve impact, GCRF engages with the **complex system** in which the **SDGs** occur. This systems explanation is in some depth, to justify the suggested design choices.

It then presents an overarching Evaluation Question, which splits into five main **evaluation questions** and a set of sub-questions. These aim to address the interests of the evaluation stakeholders.

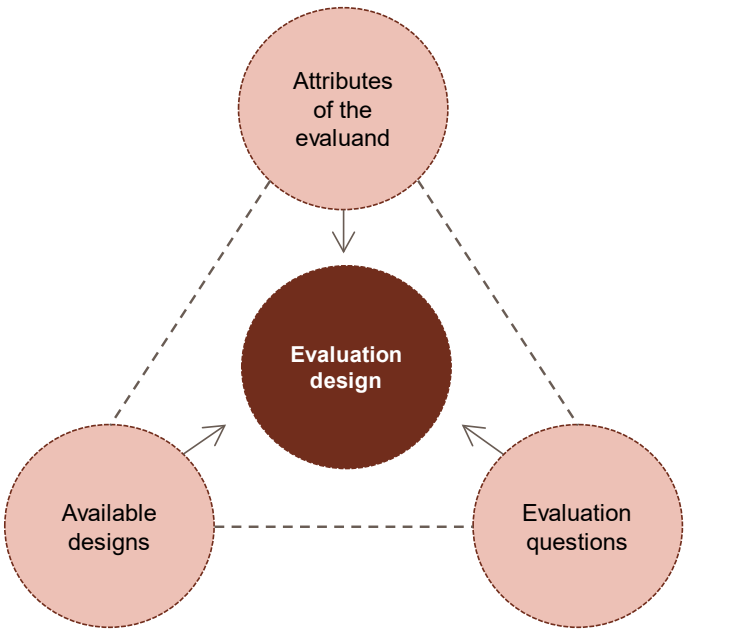
Taking the nature of GCRF and the questions to be asked of it, a **suggested design** is then presented. This will occur in three stages: a **Process Evaluation** of the major GCRF components and a research quality assessment, a **Summative Evaluation** assessing effectiveness in achieving outputs and outcomes, and finally an **Impact Assessment**.

The design presents a set of **modules** and associated **methods** to operationalise the design. This is a **multi-module, mixed methods design**. The suggested modular design means that the evaluation may be undertaken in different ways – some modules can be optional, and others undertaken at varying levels of sampling intensity. Given the nature of GCRF as the object of the evaluation (the evaluand), the effectiveness and impact modules principally employ methods from the **theory-based evaluation** family.

Finally, this section brings the evaluation questions, stages, and modules with the timeline of GCRF and Theory of Change to present a comprehensive **Evaluation Strategy Map**.

Choice of evaluation design[58] is largely under the influence of three factors[59] (Figure 44):

- the nature of the GCRF as the object of the evaluation (in evaluation terms, the **evaluand)**
- what the commissioner and stakeholders want to learn from the evaluation (**evaluation questions**)
- evaluation designs that are **appropriate and feasible** this context



After: Stern (2015)

Figure 44. Choosing an appropriate evaluation design

3.1. Framing and attributes of the evaluand

The nature of GCRF is the starting point in devising an evaluation approach. Determining this can occur at two levels:

i) A specific level, that considers the attributes of GCRF as a research and technology fund which influence its evaluation
ii) An existential level – what is the nature of GCRF? What type of thing (system) is it?

3.1.1. The nature of GCRF: as a research and technology fund

Much evaluation assumes that the evaluand is a programme. GCRF is a fund, not a programme, and it is engaged in trying to contribute to solving some of the world's most

[58] For simplicity, this strategy employs two principal **evaluation terms**:
Design: the overarching framework which provides the fundamental basis for how the evaluation will be conducted. A design encompasses forms of theory plus uses of data that support causal inference. Different designs may share similar data collection - both experiments and case studies may use interview data; but they are held together by the fundamental logic of a design not their methods.
Methods: the process used to answer research questions, including but not limited to techniques for data collection and / or analysis.
[59] Stern, E. (2015). *Impact Evaluation A Guide for Commissioners and Managers*. BOND, London. https://www.bond.org.uk/data/files/Impact_Evaluation_Guide_0515.pdf

enduring and intractable problems[60] – extreme poverty, disease, inequality, poor governance, and climate change.

The funding environment for research has changed; from an emphasis on scholarship and knowledge, there has been a progressive move for it to be driven by the 'impact agenda' and the requirement to demonstrate economic benefits[61]. With this shift comes an increasing challenge to assess results; a shift from outputs to impacts.

The challenge is summarised well by Morton: "*To understand [research] impact we need to consider changes in policy and practice, changes in people's knowledge and understanding of an issue, as well as the broad range of potential areas of influence, all highly context dependent. All of these factors make understanding and assessing research impact difficult.*

However, research utilization sits within the messy and complex worlds of policymaking and practice, and this presents challenges for any approach aiming to assess its effectiveness. The indirect nature of impact, with research being modified or partially used, or influencing the terms of debate over a long period, add to these challenges: 'the ways in which research affects society are based on complex, iterative, self-reinforcing processes, distributed unequally across research initiatives'[62].

Nutley et al[63] suggest that it is increasingly common for research impact to be seen not just as a handoff of research findings but as a process of engagement with research users 'around multiple stages, for example, developing research questions, clarifying the research design, interpreting the research data and communicating the research implications'.

In this interactive approach, the ways in which research is conducted, communicated, and taken up are as important to understanding and assessing impact as wider utilization. An interactive model also acknowledges the importance of networks and of research impact as a process involving many actors interacting and communicating over time"[64]

Similarly, the Research Unit for Research Utilisation (RURU) at St Andrews University states: "traditionally, the success or otherwise of academic research has been judged in quite narrow ways, usually by an assessment of peer-reviewed published output"[65]. They identify the need for '**forward tracking from research to consequences**'. Bibliometrics and impact factors are likely to have some role in the GCRF evaluation, particularly in monitoring the research excellence of outputs. However they are at best a measure of dissemination to, and not engagement with, partners and users. Thus a more sophisticated and systems-

[60] Sometimes referred to as 'wicked problems'. Head, B.W. (2008). Wicked Problems in Public Policy. *Public Policy*, 3 (2), 101-118. Wicked problems are considered difficult to resolve for reasons such as: incomplete or contradictory knowledge, the number of people and opinions involved, the large economic burden, and the interconnected nature of these problems with other problems (Kolko, J. (2012). Wicked Problems: Problems Worth Solving. *Stanford Social Innovation Review*, Mar 6, 2012).

[61] Kate Williams and Jonathan Grant (2018). A comparative review of how the policy and procedures to assess research impact evolved in Australia and the UK. *Research Evaluation*, 27 (2), 93-105.

[62] Molas-Gallart, J., et al. (2000) 'Assessing the Non-academic Impact of Grant-funded Socio-economic Research: Results from a Pilot Study'. *Research Evaluation*, 9 (3): 171–82.

[63] Nutley, S., et al. (2007). *Using Evidence: How Research can Inform Public Services*. Bristol, Policy Press

[64] Sarah Morton (2015). Progressing research impact assessment: A 'contributions' approach. *Research Evaluation*, 24, 405–419.

[65] Huw Davies, Sandra Nutley, and Isabel Walter (2005). *Assessing the impact of social science research: conceptual, methodological and practical issues*. Discussion paper for ESRC Symposium on Assessing Non-Academic Impact of Research. Research Unit for Research Utilisation, University of St Andrews.
https://www.researchgate.net/publication/237525328_Assessing_the_impact_of_social_science_research_conceptual_methodological_and_practical_issues

oriented approach is needed to assess the stages of GCRF beyond outputs and up to research impact[66].

Assessing research impact has been described as difficult, but not impossible[67], and many organisations in Europe, Australia, the UK, Canada and the USA have studied the problem. There is an active academic community in this area. From this work, a number of challenges are recognised in the assessment of research impact, including [67, 68, 69, 70]:

- The time lags between conducting research and consequent impacts
- The often gradual acceptance and absorption of new knowledge over time
- The difficulty of collecting evidence of impact without undue selection bias for positive impact
- 'Short-term proximate impacts are easier to attribute, but benefits from complementary assets (such as the development of research infrastructure, political support or key partnerships) may accumulate in the longer term but are more difficult – and sometimes impossible – to fully capture'[67].
- The nature of outcomes and impacts from research can be dynamic, temporary and non-proportionate
- The convoluted research-to-impact pathways, with multiple actors and pathways
- The lack of well-articulated theories of change that describe the path of how a research initiative achieves its end outcomes

Additionally, as an evaluand, research and innovation systems have a large number of actors in the results chain, playing a role in the theory of change. The Innovation Ecosystem[71] concept demonstrates this (Figure 45), though for development research it misses knowledge brokers at the translation stage and civil society in the scaling stage.

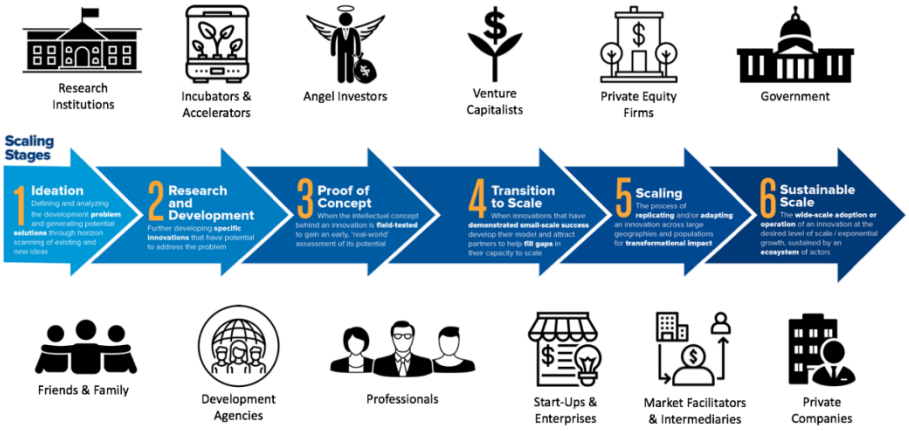


Figure 45. Innovation Ecosystem Scaling Pathway with Typical Actors

[66] Research impact refers to the contribution of research activities to desired societal outcomes, such as improved health, environment, economic, and social conditions. (RAND, 2009) Demonstrating and Communicating Research Impact - Preparing NIOSH Programs for External Review. https://www.rand.org/content/dam/rand/pubs/monographs/2009/RAND_MG809.pdf

[67] Molly Morgan Jones, Sophie Castle-Clarke, Catriona Manville, Salil Gunashekar, and Jonathan Grant (2013). *Assessing Research Impact - An international review of the Excellence in Innovation for Australia Trial*. RAND Corporation, Cambridge, UK. https://www.rand.org/pubs/research_reports/RR278.html

[68] Teresa Penfield, Matthew J. Baker, Rosa Scoble, and Michael C. Wykes (2014). Assessment, evaluations, and definitions of research impact: A review. *Research Evaluation*, Volume 23, Issue 1, pp 21–32.

[69] Williams, V.L., Eiseman, E., Landree, E. and Adamson, D.M. (2009). *Demonstrating and Communicating Research Impact Preparing - NIOSH Programs for External Review*. Rand Corporation, Santa Monica.

[70] Trisha Greenhalgh, James Raftery, Steve Hanney and Matthew Glover (2016). Research impact: a narrative review. *BMC Medicine*, 14:78. https://bmcmedicine.biomedcentral.com/articles/10.1186/s12916-016-0620-8

[71] https://www.idiainnovation.org/ecosystem/

Taking systems ideas - elaborated below - the evaluation needs to consider interconnections and dynamics of the relationships between these actors[72], as well as features such as the boundaries between the sub-systems they occupy.

All of these challenges make establishing causality difficult. Establishing causality is an issue in large-scale evaluation with complex evaluands generally, however this is exacerbated with research impact evaluation, and more so when the research and innovation are intended to have development impact. This is a triply challenging evaluation.

3.1.2. The nature of GCRF: a complex system?

The previous section explores the evaluation implications of GCRF as a research and technology fund, albeit one with a fairly unprecedented scope to tackle global problems and that draws in a large swathe of the UK and international research and innovation system - from government, through research councils to research institutes, the UK Space Agency, commercial entities and many other agencies in between.

This section now examines GCRF from a systems perspective and the wider SDG context.

Intervening in complex systems - new paradigms in public policy and evaluation

Briefly taking an historical perspective, evaluation and performance audit grew in importance under the New Public Management (NPM) approach to public policy in the 1970s and 80s[73]. NPM was characterised by "**rational, positivist and quantitative approaches**" and "target-/accountancy- oriented 'scientific' management"[74]. Its evaluation combined results-based management with measurement of customers' satisfaction with services. Evidence-Based Policy Making (EBPM) evolved as a successor to NPM in the 1990s and 2000s[75]. Drawing on the parallels in evidence-based medicine, evaluation for EBPM - not least in UK-funded international development – started to focus increasingly on impact assessments and on randomised controlled trials (RCTs), quasi-experimental methods and use of counterfactual approaches. EBPM also had a tendency consider use of evidence in an instrumental way.

However, this did not occur without controversy, and this period in evaluation has been described as the 'paradigm wars'[76], with different understandings of what constitutes evaluation being strongly contested. These differences "reflected different philosophical and epistemological positions on science, positivism, post-positivism, realism, experimentalism, and social constructionism"; between rationalists[77] and those (constructivists) who argue that

[72] Andrew Gunn & Michael Mintrom (2017) Evaluating the non-academic impact of academic research: design considerations, *Journal of Higher Education Policy and Management*, 39:1, 20-30
[73] Power, Michael (1994) *The Audit Explosion*, London: Demos
[74] Ansell, C. and Geyer, R. (2016). 'Pragmatic complexity' a new foundation for moving beyond 'evidence-based policy making'? *Policy Studies*, 38 (2), 149-167.
[75] Parkhurst, J. (2017). *The Politics of Evidence, from evidence-based policy to the good governance of evidence*. Routledge Studies in Governance and Public Policy. Routledge, Abingdon.
[76] Picciotto, R. (2014). Have Development Evaluators Been Fighting the Last War? And If So, What is to be Done? *IDS Bulletin* Volume 45 Number 6. https://opendocs.ids.ac.uk/opendocs/bitstream/handle/123456789/7349/IDSB_45_6_10.1111-1759-5436.12109.pdf?sequence=1&isAllowed=y
[77] Davies, P., Morris, S., & Fox, C. (2018). The evaluation market and its industry in England. In S. B. Nielsen, S. Lemire, & C. A. Christie (Eds.), The Evaluation Marketplace: Exploring the Evaluation Industry. *New Directions for Evaluation*, *160*, 29–43.

"knowledge of the social world is socially constructed and cultural and historically contingent"[78].

Post-2008 crisis, there has been an increasing appreciation that policy approaches have been inadequate; unable to deal with uncertainty, and "failing to appreciate the complexity of human behaviour and the systems in which we live". The problems we face are understood to be unintended consequences of **intervening in complex systems**, including "ecosystems, financial markets, and energy markets, or societal phenomena such as urbanisation and migration"[79]. Many of these are **SDGs issues**. Put simply, the view that the "social world is composed of **complex systems** is now almost commonplace"[80]. The policy and programming response has been to more overtly acknowledge the uncertainties, and this is evidenced by increasing use of adaptive policy[81] and adaptive management approaches – seen particularly in international development, including DFID[82], building on ideas such as problem-driven iterative adaptation[83] and policy experiments[84].

This has created **new challenges for evaluation**, and the more complex the intervention, such as GRCF undoubtedly is, the more difficult will be the evaluation[85]. This is dealt with further in Appendix E.

A large research and innovation fund dealing with global problems – as an evaluand, is this simple, complicated or possibly complex? [86]

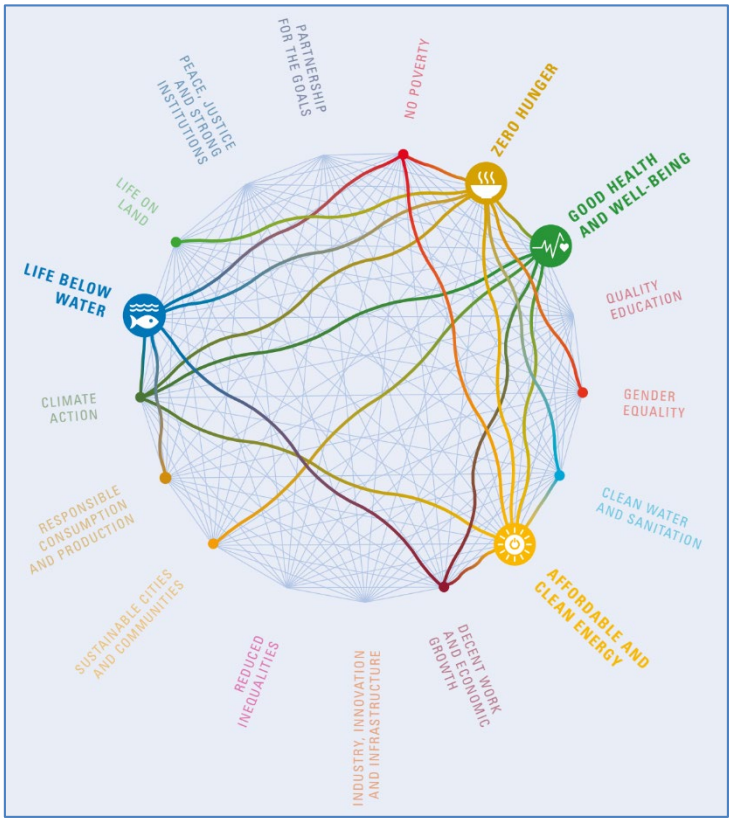
A large research fund dealing with global problems – this suggests that it is appropriate to frame GCRF from a systems perspective, and explore if it is simple, complicated or possibly complex?

GCRF itself is a system – **a research and innovation system** that encompasses many interacting agents in the UK and globally, serving a range of different functions across a number of knowledge production and knowledge-into-use boundaries, requiring feedback from user communities to refine ideas and adjust approaches.

GCRF is a system with many parts, yet the outcome and impact space which GCRF targets - making considerable progress towards addressing the SDGs in a wide variety of Low and Middle Income Countries (LMICs) - is a much more involved system. How this is best categorised affects the types of evaluation design most suited to assess it.

[78] Sanderson, I. (2002). Evaluation, Policy Learning and Evidence-Based Policy-Making. *Public Administration*, 80, 1-22.
[79] OECD (2017). *Debate the Issues: Complexity and policy making*. OECD Insights, OECD Publishing, Paris. http://www.oecd.org/economy/debate-the-issues-complexity-and-policy-making-9789264271531-en.htm
[80] Byrne, D. (2013). Evaluating complex social interventions in a complex world. *Evaluation,* 19 (3), 217-228.
[81] Darren Swanson and Suruchi Bhadwal (Eds.) (2009). *Creating adaptive policies: a guide for policy-making in an uncertain world*. IISD/TERI/IDRC and Sage, Thousand Oaks.
[82] E.g. the Global Learning for Adaptive Management (GLAM) initiative. https://www.odi.org/projects/2918-global-learning-adaptive-management-initiative-glam and in DFID's Smart Rules: "Continuous learning and adapting is essential for UK aid to achieve maximum impact and value for money" https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/744713/Smart-Rules-External-Oct18.pdf
[83] Andrews, M., Pritchett, L. and Woolcock, M. (2013) 'Escaping capability traps through problem driven iterative adaptation (PDIA), *World Development*, 51: 234-44
[84] Dennis A. Rondinelli (2013). *Development Projects as Policy Experiments - An Adaptive Approach to Development Administration (2nd Edition)*. Routledge, London.
[85] Marjanovic, S. et al (2017). Evaluating a complex research capacity-building intervention: Reflections on an evaluation of the African Institutions Initiative. *Evaluation, 23(1) 80–101.*
[86] The categorisation of phenomena into simple, complicated and complex dates back 70 years: Weaver W (1948) Science and complexity. *American Scientist* 36: 536.

One approach to understanding the global problems addressed in the SGDs[87] has been to take a scientific stance and systematically analyse the nature of interlinkages between the SDGs. The International Council for Science analysed four SDGs in detail (SDGs 2, 3, 7, 14) (Figure 46) and found them to be mostly synergistic with the other SDGs[88]. This mechanistic analysis was based on the premise that a science-informed analysis of interactions across SDGs domains can support more coherent and effective decision making, and better facilitate follow-up and monitoring of progress. This is illustrative of a view of global, SDG-type challenges as being – in a technical sense - complicated. However, it misses many features of the way the system works – emergent outcomes; non-linearity, etc.



Source: International Council for Science (2017)

Figure 46. Interactions between SDGs: SDGs 2, 3, 7, 14.

But rather than complicated, as the ICS somewhat reductionist approach to the SDGs suggests, the nature of GCRF is more likely to be complex.

The Stacey matrix[89] (Figure 47) and David Snowden's *Cynefin* framework[90] may provide helpful ways in which start thinking about the nature of systems and how much is understood about cause and effect relationships in these systems. The nature of these relationships is a large factor in choosing an appropriate evaluation approach which can make assessments of causal contribution.

[87] https://www.un.org/sustainabledevelopment/sustainable-development-goals/
[88] International Council for Science (ICSU), 2017. *A Guide to SDG Interactions: from Science to Implementation*. [D.J. Griggs, M. Nilsson, A. Stevance, D. McCollum (eds)]. International Council for Science, Paris. https://council.science/cms/2017/05/SDGs-Guide-to-Interactions.pdf
[89] Zimmerman, B. (2001) *Ralph Stacey's Agreement & Certainty Matrix*. Edge-Ware Aides, York University, Toronto.
[90] David J. Snowden and Mary E. Boone (2007). *A Leader's Framework for Decision Making*. Harvard Business Review, November edition. https://hbr.org/2007/11/a-leaders-framework-for-decision-making

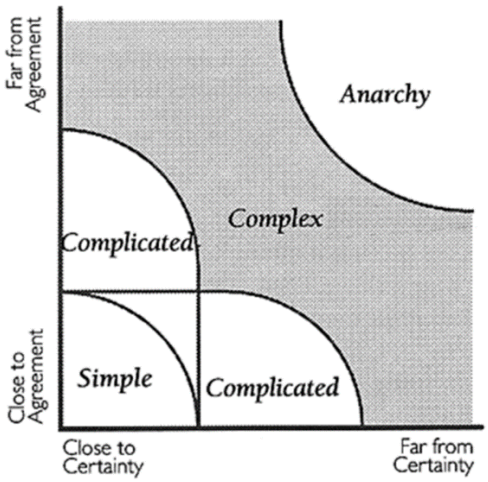


Figure 47. Stacey's agreement and certainty matrix

According to these two models, GCRF is certainly not simple, but hopefully neither chaotic nor anarchic. For the evaluation, consideration needs to be given to where GCRF lies in the complicated (ordered) – complex (unordered) domains. These two areas can be defined as follows:

- **Complicated systems:** assume an ordered universe and involve a number of interrelated parts, which interact in broadly predictable ways. Interventions in these systems expect the parts and process to "function in a predictable way if the whole intervention is to succeed. The processes are broadly predictable and outputs arrive at outcomes in well-understood ways"[91] Complicated interventions (evaluands) have these characteristics: implemented through multiple agencies, multiple simultaneous causal strands, and different causal mechanisms operating in different contexts[92].

- **Complex systems**[93, 94]**:** are unordered, and function in ways that are much less predictable. The relationship between cause and effect maybe not be immediately apparent, and can only determined through emerging patterns. There will usually be multiple perspectives from different actors in complex systems, and learning about change in these systems requires aspects of social learning. These systems are non-linear, may respond in non-proportional ways, maybe in constant flux or indeed resist change, affected by context, and characterised by feedback loops that make the system adaptive.
- Therefore, interventions in these systems are: "characterized by feedback loops, adaptation and learning by both those delivering and those receiving the intervention… They are both sensitive to starting conditions and outcomes tend to change, possibly significantly, over time. Complex interventions, have multiple components which may act independently and interdependently"[95]

[91] Ling, T. (2012). Evaluating complex and unfolding interventions in real time. *Evaluation*, 18 (1), 79-91.
[92] Rogers, P.J. (2008) Using Programme Theory to Evaluate Complicated and Complex Aspects of Interventions. *Evaluation*, 4(1), 29 – 48.
[93] This strategy can only touch on the fields of complexity and complex system. The Magenta Book (HM Treasury (2011). *The Magenta Book Guidance for evaluation*. HMT, London) is in the process of being updated. The new version, due in mid-2019, will include an annex on 'Handling complexity in policy evaluation'. This will be a pertinent place to explore the topic of complex systems – and their evaluation - in more depth.
[94] Readers are also directed to the work of the Centre for the Evaluation of Complexity Across the Nexus (CECAN) [https://www.cecan.ac.uk] for further resources on a complexity perspective on public sector interventions, and on evaluation methods and tools for use in the arena.
[95] Ling (2012). Evaluating complex and unfolding interventions in real time. *Evaluation*, 18 (1), 79-91.

Understanding how GCRF is both complicated and complex

From these characterisations, GCRF can be usefully framed as an intervention that moves from being complicated to one with increasing complexity features as it progresses towards impact. In results chain terms, the relationships at the activity and output end of the chain are comparatively straightforward. There is established science and methodology relating to understanding and assessing the transformation of human and financial resources in academia and the technology sector into research outputs, innovation, new science and technology capacities, and into and partnerships. Research is of course inherently uncertain, but it happens in a research system that behaves in generally predictable way. Thus this part of GCRF may be conceived as ***merely* complicated** (though all this occurs in social settings that infer complexity). In relation to the RQ+ model for evaluating research (which underlies the GCRF TOC) (Fig 3Figure 3)[96], these process occur in the spheres of direct control and the cusp of the sphere of direct influence – more knowable and manageable spaces.

Towards the outcome and impact parts of the results chain, GCRF is in the 'real world', i.e. largely operating outside traditional academic and innovation spaces. Making progress here entails change that is iterative, adaptive and non-linear. This is **a messy space**. The relationship between the relative simplicity of GCRF inputs, the 'merely' complicated zone of undertaking research, innovation, capacity building and partnering, and the **complex real world** in which GCRF aims to achieve **SDG-level impacts** may be depicted as follows (Figure 48):

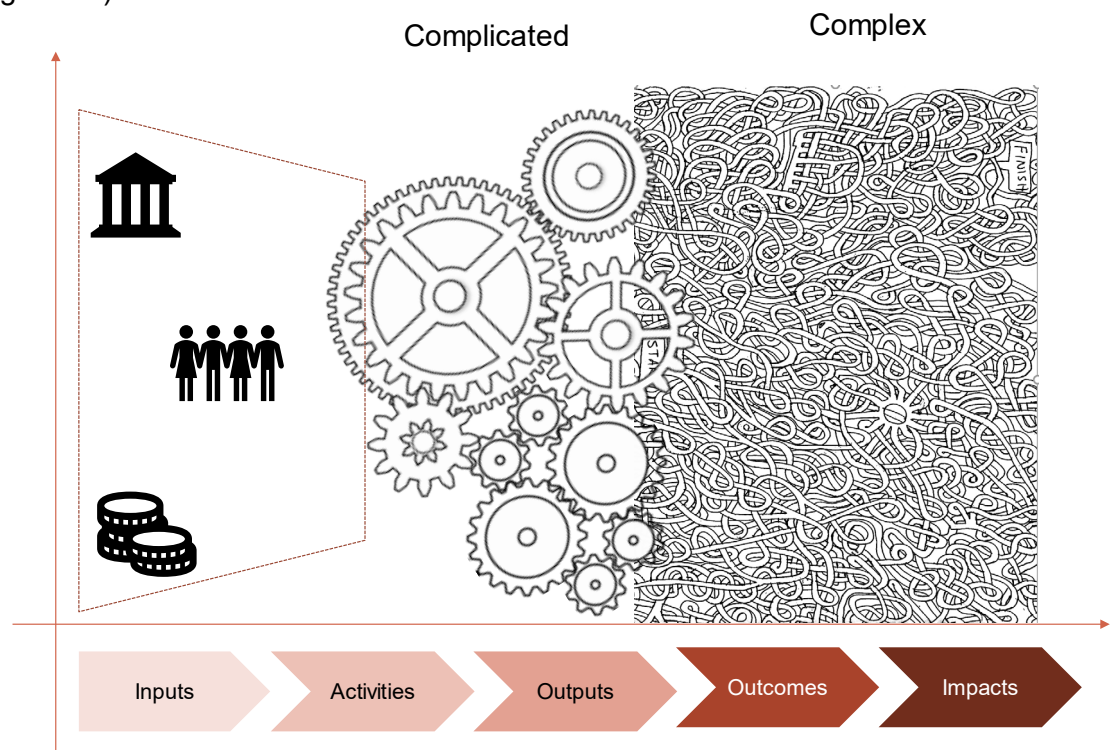


Figure 48. Types of system within GCRF

[96] Ofir, Z. Schwandt, T. Duggan, C. McLean, R. 2016. Research Quality Plus - A Holistic Approach to Evaluating Research. IDRC Ottawa, Canada. https://www.idrc.ca/sites/default/files/sp/Documents%20EN/Research-Quality-Plus-A-Holistic-Approach-to-Evaluating-Research.pdf

Drawing on systems concepts helps to clarify that **complexity is central to the nature of GCRF**, although there are aspects that are complicated, while retaining their systems attributes of uncertainty and non-linearity.

GCRF: a two-domain evaluand

Given the conceptual, and more importantly, practical need to draw some boundaries around GCRF to enable us to define an evaluand and its attributes, this strategy opts to frame GCRF as a two-system model, or a system with **two domains**. The 'complicated' domain, which might be considered "**GCRF – the intervention**" and the 'complex' domain, which might be considered "**GCRF – outcomes in context**". This is shown below by mapping the domains on to the TOC (Figure 49). This framing is explained below the figure.

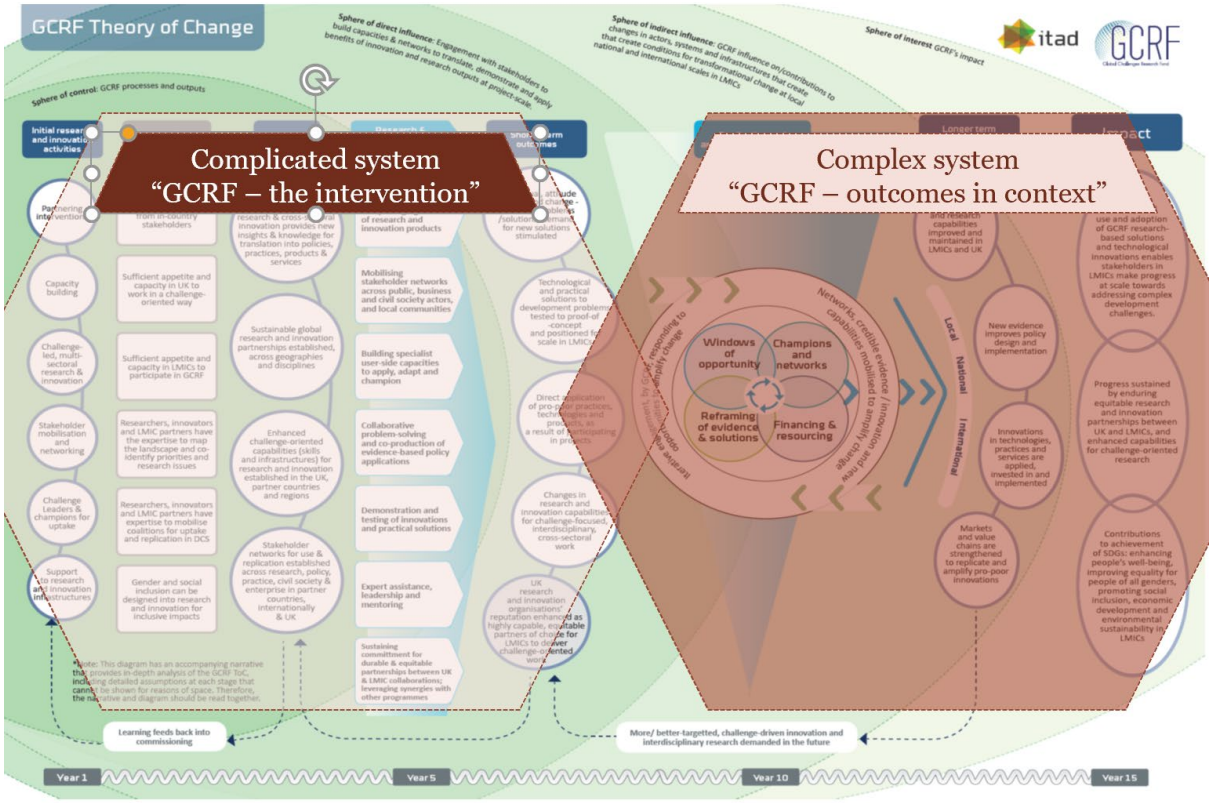


Figure 49. A two-domain model of GCRF

The '**GCRF Intervention**' domain describes the range of intentional processes that are happening within the boundaries of the research and innovation 'ecosystem', spanning the UK and partner country contexts. GCRF intentionally aims to bring together different entities - that is, researchers in UK and overseas, with policy, civil society and commercial actors - across disciplinary, sectoral and geographical boundaries, as a means to stimulate research and innovation in pursuit of solutions to the identified challenges. These processes are intended to stimulate new types of capacity – e.g. interdisciplinary skills and knowledge; international partnerships and networks, and to provide structural support to research and innovation through financing, research infrastructures and translation platforms. This GCRF intervention domain can be understood broadly as an 'innovation ecosystem', which is 'merely complicated' (see Box 2).

The '**Outcomes in context**' domain describes the real-world national and regional contexts where SDGs manifest, and where GCRF is aiming to influence material, social and environmental change to reduce poverty and enhance well-being and sustainability. The ultimate measures of success are situated in this domain, that is the positive shifts that the stakeholders drawn into the innovation ecosystem (Box 7), are then able to influence in their settings with new capacities, relationships and structures with solutions that have been yielded from the intervention domain… which is complex.

> Achieving and sustaining any development outcome depends on the ability of multiple and interconnected actors – governments, civil society, the private sector, universities, individual entrepreneurs and others – to work together effectively – in an innovation ecosystem
>
> For innovative ideas to be efficiently generated, developed, tested and ultimately scaled for development impact they also require the coordinated, collaborative action and resources of the actors noted above – collectively referred to as the 'innovation ecosystem'.
>
> An innovation ecosystem is made up of different actors, relationships and resources who all interact and play a role in taking a great idea to transformative impact at scale.
>
> https://www.idiainnovation.org/ecosystem/

Box 7. Innovation ecosystems

Implications of a two-domain evaluation object (evaluand) for the evaluation

This compartmentalised (domains) approach is not without critique. In the categorical, 'simple-complicated-complex', Weaver model[97] - often expressed with the over-used systems metaphor: 'baking a cake - sending a rocket to the moon - raising a child' - all these enterprises are affected by the unexpected, require adaptation and improvisation, and are embedded in social contexts, meaning they are to different degrees unpredictable[98]. It can be argued that everything is complex (to a degree).

In relation to the evaluation, there are pitfalls of both seeing everything as complicated and to compartmentalising complexity. Traditional evaluation approaches that rely on frequency or counterfactual frameworks[99] to establish cause-and-effect fail to take account of context, non-linearity, and other features of complex systems, such as tipping points. But there are also problems with approaches that graft complexity-aware methods onto conventional ones to evaluate 'the complex bits' of programmes. Epistemologically, problems arise from bolting together reductionist and holistic approaches[100] without acknowledging either how this affects the construction of areas such as programme theory and EQs, or that complexity is central to the nature of the evaluand.

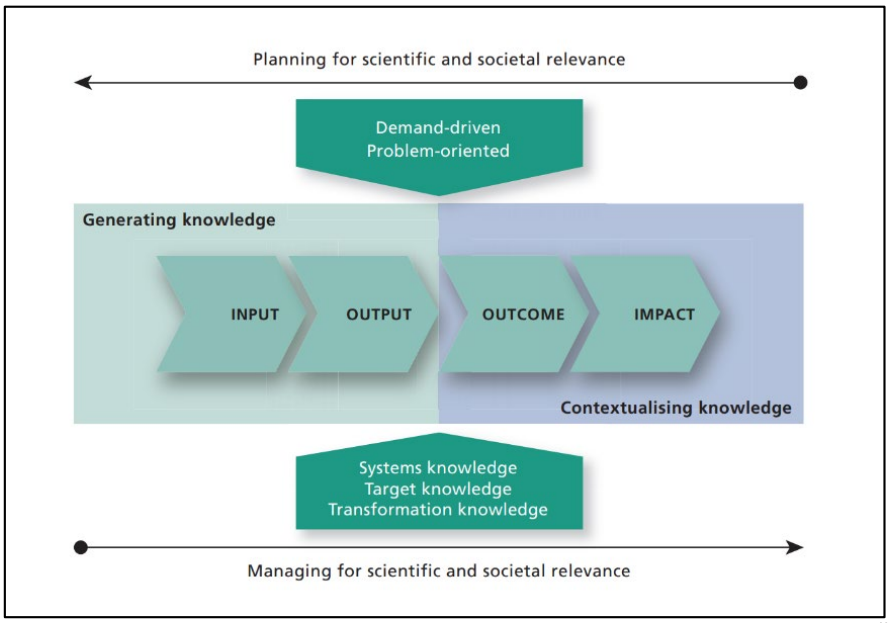
However, this strategy opts for an approach which does in part deal with GCRF in domains (as per Figure 49), or as interacting sub-systems. Reasons for this include:

- The Theory of Change suggests this:
    - an 'activity to output-level results' and 'output-level results to shorter-term outcomes' domain, with change mediated through a band of 'into use' transmission processes

[97] Weaver W (1948) Science and complexity. *American Scientist* 36: 536.
[98] Mowles, C. (2014). Complex, but not quite complex enough: The turn to the complexity sciences in evaluation scholarship. *Evaluation*, 20 (2), 160-175.
[99] Stern (2015). *Impact Evaluation. A Guide for Commissioners and Managers*. BOND, London. https://www.bond.org.uk/sites/default/files/resource-documents/impact_evaluation_guide_0515.pdf
[100] Ling, T. (2012). Evaluating complex and unfolding interventions in real time. *Evaluation*, 18 (1), 79-91.

- and a 'shorter-term outcomes to longer-term outcomes and impacts' domain, occurring through a complex set of replication and amplification processes

  This is consistent with a transformation step in relation to the way knowledge is dealt with in the middle of the research-into-use results chain (Figure 50).



Source: Stöckli et al (2018)[101]

Figure 50. Generation and contextualisation of knowledge

- Pragmatism. The use of public money needs to be monitored and accounted for. There are immediate and on-going reporting needs. Therefore Delivery Partners and BEIS need some simple-to-collect and simple-to-communicate monitoring and evaluation (M&E) results for reporting up to Ministers and to the public. This suggests some more reductionist M&E work in the first of these domains. But within the envelope of a hybrid design that combines approaches tailored to each sub-system and evidence needs.
- Current and established practice. Academic research has a well established, albeit imperfect, approach to reporting progress, results and impact. This system includes components that range from bibliometrics, impact factors and h indices, to annual ResearchFish returns and REF impact cases studies. The GCRF evaluation strategy needs to build on this practice, while recognising its strengths and weaknesses and where it fits within the overall strategy, and how it forms part of an hybrid design.

There are further implications for the evaluation which are discussed in more detail in the '**Suggested Design**' section below, including the critical aspects of understanding causality when evaluating complex evaluands, and the importance of studying the influence of context on causality in a complexity-informed evaluation strategy.

[101] Bruno Stöckli, Urs Wiesmann, Jon-Andri Lys (2018). *A Guide for Transboundary Research Partnerships: 11 Principles & 7 Questions*. 3rd Edition. Bern, Switzerland. Swiss Commission for Research Partnerships with Developing Countries (KFPE). https://naturalsciences.ch/service/publications/9505-a-guide-for-transboundary-research-partnerships-3rd-edition---2018-

3.2. Evaluation Questions

Having framed the nature of GCRF as the object of the evaluation (evaluand), this section presents the evaluation questions, before the following section brings together evaluand and questions in the suggested design. The question have benefitted from initial consultation with stakeholders, particularly in BEIS and DP to find out what they would like the learn from the evaluation an the sorts of questions they would like it to ask.

3.2.1. The Purpose of the Evaluation

In selecting Evaluation Questions (**EQs**), clarity is needed abut the purpose of the evaluation for GCRF's owners and partners. This is detailed above (Section 2.2), in summary:

- Good governance of public funds: accountability and transparency
- Legal – use of ODA must show compliance with the International Development Act, and evaluation is required as part of the UK Aid Strategy
- Learning – about how to do this type of research, and how to address SDG-related challenges
- Learning – as central to a flexible and adaptive approach to tackling complex and wicked problems

In essence, these are **accountability** and/or **learning** purposes. They should not be seen as a dichotomy; an evaluation can be designed to serve both these purposes. Learning can be broken down according to how and when the evaluation is used. Learning may be used **within the programme** (*learning for now*) to improve its management and implementation, or it may be generated retrospectively at the **end of the programme** to conclusively inform a policy or another funding initiative.

The questions are designed to respond to these needs.

3.2.2. The Questions

As depicted in the ToC, the GCRF pathways to impact will be complex and are likely to extend over more than 10 years[102, 103]. Therefore, an important consideration in the evaluation strategy is to ask evaluation questions that relate to, and are answerable from, the stage of the Fund at the point of asking. To over-simplify, questions about impact cannot generally be answered in the early years as there is a series of activity, output and uptake processes to go through to get to impact.

To be useful, the evaluation must provide information for its stakeholders throughout its lifecycle, and not overly rely on an end-of-cycle evaluation that delivers the dénouement. For this reason the strategy is structured around **five Main Evaluation Questions** (MEQs) that each primarily apply at a different point of the GCRF's life. These MEQs sit beneath one

[102] UKRI GCRF Evaluation Framework
[103] While noting that some research will build a long track record of prior work and start from a more advanced stage, and that technology development – such as in the UKSA IPP – may more progress quickly.

overarching **Primary Evaluation Question** (PEQ) and are supported by a larger set of **Evaluation Questions** (EQs).

The **Primary Evaluation Question** is:

> ***To what extent has GCRF contributed to achieving the SDGs*** *(or addressing the challenges defined in the SDGs)* ***and improving the UK's ability to deliver cutting-edge research on these challenges?***

The five **Main Evaluation Questions** are, in chronological order:

1. Is GCRF relevant, fair, well targeted and well managed?
2. How are GCRF's signature investments[104] working, and what have they achieved?

3a. What results has GCRF produced or contributed to, and what has worked in terms of transforming outputs to outcomes[105]?

3b. Has GCRF made a difference to UK's ability to deliver cutting-edge research on global challenges for development?

4. Has GCRF made a difference to the sustainable and inclusive prosperity of people in developing countries?

These EQs can be mapped against recognised types of evaluation and common evaluation criteria, together with the point in GCRF's lifecycle at which they apply (Table 17):

Main Evaluation Question	Focal Period[106]	Evaluation Type	OECD DAC evaluation criteria
1. Is GCRF relevant, fair, well-targeted, socially-inclusive and well-managed?	Years 3-4	Formative, Process	Relevance, Efficiency, Equitability
2. How are GCRF's signature investments working, and what have they achieved?	Years 4-6	Process (Effectiveness)	Efficiency, Effectiveness
3a. What results has GCRF produced or contributed to, and what has worked in terms of transforming outputs to outcomes?	Years 5-7	Summative / Effectiveness	Effectiveness

[104] These are considered to be: Interdisciplinary Hubs, the GROW programme, UKSA's IPP, selected other cross-DP programmes (tbc), and the Challenge Leaders initiative

[105] The strategy uses these 'results' terms in the following way:

- an **output** is a product or service which the project delivers, and can be held contractually accountable for
- an **outcome** is the change that occurs when 'target groups' interact with the outputs, this usually entails a behaviour change which is slightly outside the project's control. Outcomes are short-term and medium-term effects of an intervention's outputs.
- the **impact** is the higher level objective to which the project is designed to contribute. Other projects or interventions will also be required for the Impact to be achieved. It is the long-term effects produced by a development intervention

[106] These periods are given as ranges since a) it is recognised that different programmes and types of activity will run at different speeds and come from different starting points, so the point at which the underlying processes and achievements are occurring across GCRF will vary, and b) the component evaluation modules will run over months or years. However this timings relate to when it is expected most of the programmes will be at this stage.

3b. Has GCRF made a difference to the UK's ability to deliver cutting-edge research and innovation on global challenges for development?	Years 5-6	Summative / Effectiveness	Impact
4 Has GCRF made a difference to the sustainable and inclusive prosperity of people in developing countries?	Years 8-12	Impact	Impact and Sustainability

Table 17. Main Evaluation Questions

The OECD DAC has established a set of five commonly used evaluation criteria for use in development evaluation: Relevance, Efficiency, Effectiveness, Impact, and Sustainability[107] (REEIS). Table 16 above maps the five MEQs on to these criteria. However, other than in this table, the evaluation does not propose using the OECD DAC evaluation criteria as a major structuring device. : The reasons for this are twofold:

i. evaluation reports structured around these criteria can be jargonistic and repetitive, for example with overlapping points made under more than one heading – effectiveness and impact often get conflated. Both jargon and repetitiveness can make for reports that are less readable and less easy to communicate. This evaluation risks being a coalescence of jargon – from evaluation, from development, and from the multiple research disciplines. Structuring around logical phases and natural language evaluation questions reduces the jargon burden brought by rigid structuring around the REEIS criteria.
ii. the OECD DAC is currently in the process of reviewing these criteria. A number of critiques of REEIS framework are circulating[108, 109], and the OECD DAC is likely to revise the criteria, adapting them to the 'new development context and landscape'[110] – not least to reflect the SDG Agenda 2030 and a wider recognition of development being a complex field. When these are published, the evaluation can consider how it may integrate the new criteria.

Nonetheless, without being rigidly structured around the five criteria, the evaluation can still use the concepts in the five criteria in its reporting. The MEQs and associated stages provide a sequence that essentially moves the focus of the evaluation through the criteria from relevance and efficiency to impact and sustainability. It is not consistent with the design to report equally on all five criteria at every stage.

The MEQs provide framing questions for different phases of GCRF's progress. They do not provide sufficient detail to develop methods to answer them, or data collection techniques to support these. Therefore, each MEQ is further broken down into a number of **Evaluation Questions**:

[107] DAC Criteria for Evaluating Development Assistance. http://www.oecd.org/dac/evaluation/daccriteriaforevaluatingdevelopmentassistance.htm
[108] Caroline Heider (2017). *Rethinking Evaluation – Have we had enough of R/E/E/I/S?* World Bank, Washington DC. https://ieg.worldbankgroup.org/blog/rethinking-evaluation
[109] For example: Zenda Ofir (2018). *Updating the DAC Evaluation Criteria, Part 5. Non-negotiable criteria*. http://zendaofir.com/updating-dac-evaluation-criteria-part-5/
[110] https://dacevaluationcriteria.org/

Evaluation Questions	
MEQ 1. Is GCRF relevant, fair, well-targeted, socially-inclusive and well-managed?	
1.1	To what extent has GCRF developed an internally coherent and consistent suite of programmes to address the global challenges?
1.2	To what extent has GCRF developed a suite of programmes that is coherent with, aligned to and coordinated with other efforts to achieve the SDGs?
1.3	To what extent is GCRF and its components consistent with target groups' needs, SDG priorities and partners' and funders'/donors' policies? In essence, is GCRF funding the right things?
1.4	Are partners in GCRF being treated fairly?[111]
1.5	How and to what extent is gender addressed in GCRF programmes?[112]
1.6	How and to what extent is poverty and social exclusion addressed in GCRF programmes?[113]
1.6	How well is the selection, implementation and oversight of awards and programmes being managed?[114, 115]
1.8	How can the relevance, fairness, targeting and management of GCRF be improved?[116]
MEQ 2. How are GCRF's signature investments[117] working, and what have they achieved?	
2.1	How well is the investment being implemented?
2.2	To what extent is the research and innovation coming from the investment of excellent standard and of high quality?[118]
2.3	To what extent have the investment's objectives been met? And, what else has the investment achieved beyond its objectives[119]?
2.4	To what extent does this represent value for money?
2.5	What processes and mechanisms have been important in achieving results from the investment?
2.6	What factors have supported or constrained the results delivered by the investment?
2.7	To has GCRF funding demonstrated additionality in the signature investment areas?
2.8	Have any GCRF funding signature application near-misses received alternative funding, and if so, what lessons emerge from comparing them with GCRF-funded signature investments?
2.8	How can the delivery of the signature investments be improved?
MEQ 3a. What results has GCRF produced or contributed to, and what has worked in terms of transforming outputs to outcomes?	
3a.1	What has GCRF achieved in terms: ○ new insights, knowledge and technologies from interdisciplinary research & cross-sectoral innovation? ○ establishing or strengthening research and innovation partnerships?

[111] Using the Research Fairness Initiative (RFI) framework, do partners experience fairness of funding opportunity, fairness of research process and governance, and fairness of benefits, costs and outcomes? http://rfi.cohred.org/

[112] For avoidance of doubt, this EQ not a quota-type question, for example about proportions of female PIs. This concerns the way gender is addressed in outcomes and impacts, as per the International Development Act (2014).

[113] This EQ may be extended to encompass other forms of social exclusion

[114] This EQ encompasses a set of sub-Qs drawn from the Foundation Stage Process Evaluation.

[115] This EQ encompasses aspects of efficiency, and therefore Value for Money

[116] Each MEQ has a final EQ focused on how the evidence can be used.

[117] These are considered to be: Interdisciplinary Hubs, the GROW programme, UKSA's IPP, selected other cross-DP programmes (tbc), and the Challenge Leaders initiative

[118] **Research excellence** (RX) assessed by established academic criteria, including bibliometrics; **Research quality** to be assessed using the **RQ+ framework** (Ofir et al (2016)), including indicators such **legitimacy** (recognition of stakeholder insights and need, especially developing country stakeholders), **importance** and value to the intended users of the knowledge generated, and the extent to which the research has been positioned in such a way that the **probability of use**, influence and impact is enhanced.

[119] Unplanned consequences may be positive or negative.

Evaluation Questions
○ challenge-oriented capabilities (skills and infrastructures) for research and innovation? ○ stakeholder networks for use and replication of GCRF knowledge and technologies?[120]
3a.2 What factors have supported or constrained these results?
3a.3 To what extent do these results represent value for money?
3a.4 To what extent, and how, has GCRF made a difference to our southern partners?
3a.5 In its challenge areas, has GCRF made a difference to: ○ conceptualisation, problem framing, and demand for new solutions? ○ availability of tested and ready-to-scale technological and practical solutions to development problems? ○ direct application of pro-poor practices, technologies and products, as a result of participating in projects? ○ capabilities for challenge-focused, interdisciplinary, cross-sectoral research and innovation? ○ other ways in which research, technology and innovation can contribute to development results?
3a.6 Where has GCRF made a difference in these areas, how and why has it done so, and what factors have supported or constrained GCRF's contribution to these results?
MEQ 3b. Has GCRF made a difference to the UK's ability to deliver cutting-edge research and innovation on global challenges for development?
3b.1 To what extent has GCRF contributed to the UK's: ○ practice and performance of interdisciplinary and challenge-led research and innovation for development? ○ access to, and success in winning, funding for research and innovation on development challenges? ○ partnerships and networks for research and innovation on development challenges? ○ global reputation and profile for undertaking high quality research and innovation on development challenges? ○ the culture and practice in UK funding bodies in relation to designing, funding, promoting, managing, over-seeing, and collaborating on this type of research and innovation? ○ other factors important in delivering development challenge oriented research and innovation?
3b.2 To what extent has the research and innovation base for global challenges also been strengthened by GCRF, both in the UK and the Global South?
3b.3 What factors have supported or constrained GCRF's contribution to these results?
3b.4 Has GCRF had any unintended or negative consequences for the UK's ability to deliver cutting-edge research and innovation on global challenges for development?
3b.5 To what extent is GCRF able to fund all the high-quality research proposed?
3b.6 Has the introduction of a global challenge fund meant UK researchers are applying to GCRF funds in place of other programmes?
3b.7 How can the UK (continue to) ensure it is best placed to be a global leader in research and innovation on global challenges for development?
MEQ 4. Has GCRF made a difference to the sustainable and inclusive prosperity of people in developing countries?
4.1 For whom has GCRF made a difference?[121]
4.2 In which challenge areas has GCRF made a particular difference?

[120] This EQ includes assessing to what extent have intermediaries, non-academic partners, champions, and potential users in public/policy, private and third sectors been engaged in the research, innovation and uptake processes? And, what has worked and not worked in in engaging these actors?

[121] This is an impact question. It should be answered in terms of poverty, gender, social exclusion and diversity, and geography

Evaluation Questions	
4.3	What has worked in relation to addressing global sustainable development challenges and transforming the lives of the worlds' poorest? How and why has GCRF made a difference? What factors and contexts, and what is generalisable about success?
4.4	What have been the causal mechanisms that have made a difference in the observed changes in sustainable and inclusive prosperity of people in developing countries, and too what extent was GCRF necessary or sufficient for the effect to have occurred?
4.5	What are the GCRF and other (contextual) factors that have been important for success?
4.6	Where else and in what contexts can a GCRF-type[122] research and innovation fund work? What lessons are there for this type of investment in the future?[123]

Table 18. Evaluation Questions

3.3. Suggested Framework

The preceding two sections show that:

- As an evaluand, GCRF may be considered in part complicated, but as it engages with the 'real world' to achieve outcome and impact effects at scale, it is complex
- The type of questions being asked of the evaluation are a mix of how well, how much and 'how' questions.
- The evaluation will need to address accountability and value for money concerns, and parliamentary requirements to ensure poverty and gender are being targeted. As well as provide learning and accountability needs about what difference GCRF has made, and to enable it to navigate its way through complex fields.
- The types of EQ, the demand for findings at different times for different uses, the range of methods within the design, and the scale of the evaluation make it necessary to construct the evaluation from a suite of purpose-specific modules.
- No single method or approach will address the requirements of the GCRF evaluation. A multi-method and multi-module design is required
- The nature of the evaluand dictates that there are certain sets of approaches which will be more relevant and feasible to application in GCRF than others.

The strategy therefore proposes a **phased, multi-module, multi-method design**.

3.3.1. Stages

In understanding the evaluand, the two-domain systems model starts to introduce a frame for phasing or staging the design: 'GCRF – the intervention' and 'GCRF outcomes context'. Recognising that there is unlikely to substantial delivery of results (outcomes and impact) in the early years of GCRF, it is suggested that the intervention domain is taken as broadly two stages: 'targeting and implementation' and 'results'. This gives three stages overall in the main evaluation, each of which will be addressed through a different type of evaluation. These stages follow the initial Foundation Stage (Table 19):

[122] Key features include: interdisciplinary, challenge-led, with multiple UK and international partners, with multiple Delivery Partners, ODA-compliant, etc

[123] This EQ may consider GCRF and its funding modality in relation to other funds (SDC's r4d Programme for Research on Global Issues for Development) and other funding modalities, such as DFID's problem-led approach.

#	Stage	Evaluation type
0	Foundation	initial Process, ToC & Strategy development
1	Targeting and implementation	Process
2	Results	Summative / effectiveness
3	Impact	Impact

Table 19. GCRF Evaluation Stages

Stages

1. The **Process Evaluation** determines whether GCRF has chosen the most relevant priorities and is well-targeted towards these and ODA objectives – particularly poverty and gender, and it assesses how well GCRF and its programmes are being implemented. The process evaluation stage runs through the early-mid implementation years. It will mesh will annual reviews (see below). Annual reviews should include process monitoring once this stage is completed.

2. The **Summative / Effectiveness** evaluation assesses what **outputs** GCRF programmes have produced, how these have contributed to early-stage **outcomes**, and what processes and mechanisms have supported or hindered this transformation.

3. The **Impact Evaluation** determines what has worked in GCRF to make a difference to the sustainable and inclusive prosperity of people in developing countries. It considers this in relation to the Challenge Areas, and to context – for which groups of people, in which places has it worked? It consider how important was GCRF actions in these changes, and which particular mechanisms of change worked best in these situations?

Alongside these evaluations, a stream of **Annual Reviews** and a programme of **Monitoring** will operate. These will check when GCRF is progressing as planned and quantify progress against a set of KPIs. They will inform and provide data for the evaluations, particularly during the first two stages.

This overall staged arrangement is depicted below (Figure 51):

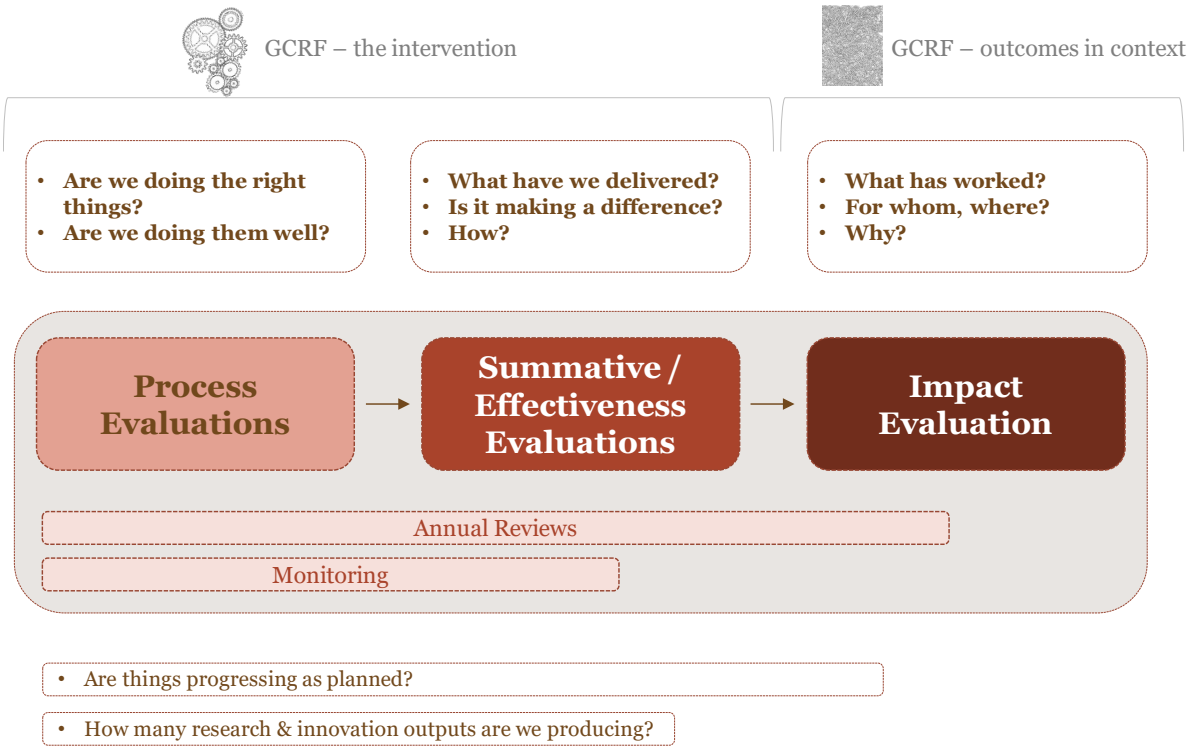


Figure 51. GCRF Evaluation Stages

3.3.2. Modules

The three stages provide an organising structure and a way to summarise the focus of the main evaluation at different stages of GCRF's implementation. But the stages do not give sufficient detail to operationalise the evaluation, nor link directly to the MEQs. The multi-modular approach in this strategy aims to use a range of modules and methods as part of structured hybrid design, employing each approach where it is most fit for purpose. Indeed, in the context of complex economic and social problems – such as the SDGs, it is now widely argued that the best hope for 'generating trustworthy causal inferences' is through mixed methodology or multi-method evaluation designs[124] - these modules provide the scaffold for such a design.

By breaking the stages into a suite of modules, the MEQs can be directly addressed, and a more specific purpose and an accompanying methodology can be framed. The following matrix shows how the modules will address the MEQs (Table 20):

Stage	MEQ	Module[125]
Process	1. Is GCRF relevant, fair, well-targeted, socially-inclusive and well-managed?	• Relevance assessment • Research fairness assessment • Formative poverty and social inclusion assessment • Formative gender assessment • Management review

[124] Sanderson (2002). Evaluation, Policy Learning and Evidence-Based Policy-Making. *Public Administration*, 80, 1-22.
[125] Some modules are optional. Others may be delivered at higher or lower sampling intensities.

Process	2. How are GCRF's signature investments working, and what have they achieved?	• GROW process evaluation • IPP process evaluation • x-DP programmes process evaluation • Hubs process evaluation • Challenge Leaders process evaluation • Research excellence and RQ+ assessment • Programme VFM assessment
Summative / Effectiveness	3a. What results has GCRF produced or contributed to, and what has worked in terms of transforming outputs to outcomes?	• Summative / effectiveness evaluation of research & innovation outputs, outcomes, and 'research into use' processes • Output VFM
Summative / Effectiveness	3b. Has GCRF made a difference to the UK's ability to deliver cutting-edge research and innovation on global challenges for development?	• Summative / effectiveness evaluation of contribution to UK's research and innovation base
Impact	4. Has GCRF made a difference to the sustainable and inclusive prosperity of people in developing countries?	• Impact evaluation

Table 20. Modules per MEQ

Modules will be implemented using particular methods. Choices for these are outlined below. Section 5. provides further information on modules.

3.3.3. Methods

Methods are procedures to be used for collecting and analysing data. They are the process used to answer EQs and enable plausible judgements to be made. A number of methods are specific to particular evaluation epistemologies – they relate to particular framing of knowledge and belief about validity of assessing causal relationships.

In relation to the GCRF evaluation design, a number of modules and their associated methods are straightforward to choose. This is the case for **Stage 1** - Targeting and implementation. For example, specific and distinct methods are available for undertaking **research fairness assessments** and **research quality (RQ+) assessment**. The general methodological requirements for process evaluation are straightforward, and can build on the **process evaluation** conducted during the GCRF Foundation Stage evaluation. The

precise specification of these methods will need to be elaborated during the main evaluation inception.

Where the choice of methods for this design is more difficult, is in relation to **Stages 2 and 3, the effectiveness and impact modules**.

There is an understandable desire to use methods that can measure and make strong attribution claims for impacts. These types of claim are produced with reductive methods that rely on regularity frameworks, or more commonly counterfactual frameworks, as the basis for causal inference.

These methods, primarily **experimental (RCTs)** and **quasi-experimental**, are widely used and promoted. They are used in evaluating research projects and other activities in innovation systems. However, they are used where **a particular set of conditions** can be satisfied. In particular: there is a one or a small number of clearly identified instrumental variables (which may be applied randomly), it is possible to control for other variables (human and contextual factors) – for example through a control group or matching, there are only straightforward non-emergent relationships between the variables, the project has stated and quantifiable target effects, and there are sufficient numbers of experimental subjects to give statistical power for analysis[126].

An example of meeting these conditions for an evaluation in this field is on the effect of post-doctoral fellowships on international research collaboration, using a propensity score matched group of unsuccessful scholarship applicants as a counterfactual[127].

This strategy does not fundamentally reject experimental and quasi-experimental methods. However, the conditions needed in order for them to operate successfully are not considered achievable within the bounds of evaluating GCRF – the fund, nor its programme and challenge area sub-sets. Where these methods may offer utility is for the DPs in their own evaluation programmes where they wish to make a deep assessment of specific, very precise and controlled investments.

Having discounted methods employing a counterfactual for the overarching evaluation, the design will therefore use methods from the **Theory-Based Evaluation** (TBE) family – which depend on a generative causation framework[128], and potentially from **case-based methods** – which use a configurational causation framework.

In TBE, theory bridges causes and effects. The influential Stern paper on options for evaluation in international development[129] identifies two types of TBE approach: process-oriented and mechanism oriented, though notes these are usually inextricably interwoven (as it is proposed that they will be here). Process-oriented TBE follows various causal links in a chain of implementation of an intervention, 'built around a 'theory' that is a set of assumptions about how the intervention achieves its objectives and under what conditions'[129]. The most commonly used process-oriented TBE methods are **Contribution**

[126] Patricia Rogers, Andrew Hawkins, Bron McDonald, Alice Macfarlan & Chris Milne (2015). *Choosing appropriate designs for impact evaluations*. Office of the Chief Economist, Canberra. https://www.industry.gov.au/data-and-publications/choosing-appropriate-designs-and-methods-for-impact-evaluation

[127] Alina Martinez Carter S. Epstein Amanda Parsad (2016). Developing internationally engaged scientists and engineers: The effectiveness of an international postdoctoral fellowship program. *Research Evaluation*, 25 (2), 184–195.

[128] TBE is a family of approaches which encompass a variety of ways of developing a causal model linking programme inputs and activities to a chain of intended or observed outcomes, and then using this model to guide the evaluation. Rogers, P.J. (2008) Using Programme Theory to Evaluate Complicated and Complex Aspects of Interventions. *Evaluation*, 4(1), 29 – 48.

[129] Stern et al (2012)

Analysis, and **Process Tracing**, and there are others, such as Participatory Impact Pathway Analysis[130] that use impact pathway analysis.

In mechanism-based TBE, in order to make a causal claim, a mechanism that 'makes things happen' needs to be identified. But mechanisms do not operate in vacuums – the interaction with context is important. Mechanism-based TBE seeks the connection between causes and effects through deep theoretical analysis, based on mid-range theories[129]. This type of TBE stems from a 'realist' perspective and its most common method is **realist evaluation**[131].

Case-based methods make systematic causal analysis of 'cases'. The method most relevant to GCRF is Qualitative Comparative Analysis (**QCA**). This makes quantitative analysis, using fuzzy set logic, of 'configurations' of cases and their qualitative attributes to determine the conditions that are necessary and sufficient for an outcome to occur.

The suggested design for GCRF's main evaluation will use a blend of methods, particularly in relation to answering MEQs 3b and 4 in Stages 2 and 3.

Stage 2, addressing MEQ 3b, considers results in the 'GCRF – the intervention' domain. This is a **complicated system**, but amenable to an hybrid **TBE method** that gathers evidence about how well an intervention has worked against its ToC to contribute to change, plus some case-based analysis. It proposed to use a **combination of methods,** principally:

- **documentation of programme *outputs*** and analysis by factors including sector, challenge area, novelty of the field, funder, partners, level of interdisciplinarity, and country. This is an 'inward-out' method, i.e. it follow the research and innovation up the research-to-uptake pathway, and build on established ways to quantify research output (eg from the REF). It will assess a large population and take a 'monitoring data plus' approach - i.e. it will use existing tracking (eg from ResearchFish) alongside additional verification
- **contributions analysis of *outcomes*** and success factors. This is an 'outward-in' method. i.e. it starts with outcomes and tracks them back to understand how change has happened. It will be a study smaller population than the previous method (a sub-set), giving an in-depth and more nuanced and qualitative understanding.
- **QCA** of sets of cases, based on programme and outcome typology
- **VFM assessment**

Stage 3, addressing MEQ 4, considers results in the **complex** 'outcomes in context' domain. It is amenable to a method that determines which outcomes are generated by which mechanisms (that may or may not be the intervention) interacting with which contexts. Suitable methods are **realist evaluation** or 'realist-informed' methods[132], or using a realist approach to synthesis of evidence from a range of sources using **realist synthesis**[133]. It is proposed that Stage 3 is a **realist impact evaluation**. In selecting a sample for this method, attention will be given to positive / negative deviant cases in which the systems and GCRF's

[130] Boru Douthwaite, Thomas Kuby, Elske van de Fliert, and Steffen Schulz (2003). Impact pathway evaluation: an approach for achieving and attributing impact in complex systems. *Agricultural Systems*, 78 (2), 243-265
[131] Pawson, R. and N. Tilley (1997) *Realistic Evaluation*. London: Sage.
[132] E.g. Boru Douthwaite, John Mayne, Cynthia McDougall, and Rodrigo Paz-Ybarnegaray (2017). Evaluating complex interventions: A theory-driven realist-informed approach. *Evaluation*, 23 (3), 294-311
[133] Ray Pawson Trisha Greenhalgh Gill Harvey Kieran Walshe (2004). *Realist synthesis: an introduction*. ESRC Research Methods Programme, RMP Methods Paper 2/2004. ESRC & University of Manchester. https://www.researchgate.net/publication/228855827_Realist_Synthesis_An_Introduction

role within it can be analyses. The method deals with the complexity issues of how change happens.

Both contributions analysis and realist evaluation methods are **iterative**. They repeatedly loop back to test evidence against the ToC, or for realist evaluation, refining mid-level theory. In this way, learning happens in parallel to programme implementation allow it to adapt and for the evaluation to be sensitive to changes in direction and unintended consequences. This is important since in evaluating complex evaluands, the selected design needs significant modules that are as dynamic and adaptive as the realities which it is intended to assess.

It is also proposed to include two **case-based modules that spans the two stages**. These answer more details 'what works' questions and would respectively follow cases that: [134]

- **track forward** from research and technology development through testing and uptake to outcomes and impact

  or

- **track back** from observed outcomes or impacts in the challenge areas in which the programmes have been working to determine the role(s) of GCRF-funded activity. If done well, this method can explore the range of factors affecting success and try to assess importance and proportionate levels of contribution[135].

Process Tracing[136, 137] and Process Tracing with Bayesian Updating[138] methods are suited to these modules.

To summarise this section, the **Evaluation Strategy Map** (below) shows the main elements of the suggested design, particularly how it progresses, over a **10 year timeframe**, through initially the formative **Process Evaluation**, to **Summative Evaluation** / effectiveness stage that combines some more reductive assessment of outputs with a theory-based approach to the transformation of outputs to outcomes, and finally the theory-based **Impact Evaluation** stage.

3.4. Evaluation Strategy Map

The Evaluation Strategy Map brings together the **GCRF timeline**, the **ToC** and the suggested **modules** necessary to address the **MEQs**. These parts make it a large and somewhat complicated diagram (Figure 52).

[134] Marjanovic et al (2017). Evaluating a complex research capacity-building intervention: Reflections on an evaluation of the African Institutions Initiative. *Evaluation, 23(1) 80–101.*
[135] Sarah Morton (2015). Progressing research impact assessment: A 'contributions' approach. *Research Evaluation*, Volume 24, Issue 4, pp 405–419.
[136] Melanie Punton and Katharina Welle (2015). *Straws-in-the-wind, Hoops and Smoking Guns: What can Process Tracing Offer to Impact Evaluation?* CDI Practice Paper 10. Centre for Development Impact, IDS, Brighton. https://www.ids.ac.uk/publications/straws-in-the-wind-hoops-and-smoking-guns-what-can-process-tracing-offer-to-impact-evaluation/
[137] Johannes Schmitt and Derek Beach (2015). The contribution of process tracing to theory-based evaluations of complex aid instruments. *Evaluation*, 21(4), 429–447
[138] Barbara Befani and Gavin Stedman-Bryce Process (2017). Process Tracing and Bayesian Updating for impact evaluation. *Evaluation*, 23(1), 42–60

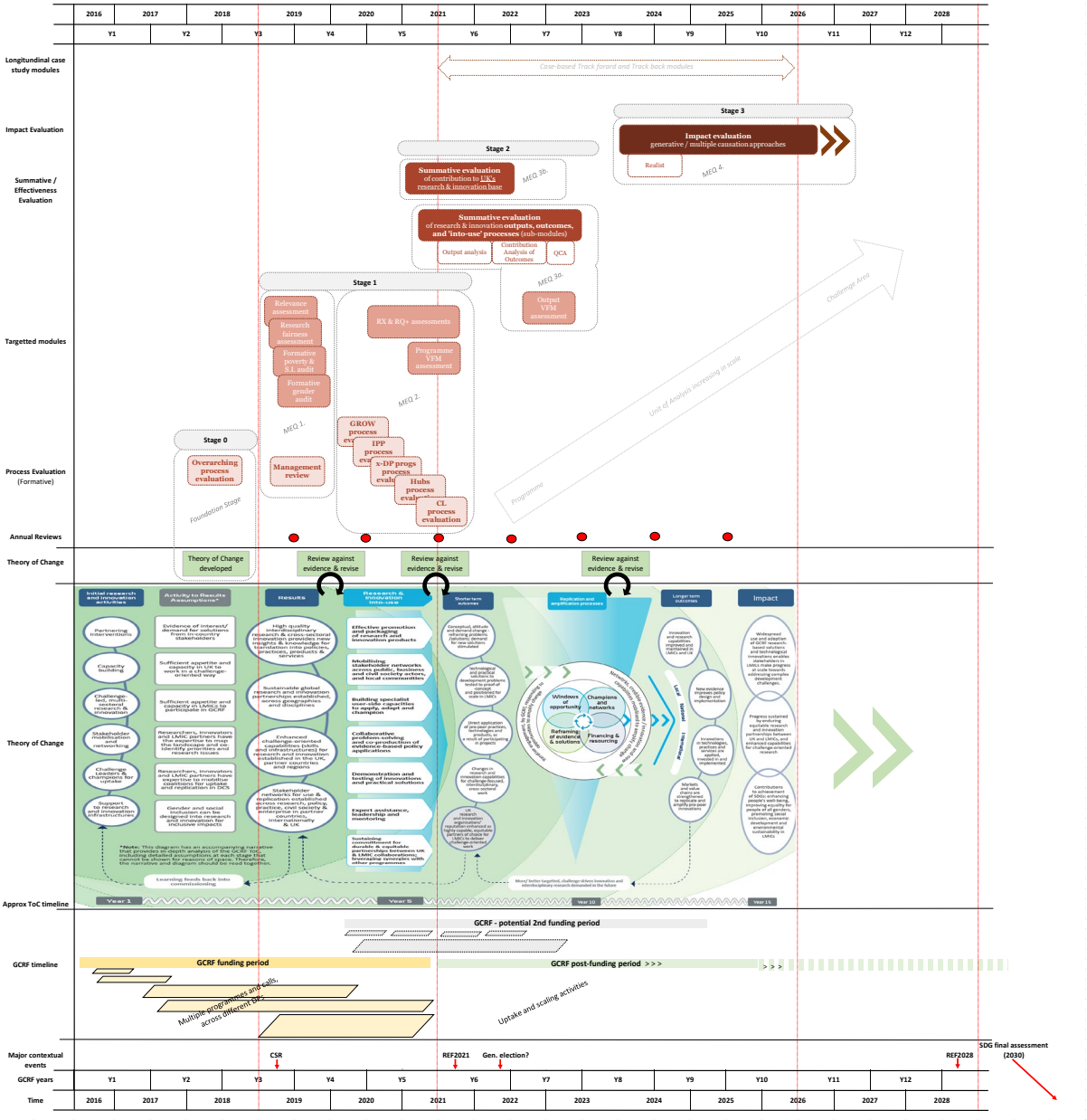


Figure 52. Evaluation Strategy Map

Given the detail here, having seen the relationship between the parts, it is better to view the map in two parts (Figure 53, Figure 54):

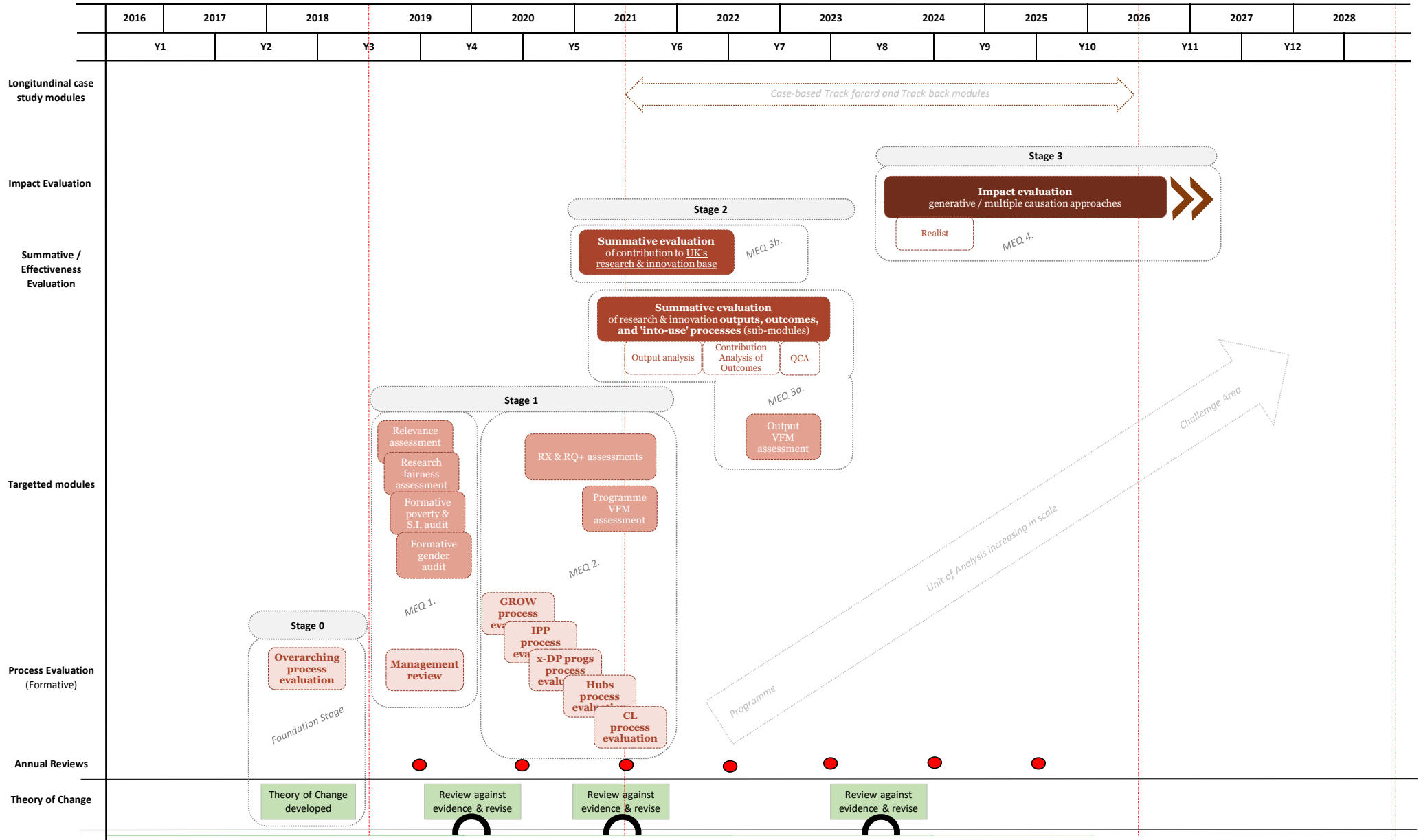


Figure 53. Strategy Map: evaluation modules

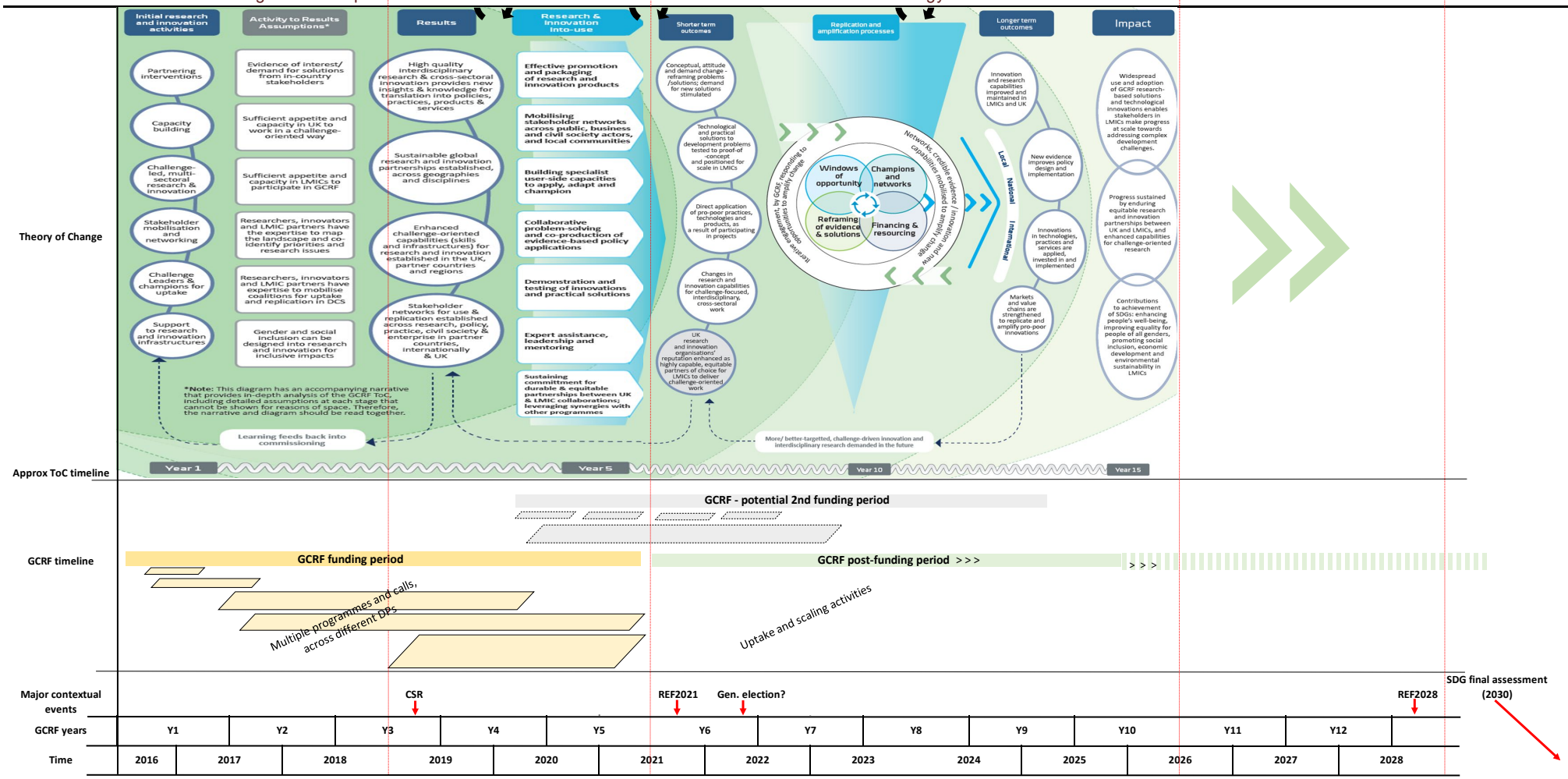


Figure 54. Strategy Map: ToC and GCRF timeline

3.5. Evaluation strategy: principles & practicalities

Principles

The analysis laid out in the preceding sections leads us to identify **a set of principles** that need to underpin the evaluation strategy to enable the EQs to be addressed and findings communicated effectively:

The evaluation must respond to the **needs of stakeholders** throughout the evaluation. As part of a communications plan, there should be on-going interaction with stakeholders to ensure their needs are being met. **Governance and oversight** of the evaluation will ensure the evaluation continues to be fit-for-purpose.

This design will produce a flow of **evaluation products**. Attention will need to be paid to ensuring a complicated evaluation is **communicated simply**.

The evaluation will proceed in **stages**. These stages will mirror the progress of GCRF along its ToC trajectory.

The suggested design is **multi-module** and **multi-method**. This **hybrid design** combines process, effectiveness and impact evaluation modules according to the relevant stage.

The evaluation will take a sophisticated approach to **causality**. A straightforward linear approach will be used to assess production of **outputs**, recognising that they are likely to be the result of interdisciplinary team efforts. Monitoring and reporting data will inform this work. For other results – **outcomes and impacts**, causal inference will be determines using generative, and in places configurational frameworks. This is because of the complicated and ultimately complex nature of GCRF.

Practicalities

Timeliness

Evaluation consistently faces a tension between, on one hand, funders wishing to know (and publicise) as early as possible whether their investments are working, and on the other, the major results of investments appearing towards the end of funding cycles. The normative results chain, on which most evaluations and theories of change are based, progresses chronologically through activities, outputs, outcomes and impacts. In the case of GCRF this means the expectation is that impact will be evaluable by about year 10 (while recognising that some innovation will be impactful much quicker, and in a complex system, causality may be non-linear).

Stakeholders, particularly those in policy spheres, are likely to want to know about impact before 2028. This presents some challenges. The main challenge is a conceptual / terminology one – the term 'impact' is understood and used very specifically in evaluation, while in lay (and policy) use, it has broader meaning. Often the distinction between outcomes – especially long-term outcomes - and impact can be fine. The term 'results' can be used to cover both outcomes and impact. However outputs are and should always be considered as different to outcomes and impact.

To address this challenge, it is proposed that the evaluation is consistent in its use of language, and that at Stage 2, addressing MEQ3a, good use is made of the output assessment module to provide hard findings on outputs. The outcomes contributions module should seek short and longer term outcomes, and impacts where they have occurred by that stage. However, through use of theories of change and pathways to impact it should be possible to make some judgements on whether programmes and challenge areas are on track for contributing to impact. It is worth noting that in Stage 2, for outcomes, it is proposed that the unit of analysis is the programme and challenge area, not individual awards.

Additionally, in the development of KPIs for monitoring, effort will be given to identifying leading indicators that will assist the assessment of investments being on track for outcomes and impact.

Flexing the strategy

The strategy maps out a comprehensive 10 year evaluation of GCRF. It utilises a set of interrelated modules over three phases. It will provide a steady flow of evidence and learning, with peaks at the end of each phase. It will require good management, close oversight and excellent communications. Budget will be to some extent dependent on sampling decisions to be made when detailed design and methodology is considered.

However, BEIS and senior stakeholders may decide not to implement the full evaluation, or wish to reduce its scope and cost. Some factors to inform the options for flexing the strategy to give choices between essential and 'nice to have' components include (summary table below:

Stage 1:

- The modules related to MEQ1 (relevance, research fairness, poverty, gender and social inclusion, and management) are all consider necessary. ICAI has expressed concern about tied aid and research funding; the research fairness module will inform that discussion. The poverty and gender and social inclusion audits will review the extent to which GCRF meets the requirements of the International Development Act and might be seen to achieve a higher standard than 'compliance' to ODA requirements.
- Rather than reviewing all GCRF awards for MEQ1, some sampling might be considered
- The modules related to MEQ2 (RX & RQ+ assessment, programme VFM, and signature investment process evaluations) are also all important. VFM is an important accountability module, and the RX & RQ+ module will assess whether excellent research is being undertaken, and whether this research is of higher quality against a broader, more development oriented standard (RQ+). This is also helpful to inform discussions with ICAI. The process evaluations will assess how well five 'signature investments' are functioning, as well as evaluating overall fund management.
- As above, the main 'optional' components relate to sampling. All modules could sample at a lower intensity, and fewer than five signature investments could be process evaluated. The Stage 1 VFM module will focus on economy and efficiency, and these aspects might be rolled into the overall fund management review.

Stage 2:

- Two MEQs are addressed in this stage: MEQ3a – evaluating the output and outcome results GCRF has helped generate, and MEQ3b - considering the difference GCRF has made to the UK (and partner country) research and innovation base.
- MEQ3a considers outputs and outcomes separately. The output module is a largely quantitative module, assessing outputs attributable to GCRF-funded investments. This will give some hard and fairly definitive findings which GCRF and its primary stakeholders will find useful for accountability and communications. The outcome module is likely to take a contribution analysis approach. It will give the best mid-stage assessment of GCRF's results beyond outputs. The focus will be outcomes, but can include impacts where these are evident. The module will also have explanatory function is showing *how* GCRF is having effect.
- The other two modules under MEQ3a are a VFM assessment, with emphasis on effectiveness and equity, and a QCA-based assessment of outcomes. The QCA provides a more quantitative perspective on factors responsible for generating outcomes.
- Both the output assessment and outcome contributions modules are major components in evaluating GCRF's results in the medium term. For accountability, learning and communications reasons they are needed. Sampling may be feasible around programmes, geographic foci, and challenge areas. The VFM module is required for accountability. The QCA may be considered a 'nice-to-have' option.
- MEQ3b is a single summative evaluation module and necessary. MEQ3b will have to sample in developing countries, but should have broad coverage in the UK.

Stage 3:

- Stage 3 addresses MEQ4 – has GCRF had an impact? i.e. has it made a difference to the sustainable and inclusive prosperity of people in developing countries? Taking the principle that impact occurs as the aggregate of a number of initiatives, in particular contexts, and usually emerges in the longer term, this Stage is planned for years 8-12 (2024-28). Achieving impact is ultimately the raison d'etre for ODA spending. It is therefore important to have an impact evaluation. There may be commissioning matters to address for contracting a module this far in the future, but a commitment ought to be made to it.
- Given the complex nature of SDG-type challenges, a realist evaluation is proposed. Simpler approaches might be considered, although they are unlikely to deal with complexity as well as a realist approach. The optional aspect is likely to be, as above, through sampling choices.

Other activities

A number of other assessment activities are proposed in the Strategy Map. Monitoring and Annual Review are necessary. A stream of longitudinal case studies have also been proposed. These would provide deep learning about GCRF and a base of material for communication. However, these case studies may be reduced or considered a 'nice-to-have' option.

Stage	Modules	Required / Optional	Sampling
1	**MEQ 1 modules**: Relevance, research fairness, poverty, gender and social inclusion, and management	Required	Could sample the awards, rather than review all
1	**MEQ 2 modules**: RX & RQ+ assessment, programme VFM, and signature investment process evaluations	Required	Could sample awards, and/or reduce number of signature investment process evaluations
2	**MEQ3a modules**: Output, outcome and VFM assessment	Required	Sample using programmes, geographic foci, and challenge areas
2	**MEQ3a modules**: QCA	Optional	-
2	**MEQ3b modules**: Summative evaluation of effect on UK research base	Required	Sampling using institutions and challenge areas
3	**MEQ4 modules**: Impact evaluation	Required	Various sampling options
X	**Monitoring** and **Annual Review**	Required	Requires overall coverage, but sampling possible using programmes, geographic foci, and challenge areas
X	Longitudinal case studies	Optional	Purposive sampling

Table 21. Summary of module options

4. Evaluation Deliverables

The modular design of the strategy means that a range of deliverables will be produced over the life of the evaluation. The main deliverables are listed below.

This list is based around reports. However, it is proposed that there is an accompanying **Communications Plan** that further analyses the audience and users for the evaluation, what information and learning they require from the evaluation, and the best format in which to communicate with them. It is likely that many of the evaluation users will not be best served by a traditional, long evaluation report. Therefore, other types of deliverable may be added to this list, including web content, blogs, short and summary reports, infographics, videos, etc.

The Magenta Book notes that: “Credibility is also served where detailed evaluation reports are produced and made publicly available, where their findings are presented and discussed at academic and research gatherings”. GCRF is a research fund, and will yield a very rich array of research output. It is expected that the evaluation of GCRF will itself also produce some academic standard publications.

Also, note that during the production of deliverables 17 (summative evaluation) and 21 (impact evaluation), GCRF will be progressing into, and be fully in, its complex systems phase. Therefore, the evaluation will need to be iterative and deliver interim products for learning and adaptation.

No.	Deliverable	MEQ	Timing
1.	Inception Report, with methodology, workplan, and communications plan	-	Month 4[139]
2.	*Year 3 Annual Review*	-	*Month 6*
3.	Report on GCRF management (including economy and efficiency aspects of VFM)	1	Month 10
4.	Report on GCRF relevance fairness, and targeting	1	Month 12
5.	*Year 4 Annual Review*	-	*Month 18*
7.	GROW Process Evaluation	2	Month 22
8.	IPP Process Evaluation	2	Month 24
9.	x-DP programmes Process Evaluation	2	Month 26
10.	Hubs Process Evaluation	2	Month 28
11.	Challenge Leaders Process Evaluation	2	Month 30
12.	*Year 5 Annual Review*	-	*Month 30*
	Report on Research Excellence & Research Quality +	2	Month 34
13.	Programme VFM report	2	Month 34
14.	Report on summative evaluation of GCRF's contribution to UK's research & innovation base	3b	Month 40
15.	*Year 6 Annual Review*	-	*Month 42*
16.	Report on output and outcome VFM (emphasis on effectiveness and equity)	3a	Month 52
17.	Summative of GCRF's outputs, outcomes and 'into use' processes[140]	3a	Month 54
18.	*Year 7 Annual Review*	-	*Month 54*
19.	*Year 8 Annual Review*	-	*Month 66*
20.	*Year 9 Annual Review*	-	*Month 78*
21.	GCRF Impact Evaluation[140]	4	Month 90+

Table 22. Evaluation Deliverables

[139] Timing makes an assumption of an approximate start in July 2019 = month 0
[140] This is the end of module report. This module will be designed to deliver intermediate products that can feed into GCRF learning loops more frequently.

5. Modules

As indicated above, the evaluation of GCRF will be modular; this section further elaborates the modules that make up the strategy. As stated above, this is not a detailed methodological design – this will come in the subsequent tender and inception phase of the main evaluation. This provides an outline and guidance on the principal modules.

5.1. Relevance Assessment

Purpose

To asses the extent to which GCRF is consistent with target groups' needs, global and SDG priorities, and partners' and funder/donor policies and programmes. In essence this module answers the question, 'is GCRF funding the right things?' This module relates to the gender and poverty/social inclusion audits, wherein they assess the fit of GCRF with the targeting explicit in ODA and International Development Act requirements. This module extends the analysis to examine the fit and consistency of GCRF with major policies and programmes globally, designed to address SGDs. Is GCRF complementary to what else is being funded to address these issues, and is it doing so in synergistic manner?

Timing

This is a one-shot module, conducted in Stage 1, in 2019.

Methods

Primarily document review and analysis of alignment. Plus supporting interviews.

Data sources

Award, call, programme and challenge area documentation. Documents on other major SDG-oriented initiatives.

Unit of Analysis

Aggregated awards, at Programme and Challenge Area levels.

Sampling

As broad as possible, funds permitting

Issues

-

5.2. Research Fairness Assessment

Purpose

GCRF is clear in its strategy that its programmes and awards should prioritise partnering with organisations in the global South, and that and that these should be strong, mutual and fair partnerships. This is coherent with SDG 17, which seeks to strengthen global

partnerships to support and achieve the ambitious targets of the 2030 Agenda - bringing together national governments, the international community, civil society, the private sector and other actors. In its Rapid Review on GCRF in 2017, ICAI also identified that developing clearer priorities and approaches to partnering with research institutions in the global South as an area of need.

This module will assess whether GCRF is treating its partners in the global South fairly.

Timing

This is a one-shot module, conducted in Stage 1, in 2019.

Methods

This module is founded on the Research Fairness Initiative (RFI)[141], but will also be designed to draw on the KFPE guidelines[142] and UKCDS principles[143]. The merits of using an existing methodology are that: it has already been tested and reviewed, there is an existing literature on it, and there are benchmarks – RFI is a reporting standard. This module will use the three frameworks to derive a collated set of indicators, as per the table below, organised under RFI's three meta-questions - do partners experience:

- fairness of funding opportunity?
- fairness of research process and governance?
- fairness of benefits, costs and outcomes?

Data sources

Award submission documentation, including financial models. Key informant interviews – Co-Is and other partners in the South, plus PIs and DPs.

Unit of Analysis

The award

Sampling

A representative sample, with factors including country, type of partner and whether the partnership was pre-existing.

Issues

Being able to speak directly to a sufficiently broad sample of partners in the global South. Biases – reluctance of Co-Is to be critical of a funder

[141] http://rfi.cohred.org/rfi-evidence-base/
[142] Stöckli, B., Wiesmann, U., Lys, J.A. (2018). *A Guide for Transboundary Research Partnerships: 11 Principles and 7 Questions*. 3rd edition. Swiss Commission for Research Partnerships with Developing Countries (KFPE), Bern, Switzerland. https://naturalsciences.ch/service/publications/9505-a-guide-for-transboundary-research-partnerships-3rd-edition---2018-
[143] Dodson, J. (2017). *Building Partnerships of Equals The role of funders in equitable and effective international development collaborations*. UK Collaborative on Development Sciences, London. http://www.ukcds.org.uk/resources/building-partnerships-of-equals

RFI model	KFPE principles	UKCDS principles
1. Fairness of opportunity	P1. Set the agenda together	1. Inclusive agenda-setting
1.1. Relevance to communities – in which research is done	P2. Interact with stakeholders	2. Funding new research questions and valuing complementary skills and knowledge
1.2. Early engagement of partners	P3. Clarify responsibilities	3. Setting the tone - around expectations of equity within partnerships
1.3. Making contributions of all partners explicit – fair research contracting	P4. Account to beneficiaries	4. Rewarding skilled project managers and team players
1.4. Ensuring that matching and other co-financing mechanisms do not undermine opportunities for fair participation of all partners	P5. Promote mutual learning	5. Looking for equality beyond the leaders
1.5. Recognition of unequal research management capacities between partners and providing for appropriate corrective measures	P6. Enhance capacities	6. Equitable budgets, research and financial management
2. Fair Process	P7. Share data and networks	7. Providing ongoing institutional capacity strengthening
2.6. Minimizing negative impact of research programmes on health and other systems	P8. Disseminate results	8. Widening participation
2.7. Fair local hiring, training and sourcing	P9. Pool profits and merits	9. Investing for the long-term
2.8. Respect for authority of local ethics review systems	P10. Apply results	10. Working closely with other funders and agencies in the North and South
2.9. Data ownership, storage, access and use	P11. Secure outcomes	
2.10. Encourage full cost recovery budgeting and compensation for all partners		
3. Fair sharing of benefits, costs and outcomes		
3.11. Research system capacities		
3.12. Intellectual property rights and tech transfer		
3.13. Innovation system capacities		
3.14. Due diligence		
3.15. Expectation of all partners to adhere to a best practice standard in research collaborations		

Table 23. Frameworks for research fairness

5.3. Formative Poverty and Social Inclusion Audit

Purpose

Like the gender audit, this is essentially a 'social audit' of research orientation and likely outcomes and impacts. It is prospective and will assess the extent to which poverty,

inequality and forms of social exclusion, particularly disability, are addressed in the *planned* outcomes and pathways to impact of GCRF programmes and other investments.

Timing

This is a one-shot module, conducted in Stage 1, in 2019.

Methods

Documentary content analysis for poverty and social inclusion. Rating and analysis of Pathways-to-Impact. Exploratory interviews and possible thematic workshops.

The module will include a specific focus on the fitness-for-purpose of data collection and storage systems at project, programme, DP and service (eg ResearchFish) levels. Are data being collected and stored in a poverty/sex/disability/etc disaggregated way that facilitates analysis of differentiated effects on these groups.

Data sources

Award submission documentation, particularly pathways to impact. Key informant interviews – PIs, Co-Is and DPs. Workshops.

Unit of Analysis

The award

Sampling

Preferably all awards, subject to affordability. Otherwise multi-dimensionally representative sample.

Issues

The International Development Act requires that ODA must "providing development assistance that is likely to contribute to reducing poverty in a way which is likely to contribute to reducing inequality between persons of different gender." This module will support responses to this requirement, and to the recent IDC recommendations regarding the poverty-orientation of non-DFID ODA spend.

5.4. Formative Gender Audit

Purpose

A gender audit is essentially a 'social audit'. In this manifestation, it is prospective and should - at an early stage in the main evaluation - assess the extent to which gender is addressed in the *planned* outcomes and pathways to impact of GCRF programmes and other investments. This is important in determining how well GCRF is placed in relation to addressing the International Development Act (2014).

The gender audit may include consideration of how gender is effectively institutionalised in the policies, decision-making processes, organisational structures[144] for managing GCRF, but this is not its main focus.

[144] e.g. ILO (2007). *A manual for gender audit facilitators: The ILO participatory gender audit methodology*. International Labour Office, Geneva. https://www.ilo.org/gender/Informationresources/WCMS_187411/lang--en/index.htm

Timing

This is a one-shot module, conducted in Stage 1, in 2019.

Methods

Existing methodology for, and experience of, Gender Audit provides the basis for this module, particularly in relation to programme gender audits[145]. These may be adapted to fit the purpose of this module. The should contribute to EQ 1.7, providing recommendations for how the targeting of GCRF may be improved.

Data sources

Award submission documentation, particularly pathways to impact. Key informant interviews – PIs, Co-Is and DPs.

Unit of Analysis

The award

Sampling

Preferably all awards, subject to affordability. Otherwise multi-dimensionally representative sample.

Issues

The *actual* extent to which GCRF has reduced inequality between persons of different gender will be assessed in the impact evaluation in relation to MEQ 4; EQ 4.1 asks "For whom has GCRF made a difference?"

5.5. Management review

Purpose

This module will examine the efficiency and effectiveness of the management and governance arrangements for GCRF. Are the management of GCRF, and management systems fit for purpose? Are policies, strategy, planning, reporting, decision making, governance, administration, risk management, resourcing, communication and information flows, learning and adaption, appropriately designed and performing well?

Timing

This is a one-shot module, conducted in Stage 1, in 2019.

Methods

Management review tools, such as the McKinsey 7S framework (strategy, structure, systems, shared values, skills, style, staff) and the RACI framework (assessment of key tasks according to who is responsible, accountable, consulted, and informed). There is also guidance for a management review process in ISO9001, which is relevant.

Data sources

[145] Caroline Moser (2005). *An Introduction to Gender Audit Methodology: Its design and implementation in DFID Malawi*. ODI, London. https://www.odi.org/publications/1195-introduction-gender-audit-methodology-its-design-implementation-dfid-malawi

Interviews with BEIS, DPs, award holders, and other partners. GCRF documentation, including policies, procedures, strategies, and meeting records.

Unit of Analysis

Whole of fund, and per organisational unit: BEIS, DP, oversight bodies, etc

Sampling

-

Issues

Potential access to documents and openness to review process

5.6. Process evaluations

Purpose

To assess how well specific components of GCRF are functioning, and how well GCRF as a whole is being managed. There are six process evaluation modules: five assessing 'signature investments' and one on fund management.

Timing

The management review is part of Stage 1, and will occur in 2019. The five 'component' process evaluations will be spread across the latter part of Stage 1 from early 2020 to late 2021. Each will report separately.

Methods

The process evaluations will generally follow a similar method to process evaluation in the Foundation Stage evaluation. It will develop detailed sub-questions specific to each of the modules, informed by discussion with GCRF stakeholders.

- Collection of documentary data, semi-structured interviews with programme stakeholders, and surveys of key informants and wide stakeholders.
- Documentary and composition analysis.

Data sources

- Programme documents, reports, programme/scheme notes, meeting minutes and any other existing analyses of GCRF programmes.
- DPs' data systems
- Metadata on programmes, projects, applicants
- Survey data
- Interviews records

Unit of Analysis

'Signature investments': GROW, UKSA:IPP, a sample of important cross-DP programmes (to be selected), Interdisciplinary Hubs, and the Challenge Leaders initiative.

The fund as a whole, aggregating BEIS and DP operations.

Sampling

As above, with important cross-DP programmes to be identified.

Issues

The Foundation Stage evaluation was heavily delayed by access to data issues, and then faced challenges with comparability of different datasets. These two serious issues will need to be addressed prior to these modules commencing.

5.7. Research Excellence (RX) & Research Quality Plus (RQ+)

Purpose

This module serves two functions, it will assess whether excellent research is being undertaken, and it will determine whether this research is of higher quality against a broader, more development oriented standard. It will therefore combine standard measures of research excellence (RX) with an RQ+ assessment[146, 147].

Timing

This is a one-shot module, conducted in Stage 2 in 2020/21, towards the end of GCRF's (first) five year funding window.

Methods

Coming at a relatively early stage, this module is not intended to assess research impact. Therefore a REF Case Study method is not included. Cases studies features in later modules. **RX** will draw on bibliometrics / alt-metric[148] approaches to research output, while recognising the limitations of these[149]. This is in line with a post-REF2014 review of this field: "In assessing outputs, we recommend that quantitative data – particularly around published outputs – continue to have a place in informing peer review judgements of research quality. This approach has been used successfully in REF2014, and we recommend that it be continued and enhanced in future exercises." [150]

It is proposed that the **RQ+** method[151] is followed as faithfully as possible. The method scores the factors likely to affect the research performance, and four dimensions of research quality.

Key Influences[152]	Research Quality dimensions
1. Maturity of the research field	**1. Research Integrity** **2. Research Legitimacy**

[146] Ofir, Z. Schwandt, T. Duggan, C. McLean, R. (2016). Research Quality Plus - A Holistic Approach to Evaluating Research. IDRC Ottawa, Canada. https://www.idrc.ca/sites/default/files/sp/Documents%20EN/Research-Quality-Plus-A-Holistic-Approach-to-Evaluating-Research.pdf

[147] Jean Lebel and Robert McLean (2018). A better measure of research from the global south. *Nature*, 559, 23–26. https://www.nature.com/articles/d41586-018-05581-4

[148] Of products including web citations in digitised scholarly documents, altmetrics derived from social media sources (e.g. social bookmarks, comments, ratings, microblog posts), and non-refereed academic outputs, such as multimedia products, datasets and software. (Wouters, P. et al. (2015))

[149] Wilsdon, J., et al. (2015). *The Metric Tide: Report of the Independent Review of the Role of Metrics in Research Assessment and Management*. HEFCE, Bristol. https://re.ukri.org/documents/hefce-documents/metric-tide-executive-summary/

[150] Wouters, P. et al. (2015). *The Metric Tide: Literature Review (Supplementary Report to the Independent Review of the Role of Metrics in Research Assessment and Management)*. HEFCE, Swindon. https://re.ukri.org/documents/hefce-documents/metric-tide-lit-review-1/

[151] Ofir, Z., Schwandt, T., Duggan, C., and McLean, R. (2016). *Research Quality Plus [RQ+]. An Holistic Framework for Evaluating Research*. IDRC, Ottawa.

[152] Constraining and enabling contextual influences - within or external to the research effort - most likely to affect research performance are identified

2. Research capacity strengthening 3. Risk in the data environment 4. Risk in the research environment 5. Risk in the political environment	2.1 Addressing potentially negative consequences 2.2 Gender-responsiveness 2.3 Inclusiveness 2.4 Engagement with local knowledge **3. Research Importance** 3.1. Originality 3.2. Relevance **4. Positioning for Use** 4.1. Knowledge accessibility & sharing 4.2 Timeliness and actionability

Table 24. RQ+ dimensions

The RQ+ method should be reviewed, and potentially enhanced in the light of other frameworks, such as Belcher et al's Transdisciplinary Research Quality Assessment Framework[153], which is based around four main criteria and a number of sub-criteria, and like RQ+, is scored against rubrics.

Relevance	The importance, significance, and usefulness of the research problem, objectives, processes, and findings to the problem context
Credibility	The research findings are robust and the sources of knowledge are dependable. This includes clear demonstration of the adequacy of the data and the methods used to procure the data including clearly presented and logical interpretation of findings
Legitimacy	The research process is perceived as fair and ethical. This encompasses the ethical and fair representation of all involved and the appropriate and genuine inclusion and consideration of diverse participants, values, interests, and perspectives
Effectiveness	The research generates knowledge and stimulates actions that address the problem and contribute to solutions and innovations

Table 25. Transdisciplinary Research Quality Assessment Framework

Data sources

Programme and award documentation, DPs' data systems, key informant interviews (PIs, Co-Is, partners, potential users). Sampled units are then rated against RQ+ rubrics and these findings synthesised and compared with RX results.

Unit of Analysis

Programmes

Sampling

RQ+ suggest a two-tier sampling strategy for a portfolio (fund): i) selection of a sample of research projects in the portfolio that meet certain criteria; and from this project sample, ii) selection of a set of research outputs or products that serve as the focus for the assessment. This can be adapted for GCRF: programmes and coherent clusters within these.

Issues

[153] Brian M. Belcher, Katherine E. Rasmussen, Matthew R. Kemshaw, Deborah A. Zornes. (2016) Defining and assessing research quality in a transdisciplinary context, *Research Evaluation*, 25 (1), 1–17

There has been criticism of GCRF, not least from ICAI, that the bar for ODA as 'compliance' is too low. The argument is that GCRF operates to differential standards: it is clear to all that the GCRF mechanisms have been established in order that it selects and funds excellent research (although even this isn't a globally agreed standard[154]). However, the standard for meeting ODA requirements is *compliance* rather than *excellence*.

GCRF guides applicants that is aiming to achieve ODA compliance, they should:

- "Seek to investigate a specific problem or seek a specific outcome which will have an impact on a developing country or countries on the DAC list
- Provide evidence as to why this is a problem for the developing country or countries
- Address the issue identified effectively and efficiently
- Use the strengths of the UK to address the issue, working in collaboration with others as appropriate
- Demonstrate that the research is of an internationally excellent standard
- Identify appropriate pathways to impact to ensure that the developing country benefits from the research."[155]

And that: "pathways to impact are realistic and appropriate to the particular developing country or countries context."

This module aims to bring this the two aspects of RX and RQ together. While RQ+ is not directly a measure of ODA excellence, it does exhibit many necessary features to determine the fitness of purpose of research investments to achieve development impact.

The module draws on published debate about research quality and the view that "conceptualizations of research quality need to move beyond a fixation with methodological quality, to address the 'fitness for purpose' of research"[156] Writing particularly about research for development, it is also noted that utility, accessibility, and quality of outputs geared to users are important dimensions of research quality.[157]

5.8. Value for Money

Purpose

To make assessment of the extent to which GCRF represent a good use of public funds.

Timing

The evaluation will consider VfM issues over the programme life-cycle. Measures of economy and expected efficiency, effectiveness and cost-effectiveness will be available from grant applications but actual outturns will only become available as the research programme is completed. Subsequent *Research into use* activity and *Replication and amplification* processes have time to deliver shorter and long term outcomes, respectively.

This would suggest that VfM assessment is carried out at two points in time:

[154] Ethel Méndez (July 2012). *What's in Good?* Research Excellence Report for IDRC Evaluation Unit, Ottawa. https://www.idrc.ca/sites/default/files/sp/Documents%20EN/Lit-review-Final-English.pdf
[155] RCUK (2016). *Official Development Assistance. Global Challenges Research Fund Guidance*. Swindon. https://www.ukri.org/files/legacy/gcrf-calls/gcrf-oda-guidance-pdf/
[156] Boaz, A., and Ashby, D. (2003). *Fit for purpose? Assessing research quality for evidence based policy and practice.* London: ESRC UK Centre for Evidence Based Policy and Practice. https://www.kcl.ac.uk/sspp/departments/politicaleconomy/research/cep/pubs/papers/assets/wp11.pdf
[157] Yule, M. (2010). *Assessing Research Quality*. International Development Research Centre -Peace Conflict and Development, Ottawa.

- early on, in 2019, **as part of the management review** with focus on economy and efficiency and how these contribute to equity and ensure that benchmarks are being captured in MIS
- five years later, just past the programme mid-point, undertake **a dedicated VFM module** looking at effectiveness as programme results are expected to be available at this stage with a more thorough assessment of the extent to which results have been delivered across key equality measures. A full comparative analysis of the performance of programmes, themes, countries and equality groups will be the focus of this stage
- It will also be important at both stages to reflect on what improvements in the initial assessment and awarding procedures could be adopted to improve economy and efficiency and to establish an evidence base of VfM performance benchmarks.

Methods

The value for money (VfM) assessment of GCRF will adopt DFiD's four 'E's – Economy, Efficiency, Effectiveness and Equity.

- **Economy**: Are inputs bought that are of the appropriate quality at the right price?
- **Efficiency**: How well are the inputs converted into outputs? ('Spending well')
- **Effectiveness**: How well are the outputs from an intervention achieving the intended effect? ('Spending wisely')
- **Equity**: How fairly are the benefits distributed? To what extent will we reach marginalised [target] groups? ('Spending fairly')
- **Cost Effectiveness**: What is the intervention's ultimate impact on poverty reduction, relative to the inputs that are invested in it?

The adoption of Equity within the VfM process has important implications for the wider process; *High impact does not mean a programme that reaches the largest number of people at the lowest cost. What is important is whether we reach those most in need of support and whether the support is provided in the most economical, efficient and effective way*[158].

VfM assessment will build on the case study evaluation approach in order to gain insight into how different programmes have transitioned inputs into outputs and then outcomes. Evaluation case studies will need to capture:

- Formulate a basket of outputs per unit of GCRF investment, this will help capture the range of potential outputs and any co-investment (leverage) in the process from other agencies (such as other development agencies or local sources of funding).
- Ensure that these measures can be broken down to identify how these are spread across key equity measures – target group characteristics, locations, themes etc.
- Consider the additional contribution of GCRF when prior, post or co-investment from other sources of funds have taken place as part of effectiveness and cost-effectiveness estimates.

Data sources

An adaptive approach will be necessary to build on the evidence base and review the original starting conditions and base assumptions for grant award against outturns to explore where the initial assessment process may be improved. There is a lack of comparable benchmarks made even more of a challenge given the diversity of research actions and geographic application. So there is a need to build up an evidence base for GCRF to provide a broader knowledge base:

[158] *Leaving no one behind: Our promise.* DFID policy paper, updated 10 January 2017. https://www.gov.uk/government/publications/leaving-no-one-behind-our-promise/leaving-no-one-behind-our-promise

- Share lessons on VfM practice, especially how assumptions at the point of award are subsequently revisited through programme management
- What aspects of the original business case require updating and how can this learning be re-applied to improve the initial selection and approval criteria?
- How much more does it cost to reach more marginalised groups? Within programmes, thematic areas, countries or location types (rural/ urban), beneficiary characteristics (gender, income, social exclusion, diversity)?

Unit of Analysis

tbc

Sampling

tbc

Issues

There is the danger of over-emphasising the more measurable stages of the ToC surrounding the linear research inputs to research outputs that might deliver the most cost effective research outputs but this process alone may not necessarily deliver attributable outcomes leading to policy and practice change and achievement of SDGs. Assessing the subsequent 'contextualising knowledge' processes necessary to ensure that non-research actors to take up, test, pilot and adopt the research outputs are less amenable to such a consequential assessment framework. This will require further development but the use of a form of 'traffic-light' rating system can be used to capture diverse outcomes:

Research into use Example ratings	Scale of impact		
	Low	Medium	High
Improved quality of evidence base	Limited evidence that research adds anything to existing evidence base and/or poor quality of research	Research adds to existing evidence base in one or more dimensions and is of good quality	Research covers completely new ground and is of high quality
Changes in the understanding and commitment of decision makers (national or local as appropriate)	Limited or no dissemination of research to external decision makers and no change in their understanding/ commitment	Some evidence of changes in understanding of decision makers as a result of research.	Strong evidence of changes in understanding of decision makers as a result of research and commitment to change as a result of the research
Changes in institutions and changes in institutional capacity to respond appropriately to SDG needs and demands	Institutions continue to lack access to the managerial ability, financial, technological, information resources and or political influence required to bring about change.	There is some evidence of improvements in institutional capacity for example increased know ledge and skills; improved communication betw een organisations; greater community engagement w ith decision making.	There is strong evidence of improvements in institutional capacity. The project may have also resulted in increased ability of institutions to leverage funding
Changes in coordination, collaboration and mobilisation among key stakeholders	There is no evidence of any increased coordination, collaboration or mobilisation of stakeholders	There is some evidence of increases alliances and synergies betw een stakeholders.	There is evidence of the increased mobilisation of local resources and the private sector.

Research into use Example ratings	Scale of impact		
	Low	Medium	High
Changes in the design of policies to secure SDG	There is no evidence of any changes to the design of SDG-related policies.	Policies have been changed as a result of the project how ever there is currently limited or no capacity for implementation	Policies have been changed as a result of the project and there is w illingness and capacity for implementation
Changes in the ability of decision makers to leverage and channel resources strategically	<£0.25 per £1 invested	£0.26-£0.99 per £1 invested	> £1 per £1 invested
Direct economic impact arising from policy and practice change	<15 job years per £1m investment	15 – 40 job years per £1m investment	<40 job years per £1m investment

5.9. Summative / Effectiveness evaluation

Purpose

There are two summative modules assessing effectiveness:

- The first will consider results in 'the middle' of the ToC – outputs and outcomes. What outputs has GCRF been responsible for producing, what processes have been successful in transforming these to outcomes, and what outcomes has GCRF contributed to? This module, being largely quantitative, will be useful for reporting to Ministers and for other communications.
- The second focuses on the so-called 'second aim' of the UK Aid Strategy – contribution to the national (UK) interest. This module will consider the extent to which GCRF has contributed to the UK's ability to deliver cutting-edge research and innovation for development. This module will also be of interest to Ministers, plus ICAI. It should also consider the extent to which research and innovation systems in partner countries have been strengthened.

Timing

Stage 2: 2021-2013

Methods

Three methods are proposed for assessing GCRF results:

- **Output assessment** is quantitative and will draw heavily on monitoring data (e.g. ResearchFish) and collate and make cross-cutting analysis of outputs across the four results categories in the ToC. This will be based on interview on a programme sample. The cross-cutting analysis will show areas of strength and weakness and point to possible places to sample for both a) a deeper analysis of enabling factors and barrier, based on the ToC assumptions, and b) case studies in other modules.
- **Contribution analysis** focuses on **outcomes**. It will be employed to assess whether GCRF has made a difference in its challenge areas in relation to problem framing, availability of solutions to development problems, application of solution by partners, research and innovation capabilities, or other types of outcome. The method will collect and collate evidence to test GCRF's contribution in these areas, and seek alternative explanations to test the plausibility of GCRF contribution claims.

- A possible third module would use **QCA** to make a configuration analysis of 'research & innovation into use' factors that lead to outcomes.

The method for assessing GCRF's contribution to the UK's research and innovation base for development is yet to be developed.

Data sources

Programme records; ResearchFish and other DP databases; REF impact data and case studies; monitoring data; publicly available data in international and national (LMIC) systems; data and documents from partners; published papers; grey literature; primary data collection on programmes components; interviews with DPs, project teams, partners; and uptake and knowledge brokering actors.

Unit of Analysis

Programmes (x Countries) and Challenge Areas

Sampling

tbc

Issues

Evaluation fatigue by DPs and PIs.

Getting engagement with non-funded individuals for data, documents and interviews. Outcomes are dependent on research and technology engagement – i.e. on the interaction between researchers / innovators and research/technology end-users (including industry, government, non-governmental organisations, communities and community groups), for the mutually beneficial exchange of knowledge, technologies and methods, and resources in a context of partnership and reciprocity[159]. The evaluation will need to be able to talk to these non-academic actors. The ToC suggests that GCRF will only succeed if award holders are well connected to them, and therefore they should be able to broker these contacts.

The effect of prior research and other funding to PIs - the contributions analysis method can investigate other explanations for observed changes, such as these.

5.10. Impact evaluation

Purpose

The impact evaluation will assess whether GCRF has made a difference to the lives of poor people in developing countries. It will explain how GCRF has made a difference, for which people, and in combination with which other factors and in which contexts[160].

Timing

Stage 3: 2024 – 2026 (and possibly 2028/9)

Methods

[159] Williams. K. and Grant, J. (2018). A comparative review of how the policy and procedures to assess research impact evolved in Australia and the UK. *Research Evaluation*, 27 (2), 93-105.

[160] This is not an additive quantification of impact; it will not state how many people are less poor because of GCRF, nor if a specific impact can be attributed to GCRF. The chosen model for causal inference does not permit this, and nor should it in such a complex system. It will however be able to explain how GCRF has made a difference to people lives.

The impact evaluation will use a **realist evaluation**, or **realist-informed method**. There is also scope to conclude with a realist synthesis. The starting point for realist approaches is programme theory. This is the not the full ToC; finer-grained 'mid-range theories' will need to be developed. Within a systems approach, these will consider boundaries and interconnections between sub-systems to explore across both domains.

Once initial data are collected, they are organised around a Context-Mechanism-Outcome structure. Having identified patterns of outcomes, the contexts in which particular mechanisms have worked are identified. They configurations are iteratively tested an refined with more data.

Data sources

A range of data types are usable in realist evaluation. This will include detailed study of 'cases'. These will be much broader than REF2014-style impact case studies, though these may be a possible data source – a starting point for deeper study. Primary data will be collected, mainly through interview, with much of it in LMIC countries targeted by the research and technology. Quantitative data about outcomes and impacts, for example from ResearchFish and REF may be usable. Data will be collected in iterative waves.

Unit of Analysis

Cases selected within Challenge Areas

Sampling

tbc

Issues

This module is proposed as ex-post, and sufficiently ex-post to detect impact[161]. It will occur after the current tranche of funding is exhausted. It is possible that it will occur after a tentative second tranche of funding is spent. If GCRF is no longer operational at this point, several issues arise, including: PIs are no longer available (though it is expected most will still be active in the same field); partners and Co-Is may no longer be available (it is suggested that they are alerted to the timing of this module as soon as possible); and GCRF no longer has any 'owners' in BEIS (it is understood BEIS has a unit that oversees 'orphaned evaluations' such as this). Research awards and agreements should include provision that key stakeholders agree to make themselves and their data available in the 2024-2029 period for the impact evaluation.

The following modules do not directly address the five MEQs, but are suggested as important components to delivery or complement the overall evaluation strategy. The longitudinal case studies could be optional.

5.11. Monitoring

Purpose

[161] Impact is: "an effect on, change or benefit to the economy, society, culture, public policy or services, health the environment or quality of life beyond academia". REF2014 http://www.ref.ac.uk/. This is much more than the 'auditable occasion of influence from academic research on another actor or organization' definition used in some places.

Monitoring serves a management and accountability function. It seeks to check progress against planned targets and can be defined as the formal reporting and evidencing that spend and outputs are successfully delivered and milestones met[162]. Monitoring thus needs a framework of indicators. Monitoring may also include process indicators.

Monitoring data will also be an input to the summative evaluation of outputs inn Stage 2.

Timing

Monitoring will continue throughout the life of GCRF awards. It will centre on an annual reporting exercise.

Methods

GCRF will collate data from DPs. It will form a important part of its reporting to Ministers.

Data sources

DPs' and PIs' data. This includes ResearchFish returns, returns to other organisations databases, and other sources to be determined once KPIs are agreed.

Unit of Analysis

Awards - tabulated by DP, Programme, Country, Challenge Area, etc, and aggregated units, including programme and challenge area.

Sampling

All awards

Issues

A harmonised monitoring system for BEIS' ODA-funded funds is in development. This will be based on a framework of shared activity and output level KPIs[163].

This work is on-going…

5.12. Annual Reviews

Purpose

Annual Review serves an accountability function - it is an assessment of progress against plans and targets, but should generate learning for course correction.

While monitoring is dependent on self-reporting, Annual Review can validate these data on a sample. It reviews management aspects, not normally addressed through monitoring of academic projects.

Timing

Annually

Methods

[162] HM Treasury. Magenta Book. https://www.gov.uk/government/publications/the-magenta-book

[163] An initial framework has been proposed by the Newton Fund evaluation team. Coffey (2016). *Evaluation of the Newton Fund. Annex 3 – Monitoring*. Coffey, London for BEIS.

This module will be closely informed by the method used in DFID's Annual Reviews. This normally entails a short visit to the project site (UK / overseas) to interview staff and key informants and review of project documentation. A standard reporting template will be used to facilitate collation and analysis. This will include reporting against the forthcoming KPI framework.

Data sources

KPI reports, DPs' data systems, project documents, interviews

Unit of Analysis

Programme / country

Sampling

A sample of programmes operating in countries, i.e. a programme across several countries, or several different programmes within a country

Issues

Annual reviews need to be light-touch, yet gather enough data to be useful. Annual Review teams may include staff from the funder.

5.13. Longitudinal case studies

Purpose

To track a sample of investment from an early point, at least from when outputs start being produced, until close to the assessment point for the SDGs. This 'track-forward' approach gives detailed insight into the emergence of results, successes, failures and learning points. It sits well with the 'track-back' approach used in Process Tracing, and it is proposed that a set of track-forward / real-time cases studies and set alongside a set of track-back case studies using Process Tracing.

Timing

Running parallel to GCRF implementation from 2021 or earlier to 2026-2028. Investments to be used as cases selected during the Phase 1 funding period.

Methods

Case study research methodology[164]

Data sources

Quantitative and qualitative data from cases, documentation from cases, interviews with key informants from the case studies.

Unit of Analysis

The case

Sampling

[164] Yin, R.K. (2018). *Case Study Research and Applications: Design and Methods*. Sixth edition. Sage, Thousand Oaks.

A purposive sample, designed to give insights about particular types of investment

Issues

Making an early selection of cases that will go on to yield useful findings.

5.14. Periodic revisiting the ToC

Purpose

To review and revise the ToC according to emerging evidence and understanding. To ensure that the TBE modules are working to a ToC that represents the best understanding of how GCRF makes change happen.

Timing

At three points during the evaluation, coinciding with blocks of new evidence becoming available: 2019/2020 when Stage 1 is complete; 2021 when Stage 2 is complete; and 2023/24 when Stage 3 is complete.

Methods

Collation of end-of-Stage evidence and desk-based analysis against the ToC; focusing on processes and assumptions. Workshops with major stakeholders. Revise and consult on updated ToC.

Data sources

End-of-Stage evaluation products; interviews; ToC workshops.

Unit of Analysis

Fund-level – whole of GCRF

Sampling

-

Issues

This module is consist with a recent review for DFID on presenting ToCs. It found that: "Theories of Change are not expected to be perfect and complete the day they are born. For two reasons. One is that theories are models, and models are intentional simplifications that necessarily leave out many features of the real world, they are not supposed to be one-to-one scale mappings. The other is that most programme designs are "works in progress" involving a lot of unknowns and uncertainties, which at best might be reduced over time, as implementation proceeds, and progress is evaluated. Typically, Theories of Change undergo various iterations at different stages of programme design, then also during implementation and during evaluation[165].

[165] Davies R. (2018). *Representing Theories of Change: A Technical Challenge with Evaluation Consequences*. CEDIL Inception Paper 15: London. https://cedilprogramme.org/representing-theories-of-change-technical-challenges-with-evaluation-consequences/

As the statistician George Box stated: "*Essentially, all models are wrong, but some are useful*" [166]. Evidence to date is that DPs do see the ToC as useful, but its utility will be improved by iteratively refining it as new evidence reveals more about how GCRF is working. This would demonstrate that GCRF itself, facilitated by the evaluation, is a learning and reflective organisation. It needs to reflect on how its espoused theory compares with its theory-in-use[167] (which is inferred from what actually occurs).

5.15. Communications module

Purpose

To develop and implement a communications plan and ensure a timely flow of evaluation products to the different evaluation audiences in formats most suited to their needs.

Timing

Throughout the evaluation

Methods

Production of accessible reports and other paper and electronic evaluation outputs

Data sources

Evaluation report and other format outputs

Unit of Analysis

-

Sampling

-

Issues

There are transparency expectations for ODA, and for evaluation in government. Concerns have been expressed that non-DFID ODA has not been achieving these. A communications module would help address this. Ideally there would be a GCRF evaluation website, though this might be constrained by HMG rules for government-funded websites. -

In addition to communicating the findings from the evaluation, there is a need to communicate and educate on the reasons for the design of the evaluation. There is common perception that randomised controlled trials (RCTs) are better used than other evaluations, particularly in policy spheres. Partly this is because they have been promoted as 'gold standard', and partly, the difference-in-difference design is easy to understand. However, this perception of method-led use is not necessarily so - there is "overall little evidence to suggest that methodological choices affect the uptake of evaluation research"[168].

Where "evaluation has some form of political uptake, methodological rigour is one characteristic that can help establish its general credibility, but its political use is more likely

[166] Box, G. E. P., and Draper, N. R., (1987), *Empirical Model Building and Response Surfaces*, John Wiley & Sons, New York, NY.
[167] Argyris, C., Putnam, R., & Smith, D. (1985). *Action Science*. San Francisco: Jossey-Bass
[168] Page, E. C. (2016) What's methodology got to do with it? Public policy evaluations, observational analysis and RCTs. In: Keman, H. and Woldendorp, J.J., (eds.) *Handbook of Research Methods and Applications in Political Science*. Edward Elgar, Cheltenham.

to be shaped by a range of other features including the value of its findings to the politicians and others who seek to use it". This argues that uptake is related to credible evaluations which deliver information that users seek or need. Credibility may be inferred through a range of methods. However, families of evaluation approaches suited to dealing with systems that have non-linear causality and non-controlled contextual factors – such as contributions analysis and realist evaluation – can be more difficult to communicate. Particular effort will be needed here.

Lessons from evaluations of other large evaluations of complex government interventions, e.g. the combined DFID - Defra - BEIS evaluation of the UK's International Climate Finance (ICF)[169], are that when using an innovative approach, commissioners and evaluators must regularly revisit, test and adjust the approach to ensure fitness for purpose and ensure on-going policy relevance and the clarity of outputs and reports, and the approach and style of findings must be communicated with care so users do not become over-focused on method.

6. Methodological considerations

This section outlines some particular methodological aspects of the evaluation deserving of further consideration in implementing the modules and methods.

6.1. Unit of Analysis

With the trend to better recognise the importance of connectedness and interdependencies in development, and development as a complex adaptive system, there are reasons to seek to evaluate at larger scales, with greater units of aggregation or analysis. Development based upon uncoordinated interventions that do not build on synergies or enable system coherence which facilitates macro-scale change have been described as 'ersatz development'[170]. A solely project-level approach to evaluation of interventions, particularly without attention to scaling factors, can strengthen the illusion that 'every bit helps'[171].

For accountability and management purposes, smaller units of analysis – such as the individual award – are appropriate for monitoring and for evaluation of activity-to-output results. However, for outcomes and impact greater units of aggregation are necessary.

It is therefore proposed that unit of analysis will increase as the evaluation progresses along the ToC. It will essentially progress from programmes to challenge areas as the unit. Programmes and challenge areas will both been seen as portfolios of awards. Programme and challenge area units may be stratified by country, DP, and other factors for further analysis.

6.2. Sampling & Data Collection

Data collection and sampling are expected to be robust and ensure the evaluation is of a standard equivalent to the peer-reviewed research funded by GCRF. This implies for:

[169] http://climatechangecompass.org/
[170] Ha-Joon Chang cited in Ofir (2018)
[171] Zenda Ofir (2018). *Updating the DAC Evaluation Criteria, Part 5. Non-negotiable criteria*. http://zendaofir.com/updating-dac-evaluation-criteria-part-5/

- the evaluators - a suitable set of evaluation skills, robust data collection, a good sampling strategy and sufficient sampling intensity, strategies for achieving high response rates, and good analytical ability.
- Delivery Partners – active support to the evaluation to ensure award holders and their partners engage with, and are responsive to, the evaluators
- GCRF award holders - interact with the evaluators and provide data, documentation and survey responses as requested
- BEIS – active support to the evaluators, and sufficient funding to ensure a high quality evaluation, that is characterised by robust methods, sufficient sampling intensity, and strong data collection, is technically and financially feasible

Sampling in the different modules needs to be sufficiently broad to support accountability and representativeness, and deep enough to support learning. Different modules will take different sampling approaches, not least as the unit of analysis will vary with module and over time. The evaluation will work with larger units of analysis, such as challenge areas, in the later stages.

Detailed sampling regimes are not specified here since they link closely to resourcing and cost implications. However, sampling frames for different modules are expected to be variously drawn across geographies (countries, regions, types of country), programmes and themes, funder and funding basis (single DP, x-DP), funding purpose (research-innovation/capacity building/networking/innovation), and challenge area.

Across the evaluation, the sampling strategy may employ both probability and non-probability approaches. In regard to non-probability sampling, it is likely to need to include some purposive dimensions, in particular, to ensure Southern partners' views are heard, and there is coverage of both large and small awards. MEQ2 is biased towards the larger 'signature' investments. And it is right that these large investments attract particular evaluative attention. However the Process Evaluation (Table 3) shows that while 69% of GCRF funds (by value) have been awards of greater then £1 million, 48% of the number of awards have been below £100,000. GCRF is therefore characterised by a spread between many small value awards (representing 4% of fund value) and a small number of very large awards (11% of awards). Sampling should take this into account, and also be able to investigate hypotheses such as whether small grants are mechanisms by which new researchers can enter this type of field and work towards large awards, and the extent to which larger awards represent additionality or displacement or re placement of other funding streams.

In addition, sampling should consider factors such as the extent to which research teams were previously active in this area, and whether the team was newly constructed for GCRF (i.e. have they worked together previously?) Sampling should ensure that those stakeholders involved in the evaluation are not just those who have had positive experiences; this is particularly important for the 'research fairness' module. Some form of T-shaped sampling strategy might be suitable in this instance to first ascertain the spread of more and less positive experiences, and then deeper dives towards the two ends of types of experience.

In relation to probability sampling, a multi-stage approach may be required. For example stratifying the population of awards according to size, geography, challenge area, and/or other factor and then sampling within the strata, using an appropriate – random - selection technique.

In relation to data collection, the proposed modules in this strategy do not depend on methods that are exclusively qualitative. For example, both Contributions Analysis and

Realist Evaluation can utilise both qualitative and quantitative data. Data for the evaluation may include, amongst other types, interviews, reporting data from awards, document review, and surveys of stakeholders in various GCRF roles including researchers, partners and users.

Considering interviews, these can provide in-depth insights, but are time consuming for interviewees and interviewers, not least for the latter if they are to be systematically analysed. Data collection through surveys allows a much broader coverage of the population of people managing, conducting, partnering in or using GCRF research. However, those involved with GCRF are likely to consider that they already face a reporting burden that is relatively heavy compared to other types of research funding. The evaluation will need to balance the need for good survey response rates with the survey burden on respondents.

Surveys should be parsimoniously designed to generate information that is both necessary for the evaluation and that is not available elsewhere. For example, the survey burden will be unnecessarily increased if surveys include large numbers of questions requiring factual answers about awards and institutions, that would be already available from other sources, such as DP's award databases. Surveys are primarily to collect opinion, some of which will be expressed as rankings, scores and ratings.

Surveys are expected to be designed so that statistically valid, rather than merely indicative, inferences can be drawn. And they should be applied in such a way that high response rates (approx. 60%+) can be achieved. This will require the evaluators to field suitable statistical and survey expertise, and dedicate sufficient human and budgetary resource. As part of the achieving high response rates, survey strategies will need to consider the balance of face-to-face, telephone and computer-based interviewing. Particular attention will need to be given to achieving good response rates from the global South. This is true across the evaluation, and time and budget will be needed for sufficient overseas work by evaluators who may be UK-based or from the regions/countries in question. The evaluators should be able to employ engagement strategies and dependable recruitment methods to reach stakeholders in the global South, including hard to reach partners and potentially beneficiaries.

Representativeness is a very important aspect of design, including data collection methods. Factors include the question of what constitutes sufficient sample size, and – as above - how to achieve high response rates. In some qualitative data collection methods, collection (sampling) should continue until information redundancy or saturation occurs, i.e. until a point is reached at which minimal new information is emerging in the data. For quantitative methods, sufficient sample size is determined by factors including the level of confidence required (high), and the level of variation expected in the key variables in the sampled population. Actual sample sizes should be determined at the detailed design stage, but for example, for modules using awards as the unit of analysis it is unlikely that representativeness would be achieved if less than 470 responses were received. This is one third of awards, and responses from at least half of the awardees would be preferred.

6.3. Interdisciplinarity

The Stern review underlined 'the essential role of interdisciplinary research in addressing complex problems and research questions posed by global social, economic, ecological and political challenges'[172].

[172] Lord Stern (2016). *Building on Success and Learning from Experience. An Independent Review of the Research Excellence Framework*. Dept of BEIS, London.

Research increasingly seeks both to generate knowledge and to contribute to real-world solutions, with strong emphasis on context and social engagement. This has stimulated an increase in inter- and -trans disciplinary research. In theory, this should result in better outcomes and impacts.

GCRF has embedded interdisciplinarity as a core principle. Along with being challenge-led, interdisciplinarity is one of the major and distinctive features of the Fund. The evaluation therefore needs to assess both a) whether the desired interdisciplinary research and innovation is occurring, and b) if so, whether it is yielding results in addressing the global challenges.

The assessment of interdisciplinarity per se is not a rich methodological area. Even a recent systematic review of assessing transdisciplinary research overlooks it[173]. Assessment of interdisciplinarity has often being limited to analysis of authorship of peer-reviewed publications – the departmental / disciplinary affiliations of multi-authored papers. But this normative approach tends not to examine whether the research problem is understood differently or approached in new ways. Without belabouring the semantics, there is a need to assess the effect on outcomes of genuinely interdisciplinary research, rather than in programmes where disciplines work alongside each other in multidisciplinary mode.

There are approaches going beyond simple counting of journal authors and the disciplinary affiliations, but much of the guidance, where it relates to evaluation, concerns the evaluation of proposals for interdisciplinary research or the evaluation of interdisciplinary publications[174], rather than evaluation of outcomes. In assessing interdisciplinarity in GCRF, the evaluation will need to consider factors including:

- the extent to which the interdisciplinary research has been designed to achieve a rounded, in-depth understanding of complex SDG-related problems
- whether GCRF research and innovation is being conducted in an integrated and interdisciplinary manner
- the extent to which GCRF research and innovation draws on disciplinary expertise, but moves knowledge forwards by conceiving of and addressing the problem in new ways
- whether there has been " 'new production of knowledge' that cuts across disciplinary boundaries in order to create knowledge for a specific purpose" (Lyall et al, 2011)
- the extent to which GCRF outcomes demonstrate the benefit of interdisciplinarity and show better uptake and better fitness-for-purpose as a result of interdisciplinarity

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/541338/ind-16-9-ref-stern-review.pdf

[173] Brian M. Belcher, Katherine E. Rasmussen, Matthew R. Kemshaw, Deborah A. Zornes. (2016) Defining and assessing research quality in a transdisciplinary context, *Research Evaluation*, 25 (1), 1–17

174 Catherine Lyall, Ann Bruce, Joyce Tait and Laura Meagher (2011). *Interdisciplinary Research Journeys Practical Strategies for Capturing Creativity.* Bloomsbury Academic, London.

6.4. Timeframe

Drawing from the literature[175, 176] and DPs' publications[177], this strategy conceives of GCRF as reaching impact in 10 to 15 years. Research may take longer than this to reach impact, but overall, this timescale reflects: UKRI's own thinking about a GCRF ToC – which conceives of GCRF in three five-year phases; that some technologies (eg from UKSA) may reach impact much quicker – especially when well-matched to specific problems; and that many areas of research and innovation in GCRF have not started from scratch, but build upon prior work by the same team.

Hence the strategy is designed in **three stages**. Stage 1 largely occurs within the current five year finding period 2016–2001. Stage 2 is immediately ex-post, 2021–2023, and is designed to measure outputs and early outcomes. Stage 3 is sufficiently ex-post to be expected to be able detect and assess higher-order outcomes and impact in 2024-2026/7. The end date could have a possible extension to 2029/30 when the UN and global partners are due report on the SDGs. Therefore, there is merit in tying the end of the impact evaluation module into global efforts to assess the success of Agenda 2030.

This long time frame is unusual, though not unique in the UK Aid Strategy[178]. And it is recognised that the unpredictable nature of complex systems, with non-linear interactions and potential for sudden or disproportionate system transformation indicates that long evaluative time frames may be required to detect the effects of an intervention[179].

6.5. Tiered Monitoring and Evaluation

This Strategy is BEIS' strategy for the evaluation of GCRF. It also touches on monitoring. It's focus – the evaluand – is the Fund as a whole. Not every part of the Fund is assessed in every module - the constituent parts of the fund are by logistical and financial necessity sampled in implementing the evaluation. Over the course of the evaluation, the unit of analysis is designed to increase in size, from awards to programmes and challenge areas.

It is recognised that the DPs – and the larger awards, such as Hubs - have, or will have, their own GCRF monitoring and evaluation strategies and systems. This strategy aims to be complementary to these. Its emphasis is aimed to be more holistic, with an ultimate focus on the challenge areas, addressing evidence needs of a wider range of stakeholders, and with a balance of accountability and learning objectives – the evaluation particularly seeks to understand how GCRF has (or has not) contributed to SDG-related development outcomes and impacts.

[175] E.g. it is estimated that in the field of medical research, the lag between research publication and uptake in healthcare practice is approximately 17 years: Wooding, S. et al. (2011). *Understanding the Returns from Cardiovascular and Stroke Research: The Policy Report*. RAND Report MG-1079-RS. RAND Corporation, Santa Monica.
[176] E.g. in a typical time lapse between academic research and industrial utilisation is 7 years. Mansfield, E. (1991). Academic research and industrial innovation. *Research Policy,* 20 (1), 1-12.
[177] RCUK (2017). *Evaluation Framework*. PowerPoint presentation.
[178] CDC (2017). *DFID-CDC Evaluation and Learning Programme - 2017-2023 plan*. CDC Group plc, London. https://www.cdcgroup.com/en/news-insight/insight/articles/cdc-and-dfid-evaluation-learning/
[179] Mat Walton (2014). Applying complexity theory: A review to inform evaluation design. *Evaluation and Program Planning*, 45 119–126.

It is also recognised that the DPs' systems will generate a large volume of monitoring data and information on results. As far as possible, this strategy wishes to avoid both duplication of data collection effort, and an increased reporting burden on PIs and co-Is. The DPs' systems will be one source of data for a number of the evaluation modules[180].

7. Methodological Menu

Within the evaluation modules, a range of methods for data collection and analysis will be applied. This section presents some resources for a number of methods appropriate to these modules. It is not meant to be a manual on these methods, since detailed information on their merits and use is readily available.

Case studies / Case study evaluation

A case study is a method for learning about a complex instance, based on a comprehensive understanding of that instance obtained by extensive description and analysis of that instance taken as a whole and in its context. It is an in-depth inquiry into a specific and complex phenomenon (the 'case'), set within its real-world context.

Morra, L.G. and Friedlander, A.C. (n.d.). *Case Study Evaluations*. World Bank, Washington D.C. https://www.betterevaluation.org/resources/guide/case_study_evaluations_world_bank

Yin, R.K. (2018). *Case Study Research and Applications: Design and Methods*. Sixth edition. Sage, Thousand Oaks.

Contribution Analysis

Contribution analysis is a theory-based evaluation approach that provides a systematic way to arrive at credible causal claims about a programme's contribution to change. In summary, it involves developing and assessing the evidence for a theory of change, in order to explore the programme's contribution to observed outcomes. By verifying the ToC that the programme is based on, and taking into consideration other factors that may have influenced outcomes, contribution analysis can provide evidence that the programme did or did not make a difference.

Befani, B. & Mayne, J., 2014. Process Tracing and Contribution Analysis: A Combined Approach to Generative Causal Inference for Impact Evaluation. *IDS Bulletin*, 45(6), pp.17–36. Available at: http://doi.wiley.com/10.1111/1759-5436.12110.

Delahais, T. & Toulemonde, J., 2012. Applying contribution analysis: Lessons from five years of practice. *Evaluation*, 18(3), pp.281–293. Available at: http://evi.sagepub.com/cgi/content/long/18/3/281%5Cnhttp://evi.sagepub.com/cgi/doi/10.1177/1356389012450810.

Lemire, S.T., Nielsen, S.B. & Dybdal, L., 2012. Making contribution analysis work: A practical framework for handling influencing factors and alternative explanations. *Evaluation*, 18(3).

[180] The Process Evaluation faced a number of challenges with non-standard data structures. It is proposed that work is conducted to make DPs' GCRF data system more compatible.

Mayne, J., 2011. Addressing Cause and Effect in Simple and Complex Settings through Contribution Analysis. In R. Schwartz, K. Forss, & M. Marra, eds. *Evaluating the Complex*. Transaction Publishers.

Riley, B.L., Kernoghan, A., Stockton, L., Montague, S., Yessis. J. and Willis, C.D. (2018). Using contribution analysis to evaluate the impacts of research on policy: Getting to 'good enough'. *Research Evaluation*, 27 (1), pp 16–27. https://academic.oup.com/rev/article/27/1/16/4554784

Wimbush, E. et al., 2012. Applications of contribution analysis to outcome planning and impact evaluation. *Evaluation*, 18(3), pp.310–329.

Impact evaluation

Evaluation of positive and negative, primary and secondary long-term effects produced by a development intervention, directly or indirectly, intended or unintended. Impact evaluation may be conducted through a range of methods.

Stern, E. et al., 2012. Broadening the Range of Designs and Methods for Impact Evaluations. *DFID Working Paper*, 38. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/67427/design-method-impact-eval.pdf

Stern, E., 2015. *Impact Evaluation. A Guide for Commissioners and Managers*. BOND, London. https://www.bond.org.uk/sites/default/files/resource-documents/impact_evaluation_guide_0515.pdf

Evaluating the Impact of Research Programmes - Approaches and Methods (UKCDS): https://www.ukcdr.org.uk/wp-content/uploads/2018/03/Evaluating-the-Impact-of-Research-Programmes-Approaches-and-Methods.pdf

Process Tracing

Process tracing is a method for assessing causal inference within a single case design. It offers the potential to evaluate impact (including in ex-post designs without a strong baseline) through establishing a degree of confidence in how and why an effect occurred. Process tracing involves articulating and then collecting data on all the steps between an intervention and an outcome, in order to update the evaluator's confidence that the intervention has caused or contributed to a particular outcome in a particular way. Like other theory-based evaluation approaches, process tracing is underpinned by a generative model of causality – it establishes a causal link between a programme and an outcome through showing how and why the programme led to change.

Befani, B. & Stedman-Bryce, G., 2016. Process Tracing and Bayesian updating for impact evaluation. *Evaluation*, 1(19).

Bennett, A., 2010. Process Tracing and Causal Inference. In H. E. Brady & D. Collier, eds. *Rethinking Social Inquiry: Diverse Tools, Shared Standards.* Lanham, M.D.: Rowman and Littlefield, p. 207–219.

Schmitt, J. & Beach, D., 2015. The contribution of process tracing to theory-based evaluations of complex aid instruments. Evaluation 2015, Vol. 21(4) 429–447.

Qualitative Comparative Analysis (QCA)

QCA is a social science research method that applies a systematic comparison to case study research. The purpose of QCA is to refine and extend knowledge of the determinants of outcomes by examining the similarities and differences of a set of cases in terms of the causal factors and outcomes obtained. QCA asks 'did the intervention make a difference and through which patterns?' It is a data-based technique that uses inferential logic to identify relationship patterns between causal factors and outcomes.

Befani B, Ledermann S and Sager F (2007) Realistic Evaluation and QCA: Conceptual parallels and an empirical application. *Evaluation* 13(2): 171–92.

COMPASSS (COMPArative Methods for Systematic cross-caSe analySis) - the QCA community: http://www.compasss.org/about.htm

COMPASSS library: https://www.zotero.org/groups/510780/compasss/items

COMPASSS working papers: https://www.zotero.org/groups/611034/compasss_working_papers/items?

Rihoux, B. & Ragin, C. eds., 2009. *Configurational Comparative Methods. Qualitative Comparative Analysis (QCA) and Related Techniques*, Thousand Oaks: Sage.

Schatz, F. & Welle, K., 2016. Qualitative Comparative Analysis: A Valuable Approach to Add to the Evaluator's Toolbox? Lessons from Recent Applications. *Centre for Development Impact*, (13).

Realist evaluation

A type of theory-driven evaluation method with distinctive philosophical underpinnings – it is based on the epistemological foundations of critical realism. It aims to answer the question: 'what works in which circumstances and for whom?', rather than merely 'does it work? In order to answer that question, realist evaluators aim to identify the underlying generative mechanisms that explain 'how' the outcomes were caused and the influence of context

Realist philosophy considers that an intervention works (or not) because actors make particular decisions in response to the intervention (or not). The 'reasoning' of the actors in response to the resources or opportunities provided by the intervention is what causes the outcomes. Context matters: firstly, it influences 'reasoning' and, secondly, generative mechanisms can only work if the circumstances are right.

RAMESES (Realist And Meta-narrative Evidence Syntheses: Evolving Standards): http://www.ramesesproject.org/index.php?pr=Home_Page

RAMESES guidance on realist evaluation (scroll down to RAMESES II):
http://www.ramesesproject.org/Standards_and_Training_materials.php#re_qual_stand

Quality Standards for Realist Evaluation For evaluators and peer-reviewers (RAMESES II):
http://www.ramesesproject.org/media/RE_Quality_Standards_for_evaluators_and_peer_reviewers.pdf

Pawson, R., 2013. *The Science of Evaluation: A Realist Manifesto*, London: SAGE Publications

Westhorp, G., 2014. *Realist Impact Evaluation: An Introduction*, London. Available at:
http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9138.pdf

Westhorp, G., 2012. Using complexity-consistent theory for evaluating complex systems. *Evaluation*, 18(4), pp.405–420.

Monitoring

A continuing function that uses systematic collection of data on specified indicators to provide management and the main stakeholders of an ongoing development intervention with indications of the extent of progress and achievement of objectives and progress in the use of allocated funds. An essential component of the monitoring process is the presence of feedback loops through which information is collected and used to make an intervention more effective and efficient

USAID (2018). Discussion Note: Complexity-Aware Monitoring.
https://usaidlearninglab.org/sites/default/files/resource/files/cleared_dn_complexity-aware_monitoring.pdf

8. Risks

The following are considered to be the main risk to the successful implementation of the GCRF Evaluation Strategy (Table 26):

Risk	Mitigation
• Evaluation culture in BEIS and DP not strongly established (identified as an issue for non-DFID ODA-spending Departments by ICAI). • Evaluation does not strongly feed learning	• The DPs' PEN group promotes use of evaluation • Responses to the IDC ODA enquiry prompt greater attention to M&E • The evaluation shows its utility early on
• Poor governance and oversight of the evaluation	• Establish an Independent Advisory Group fpr the evaluation
• Poor implementation of the evaluation	• Competitive tender to select a strong evaluator • Performance reviews of the evaluator • QA of evaluation outputs
• Stakeholders do not engage with the evaluation	• Complexity-aware evaluation needs close engagement with stakeholders at all levels, not least so it become part of the learning system. The emergent nature of the 'outcomes' system requires a learning-based approach. • GCRF will need to develop structures, systems and processes to ensure the evaluation is integrated and not a satellite.
• Limitation on access to data and ease of data sharing	
○ Multiple, and not fully compatible, data systems	○ Investment in creating a data compatibility standard and exchange mechanism ○ Other actions….
○ Scared by GDPR	○ Guidance on what can be shared under GDPR. GDPR built into new agreements in a way that allows sharing.
○ Legacy issues affect data access (eg wording of older awards)	○ Owners contacted to allow sharing
○ Unfamiliarity with a more open data-sharing context	○ Guidance on data needs for GCRF M&E and implications for data sharing
• Evaluation design is too complicated to easily communicated	• Educate users on Theory-Based Evaluation approaches • Take care in use evaluation jargon; ICF Climate Compass avoided use of the term 'realist evaluation' in its communications
• Findings are too nuanced	• Some modules less nuanced than others • Clarity about what types of question the evaluation can answer (especially in relation to contextual findings vs generalised ones)
• Findings are considered too late	• Modular approach designed to deliver useful findings at appropriate times • Design can be adjusted to fit timing of different needs • Clarity about what types of question the evaluation can answer when
• The evaluation is not perceived as value for money itself.	• Evaluating a fund as broad and complex as GCRF will be expensive. The complexity dimension leads to an approach and methods which are recognised as time-

	consuming and requiring a high degree of expertise. Commissioners need to be aware of this. • The evaluation will have to demonstrate value through producing excellent and highly usable evaluation products in different formats.
• BEIS not willing or able to commit to a 10 year evaluation	• The weaknesses of stopping the evaluation at Y5 made clear (poor visibility on impact and sustainability) • Contracts writing with fixed periods (eg 5y), with option for extension.

Table 26. Risks for GCRF Evaluation Strategy

9. Evaluation Framework

The Evaluation Framework sets out Evaluation Questions (EQs) that provide further definition to the Main Evaluation Questions (MEQs) presented in the strategy. In line with other non-ODA funds, and recognising that this is a framework not a methodological prescription nor detailed checklist, this set of questions should not be considered exhaustive.

This table will be further developed in line with the on-going work to develop a monitoring framework and KPIs

Evaluation Questions	Data sources	Indicators	Unit of Analysis	Module (Method)	Type
• To what extent has GCRF developed an internally coherent and consistent suite of programmes to address the global challenges ?	Surveys, Interviews, document reviews		Fund, Programme, DP, BEIS		
• To what extent has GCRF developed a suite of programmes that is coherent with, aligned to and coordinated with other efforts to achieve the SDGs?		Relevance Coherence	Programme, Challenge Area		
• Are partners in GCRF being treated fairly?[181]	Partners	RFI criteria		RFI methodology; 360° mechanism	
• How and to what extent is gender addressed in GCRF programmes?[182]	Submission docs, Pathways to Impact,			Formative gender audit	Formative
• How and to what extent is poverty and social exclusion addressed in GCRF programmes?[183]	Call documents, Success bid documents,			Formative poverty and social exclusion audit	Formative

[181] Using the Research Fairness Initiative (RFI) framework, do partners experience fairness of funding opportunity, fairness of research process and governance, and fairness of benefits, costs and outcomes? http://rfi.cohred.org/

[182] For avoidance of doubt, this EQ not a quota-type question, for example about proportions of female PIs. This concerns the way gender is addressed in outcomes and impacts, as per the International Development Act (2014).

[183] This EQ may be extended to encompass other forms of social exclusion

Evaluation Questions	Data sources	Indicators	Unit of Analysis	Module (Method)	Type
	pathways to impact				
• How well is the selection, implementation and oversight of awards and programmes being managed?[184, 185]	Interviews, surveys, document review	Timeliness Satisfaction	Call, programme, DP	Management assessment	Formative
• How can the relevance, fairness, targeting and management of GCRF be improved?[186]	Other EQs under MEQ1				Recommendations
• How well is the investment being implemented?	Programmes' M&E (Awardee & DP)			Process Evaluation of Hubs, xxx, xxx	Formative
• To what extent is the research and innovation coming from the investment of excellent standard and of high quality?[187]		RQ+ criteria		RQ+ assessment with rubrics	
• To what extent have the investment's objectives been met? And, what else has the investment achieved beyond its objectives[188]?				Programme	Summative
• To what extent does this represent value for money?	Link to Y3 (Y5) Stage Gate review for Hubs.	4Es			
• What processes and mechanisms have been important in achieving results from the investment?					
• What factors have supported or constrained the results delivered by the investment?					

[184] This EQ encompasses a set of sub-Qs drawn from the Foundation Stage Process Evaluation.
[185] This EQ encompasses aspects of efficiency, and therefore Value for Money
[186] Each MEQ has a final EQ focused on how the evidence can be used.
[187] **Research excellence** assessed by established academic criteria, including bibliometrics; **Research quality** to be assessed using the **RQ+ framework** (Ofir et al (2016)), including indicators such **legitimacy** (recognition of stakeholder insights and need, especially developing country stakeholders), **importance** and value to the intended users of the knowledge generated, and the extent to which the research has been positioned in such a way that the **probability of use**, influence and impact is enhanced .
[188] Unplanned consequences may be positive or negative.

Evaluation Questions	Data sources	Indicators	Unit of Analysis	Module (Method)	Type
• How can the delivery of the signature investments be improved?					Formative
• What has GCRF achieved in terms: o new insights, knowledge and technologies from interdisciplinary research & cross-sectoral innovation? o establishing or strengthening research and innovation partnerships? o challenge-oriented capabilities (skills and infrastructures) for research and innovation? o stakeholder networks for use and replication of GCRF knowledge and technologies?[189]	ResearchFish, OBIE, Gateway to Research, Academies DB			Level of aggregation Programme (+challenge area) Country	
• What factors have supported or constrained these results?					
• To what extent do these results represent value for money?					
• In its challenge areas, has GCRF made a difference to: o conceptualisation, problem framing, and demand for new solutions? o availability of tested and ready-to-scale technological and practical solutions to development problems? o direct application of pro-poor practices, technologies and products, as a result of participating in projects? o capabilities for challenge-focused, interdisciplinary, cross-sectoral research and innovation?	REF, RC & REF-style case study		Challenge areas	Contribution Analysis	

[189] This EQ includes assessing to what extent have intermediaries, non-academic partners, champions, and potential users in public/policy, private and third sectors been engaged in the research, innovation and uptake processes? And, what has worked and not worked in in engaging these actors?

Evaluation Questions	Data sources	Indicators	Unit of Analysis	Module (Method)	Type
○ other ways in which research, technology and innovation can contribute to development results?					
• Where GCRF has a made a difference in these areas, how and why has it done so, and what factors have supported or constrained GCRF's contribution to these results?					
• To what extent has GCRF contributed to the UK's: ○ practice and performance of interdisciplinary and challenge-led research and innovation for development? ○ access to, and success in winning, funding for research and innovation on development challenges? ○ partnerships and networks for research and innovation on development challenges? ○ global reputation and profile for undertaking high quality research and innovation on development challenges? ○ the culture and practice in UK funding bodies in relation to designing, funding, promoting, managing, over-seeing, and collaborating on this type of research and innovation? ○ other factors important in delivering development challenge oriented research and innovation?					
• What factors have supported or constrained GCRF's contribution to these results?					
• Has GCRF had any unintended or negative consequences for the UK's ability to deliver cutting-edge research and innovation on global challenges for development?					

Evaluation Questions	Data sources	Indicators	Unit of Analysis	Module (Method)	Type
• How can the UK (continue to) ensure it is best placed to be a global leader in research and innovation on global challenges for development?					
• For whom has GCRF made a difference?[190]		Disaggregation, incl by sex			Impact
• In which challenge areas has GCRF made a particular difference?			Challenge Area		
• What has worked in relation to addressing global sustainable development challenges and transforming the lives of the worlds' poorest? How and why has GCRF made a difference?				QCA, Realist evaluation	
• What have been the causal mechanisms that have made a difference in the observed changes in sustainable and inclusive prosperity of people in developing countries, and too what extent was GCRF necessary or sufficient for the effect to have occurred?					
• What are the GCRF and other (contextual) factors that have been important for success?					
• Where else and in what contexts can a GCRF-type[191] research and innovation fund work? What lessons are there for this type of investment in the future?[192]					

[190] This is an impact question. It should be answered in terms of poverty, gender, social exclusion and diversity, and geography
[191] Key features include: interdisciplinary, challenge-led, with multiple UK and international partners, with multiple Delivery Partners, ODA-compliant, etc
[192] This EQ may consider GCRF and its funding modality in relation to other funds (SDC's r4d Programme for Research on Global Issues for Development) and other funding modalities, such as DFID's problem-led approach.

Appendices

Appendix A: Methodological Note - Process Evaluation

Document analysis

At the beginning of this project, we began to collect artefacts relating to the GCRF, including: documents, reports, programme/scheme notes, meeting minutes and any other existing analyses of GCRF programmes. The aim of this was to establish a foundation of knowledge of how GCRF programmes and processes have evolved both before and since its official launch in 2015. We were able to use this knowledge to refine our research tools and identify potential interviews from each of the 13 DPs + 4 NFCs and with BEIS.

GCRF metadata collection and analysis

This activity involved the identification, collection and analysis of metadata on programmes, projects, applicants and Panel Members routinely collected by each DP for their GCRF activities. The purpose of this activity was primarily to answer EQ3 and EQ4 which ask for the characteristics of grantees and types of research funded under the GCRF respectively. Two DSAs were signed and Research Council data was transferred. DSAs were not used for collecting data from the National Academies and UKSA – this was done on a DP-by-DP basis. Direct requests were made to the National Academies and UKSA for this same data. The metadata was collected and analysed to quantitatively characterise programmes, projects, applicants and Panel Members. The NFCs do not routinely collect these types of data as they do not run calls. Instead, we collected and analysed the available high-level data on GCRF allocations both to NFCs and to their respective HEIs where that data was available.

Interviews - Delivery Partner representatives

Initial scoping conversations were conducted with representatives of select DPs and with the GCRF team – in the first instance to scope the range of approaches that existed across the GCRF funding landscape and to focus our final set of DP interview questions. These were concluded with the Research Council briefing in Swindon on 22 January and with delegates at the ToC workshop at the British Academy on 23 January. 25 full interviews lasting around 60-90 minutes ran from early December to mid-March involving 34 representatives across all 13 DPs, the four NFCs and BEIS).

Interviews – Panel Chairs

DPs were contacted individually to request access to Panel Chairs' contact details. The interview guides were kept brief both to allow us to explore topics of interest unique to the participant's experience, and so not to overburden them. 15 interviews were carried out that

lasted 30 minutes on average and took place between the end of May 2018 to the end of June 2018.

Methodological details	
Sampling method	At least one panel chair per DP was contacted
Invites and reminders sent	04/05/2018 – 24/06/2018
Total individuals contacted	17
Interviews conducted	15 (ESRC+NERC panel chairs did not respond)
Response rate	88%

Interviews – PIs and Co-Is, unsuccessful applicants

These individuals were only invited to participate in interviews if they indicated their interest to do so in the surveys where they supplied their email address. These interviews were purposefully short (20-30 minutes) and aimed to gain a better understanding of their experiences with GCRF.

Methodological details	
Sampling method	Random sample based on equal representations of: LMIC status, grant value, DP funder and gender
Invites and reminders sent	04/07/2018 – 24/07/2018
Total individuals contacted	58
Interviews conducted	PIs – 11, Co-Investigators – 9, Unsuccessful applicants - 11
Response rate	53%

Surveys

Four online surveys were directed to GCRF grant holders, co-applicants and partners, unsuccessful applicants and Panel Members to gather feedback on key GCRF processes across all evaluation questions, barring EQ5 and EQ7 which these groups could not have an accurate view of. The surveys were kept short in an attempt to improve response rates. One interim reminder and one final reminder was issued. The average response rate was 26.73%. Below is a summary of response rates from each group.

The surveys of grant holders, unsuccessful applicants and panel members were sent out through the DPs rather than directly by Technopolis (this was not the case for the survey of Co-Investigators). We are therefore unable to break down the characteristics of those contacted and those who responded. It was not possible to fully link lists of responses with separate files containing their personal and award characteristics. We know, for example, that there are 1089 funded Research Council projects alone, whereas we were informed that a total of 801 PIs were contacted.

	Grant Holders	Co-Investigators	Unsuccessful Applicants	Panel Members	Total
Contacted	801	2393	912	556	**4662**
Responses	399	489 (40% non-UK) (37% LMIC)	179	179	**1246**
Response %	**49.81%**	**20.43%**	**19.63%**	**32.19%**	**26.73%**

Details of DP representative interviews

These 25 interviews with 34 DP representatives were discursive and focused specifically on each DP's activities with a loose question structure reflecting the EQ categories.

Organisation	Contact	Role
AMS	Kelly Howard	Grants Officer
AMS	Clare McVicker	Head of Grants
AMS	Elizabeth Bohm	Head of International
AMS	Alice Holt	Grants Manager
AMS	Alex Hulme	International Policy Manager
BA	Stephanie Appleton	International Research Funding Manager
BA	Dessy Stoitchkova	Deputy Head of International
Royal Society	Fran Stokesmore	Senior Manager – International Grants
Royal Society	Tanja Floyd	Senior Manager – Impact and Evaluation
RAEng	Shane McHugh	Head of International
RAEng	Louise Olofsson	GCRF Programme Manager
RAEng	Meredith Ettridge	Senior Manager, International Development
BEIS	Jeremy Martin	Head of ODA policy and Strategy
BEIS	Sarah Honour	Head of Science and Innovation Strategy and ODA
Research England	Helena Mills	Senior Policy Adviser
HEFCW	Linda Tiller	Senior Research Manager
SFC	David Beards	Senior Policy Officer
DfE NI	Lynne Miskelly	Head of Higher Education Research Policy
DfE NI	Paul Murphy	Policy advisor
UKSA	Ray Fielding	Head of International Space Programmes
UKSA	Athene Gadsby	International Partnership Programme Manager
RCUK	Mark Claydon Smith	Associate director for international development
AHRC	Gary Grubb	Associate Director of Programmes
AHRC	Sumi David	Strategic Lead – Strategic Planning, Evidence and Impact
BBSRC	David McAllister	Associate Director, Research and Innovation
EPSRC	Gavin Salisbury	Senior Portfolio Manager
ESRC	Dr Pamela Mason	Strategic Lead: International Development
MRC	Emily Gale	Programme Manager
NERC	Jess Gosling	Programme Manager (International)
NERC	Michelle Manning	Senior Programme Manager (International)
NERC	Kate Hamer	Head of International

Organisation	Contact	Role
RCUK	Sian Rowland	Senior Policy Manager
RCUK	Rob Felstead	Senior Policy Manager
STFC	Stephen Loader	21st Century Challenges Programme Manager

Details of PI interviews

Methodological details	
Sampling method	Random sample based on equal representations of: grant value, DP funder, programme type and gender
Invites and reminders sent	04/07/2018 – 24/07/2018
Total individuals contacted	22
Interviews conducted	11
Response rate	50%

Full name	Organisation	DP	Grant Call	Amount awarded	Target country	Home Country	Date / time	Interviewer
Dr Harjinder Sembhi	University of Leicester	STFC	STFC GCRF Foundation Awards 2017	£402,580	India	UK	27.07.18 11:00am	Marika De Scalzi
Dr David Cotton	Satellite Oceanographic	UKSA	IPP	£659,476	Madagascar, Mozambique and South Africa	UK	12.07.18 10:00am	Charlotte Glass
Professor Karen Lucas	University of Leeds	ESRC	GCRF Networks Competition 2016	£149,315	Bangladesh, Ghana, Nigeria and Uganda	UK	20.07.18 11:00am	Peter Kolarz
Professor Mike English	University of Oxford	ESRC	AMR Behaviour Pump Priming	£210,636	Kenya	UK	20.07.18 11:00am	Charlotte Glass
Professor Jim Smith	University of Portsmouth	NERC	Innovation Follow on JUL17	£100,616	Belarus and Ukraine	UK	05.07.18 11:00am	Billy Bryan
Dr Bethan Purse	NERC Centre for Ecology and Hydrology	MRC	GCRF Infections 2016	£605,720	India	UK	16.07.18 11:00am	Charlotte Glass
Dr Heidi Stoeckl	London Sch of Hygiene and Trop Medicine	ESRC	SDAI open call	£168,246	South Africa and Tanzania	UK	11.07.18 11:45am	Billy Bryan
Dr Martin Smith	NERC British Geological Survey	NERC	NC ODA	£8,114,000	n/a	UK	01.08.18 2:00pm	Billy Bryan
Mr Martin Jones	University of York	ESRC	GCRF Forced Displacement 2016	£242,477	n/a	UK	31.07.18 10am	Charlotte Glass
Dr Ian Griffiths	University of Oxford	ROYAL SOCIETY	Challenge Grants	£93,821	n/a	UK	24.07.18 2:00pm	Billy Bryan
Dr Evi Viza	University of the West of Scotland	RAEng	Seed funding	£20,000	Uganda	UK	25.07.18 11:00am	Billy Bryan

PIs - Interview questions

Points to make prior to interview start

- We have been commissioned by BEIS to conduct a Foundation Evaluation of the GCRF, which includes the development of an evaluation framework and a process evaluation
- The evaluation started in October 2017 and will run until August 2018.
- This interview will feed in to the process evaluation
- You have already contributed to our online survey; many thanks!
- Now we are following up with these interviews to help us to better understand some of the qualitative feedback that has been provided.
- The individual questions reflect the headline questions in our evaluation brief, however, we will also ask some questions based upon our findings so far.
- What you say in this interview will only be reported in aggregate non-attributable form, and the notes to this interview will not be shared
- We would like to note the names of all our interviewees in the appendices to the final evaluation report. Are you content for us to include your name and organisation in the list? If not, that is okay.
- [In case anyone asks:] We expect the evaluation report to be published towards the end of 2018

1. Can you please give me a quick overview of your GCRF funded project?

2. Why did you decide to apply for this GCRF grant? What made GCRF attractive to you, compared with other funding option?

3. How did you select the beneficiary countries?

4. How did the collaboration with your international partners for this grant come about and how have you maintained a good relationship with them? Any issues?
    a. To what extent was the research idea and subsequent proposal co-created with them?
    b. *If you had worked with them before, how crucial was this for the success of the project?*

5. How did your project build on prior international development experience (if at all)? What was the advantage of this?

6. How interdisciplinary has the research been so far compared to what was intended? What advantages/disadvantages have there been to this?

7. What worked well and not so well in the application and selection process you went through?
    a. Did you receive feedback? Was it helpful?
    a. *Was the process of selection transparent? If not, how could it have been better?*

8. Thinking about the pathways to impact for your project, what has been or will be the main factors for achieving that impact in your beneficiary county(ies)?
    a. To what extent are these pathways are fully planned and organised?
    b. *Typical survey responses were: continued engagement with key stakeholders, training and development of in-country researchers/students, the possibility of securing further funding to carry on the work.*

9. What are the key strengths and weaknesses of the [GCRF Programme their project was awarded under], from your perspective? What should change?
    a. *Prompt: What if any changes to the programme design would be likely to strengthen the international partnerships?*

10. Finally, can you consider the 'counter-factual'? What would be different now if you hadn't been awarded the GCRF grant?
    a. *Prompt: Would certain things have happened anyway by other means?*

11. Any further comments?

[Thanks! Any further questions or comments, feel free to e-mail me]

Details of Co-I interviews

Methodological details	
Sampling method	Random sample based on equal representations of: grant value, DP funder, LMIC status and gender
Invites and reminders sent	04/07/2018 – 24/07/2018
Total individuals contacted	20
Interviews conducted	9
Response rate	45%

Full name	Organisation	DP	Grant call	Amount awarded	Target country	Home Country	Date / time	Interviewer
Dr Lydia Mosi	University of Ghana	MRC	GCRF Infections 2016	£223,279	Benin, Côte d'Ivoire and Ghana	Ghana	02.08.18 12:00pm	Billy Bryan
Dr Gloria Langat	University of Southampton	ESRC	GCRF Networks Competition 2016	£126,781	Argentina, China, India and Kenya	UK*	18.07.18 1:00pm	Marika De Scalzi
Dr Asma Elsony	The Epidemiological Laboratory (EPILAB)	MRC	GCRF NCDs 2016	£606,091	Cameroon Ethiopia Gambia Ghana Kenya Malawi Nigeria South Africa Sudan Uganda	Sudan	13.07.18 1:00pm	Charlotte Glass
Professor Jacob Mwitwa	Copperbelt University	ESRC	GCRF Grow GC	£5,630,400	Ethiopia, ghana and Zambia	Zambia	10.07.18 1:00pm	Billy Bryan
Dr Jose Jowel Canuday	Ateneo de Manila University	AHRC	Global Public Health 08/06/17	£172,078	Philippines	Philippines	26.07.18 9:00am	Charlotte Glass
Professor Caroline Fall	University of Southampton	MRC	Global Mental H 2017	£193,798	India	UK*	24.07.18 2:00pm	Charlotte Glass
Professor Mustafa Tezer Kutluk	Hacettepe University	ESRC	GCRF Grow GC	£5,978,505	Jordan Lebanon Turkey West Bank and Gaza Strip	Turkey	10.07.18 10:00am	Marika De Scalzi

Dr Ines Raimundo	University Eduardo Mondlane	ESRC	GCRF Networks Competition 2016	£148,463	N/A	Malawi	27.07.18 1:00pm	Marika De Scalzi
Dr Van Kien Nguyen	An Giang University	NERC	GCRF-Resilience SEP16	£167,389	Bangladesh, Vietnam	Vietnam	25.07.18 10:30am	Billy Bryan

*These respondents were not the lead Co-Investigators, who must be from LMICs, they were Co-Investigators as part of the larger team

Co-I - Interview questions

Points to make prior to interview start

- We have been commissioned by BEIS to conduct a Foundation Evaluation of the GCRF, which includes the development of an evaluation framework and a process evaluation
- The evaluation started in October 2017 and will run until August 2018.
- This interview will feed in to the process evaluation
- You have already contributed to our online survey; many thanks!
- Now we are following up with these interviews to help us to better understand some of the qualitative feedback that has been provided.
- The individual questions reflect the headline questions in our evaluation brief, however, we will also ask some questions based upon our findings so far.
- What you say in this interview will only be reported in aggregate non-attributable form, and the notes to this interview will not be shared
- We would like to note the names of all our interviewees in the appendices to the final evaluation report. Are you content for us to include your name and organisation in the list? If not, that is okay.
- [In case anyone asks:] We expect the evaluation report to be published towards the end of 2018

1. Can you please give me a quick overview of your GCRF funded project?

2. Why did you decide to apply for this GCRF grant? What made GCRF attractive to you, compared with other funding option?

3. How did you select the beneficiary countries?

4. How did the collaboration with your international partners for this grant come about and how have you maintained a good relationship with them? Any issues?
    a. To what extent was the research idea and subsequent proposal co-created with them?
    b. *If you had worked with them before, how crucial was this for the success of the project?*

5. How did your project build on prior international development experience (if at all)? What was the advantage of this?

6. How interdisciplinary has the research been so far compared to what was intended? What advantages/disadvantages have there been to this?

7. What worked well and not so well in the application and selection process you went through?
    a. Did you receive feedback? Was it helpful?
    b. Was the process of selection transparent? If not, how could it have been better?

8. Thinking about the pathways to impact for your project, what has been or will be the main factors for achieving that impact in your beneficiary county(ies)?
    a. To what extent are these pathways are fully planned and organised?
    b. *Typical survey responses were: continued engagement with key stakeholders, training and development of in-country researchers/students, the possibility of securing further funding to carry on the work.*

9. What are the key strengths and weaknesses of the [GCRF Programme their project was awarded under], from your perspective? What should change?
    a. *Prompt: What if any changes to the programme design would be likely to strengthen the international partnerships?*

10. Finally, can you consider the 'counter-factual'? What would be different now if you hadn't been awarded the GCRF grant?
    a. *Prompt: Would certain things have happened anyway by other means?*

11. Any further comments?

[Thanks! Any further questions or comments, feel free to e-mail me]

Details of unsuccessful applicant interviews

Methodological details	
Sampling method	Random sample based on equal representations of: grant value, DP funder, programme type and gender
Invites and reminders sent	04/07/2018 – 24/07/2018
Total individuals contacted	19
Interviews conducted	11
Response rate	58%

Full name	Organisation	Grant Call	DP	Amount applied for	Target country	Home Country	LMIC	Date / time	Interviewer
Prof Andreas Kyprianou	Univeristy of Bath	Networking Grants	AMS	£24,960	Mongolia	UK		10.07.18 11:00am	Billy Bryan
Dr Dr Swarn Singh	Sri Venkateswara College, University of Delhi	Networking Grants	AMS	£25,000	India	India	LMIC	09.07.18 11:30am	Billy Bryan
Dr Bryony Williams	University of Exeter	Challenge Grants	Royal Society	£94,713	N/A	UK		12.07.18 2:00pm	Billy Bryan
Dr Michael Ries	University of Leeds	Challenge Grants	Royal Society	£97,410	N/A	UK		23.07.18 1:00pm	Billy Bryan
Prof Malcolm Joyce	Lancaster University	Challenge Grants	Royal Society	£98,017	N/A	UK		06.07.18 2:00pm	Billy Bryan

Prof Atsufumi Hirohata	University of York	Challenge Grants	Royal Society	£99,996	N/A	UK		11.07.18 2:00pm	Marika De Scalzi
Engr. Mustafa Shehu	Federation of African Engineering Organisations	N/A	RAeng	N/A	N/A	Nigeria	LMIC	26.07.18 11:00am	Marika De Scalzi
Prof Marie Harder	University Of Brighton	N/A	N/A	N/A	N/A	UK		25.07.18 12:00pm	Billy Bryan
Prof Ramakrishnan Ramanathan	University of Bedfordshire	GCRF New Models of Sustainable Development	ESRC	N/A	N/A	UK		02.08.18 9:00am	Billy Bryan
Dr Sukumar Vellakkal	Birla Institute of Technology and Science (BITS) Pilani India	GCRF New models of sustainable development	ESRC	N/A	N/A	India	LMIC	27.07.18 12:00pm	Billy Bryan
Mr Roso Ayasuk	Deross Global Synergy Limited	Africa Catalyst	RAeng	£2,671,000	Nigeria	Nigeria	LMIC	28.07.18 9:00am	Billy Bryan

Unsuccessful applicants - Interview questions

Points to make prior to interview start

- We have been commissioned by BEIS to conduct a Foundation Evaluation of the GCRF, which includes the development of an evaluation framework and a process evaluation
- The evaluation started in October 2017 and will run until August 2018.
- This interview will feed in to the process evaluation
- You have already contributed to our online survey; many thanks!
- Now we are following up with these interviews to help us to better understand some of the qualitative feedback that has been provided.
- The individual questions reflect the headline questions in our evaluation brief, however, we will also ask some questions based upon our findings so far.
- What you say in this interview will only be reported in aggregate non-attributable form, and the notes to this interview will not be shared
- We would like to note the names of all our interviewees in the appendices to the final evaluation report. Are you content for us to include your name and organisation in the list? If not, that is okay.
- [In case anyone asks:] We expect the evaluation report to be published towards the end of 2018

1. Why did you decide to apply for this GCRF grant? What made GCRF attractive to you, compared with other funding option?

2. How did you select the beneficiary countries?

3. How did the collaboration with your international partners for this grant come about?
    a. *To what extent was the research idea and subsequent proposal co-created with them?*

4. Regarding the application and selection process you had to go through. What worked well and not so well?
    a. Did you receive feedback? Was it helpful? If not, would you have liked feedback?
    b. Was the process of selection transparent? If not, how could it have been better?

5. How did your proposed project build on prior international development experience (if at all)?

6. Can you please explain to me what happened to your proposed research project after you received their decision not to fund it?
    a. Did you submit the proposal to any other calls, and if so which one and what was the outcome?
    b. What has happened with your international partnership, post-decision? Will you continue to look for opportunities to collaborate with these partners?
    c. Is the proposed work likely to be picked up through other routes, possibly led by your international partners rather than you?

7. What if anything would you do differently as regards your approach to the proposed work or the international partnership, if you were to submit another proposal to a future GCRF call?

8. What are the key strengths and weaknesses of the GCRF scheme you applied to, from your perspective? What would make it more effective?

9. Any further comments?

[Thanks! Any further questions or comments, feel free to e-mail me]

Details of Panel Chairs/Members interviews

Methodological details	
Sampling method	Individuals were referred to Technopolis from DP programme managers. We aimed to speak to at least one panel chair/member from each DP.
Invites and reminders sent	04/05/2018 – 15/05/2018
Total individuals contacted	19
Interviews conducted	15
Response rate	79%

Full name	Organisation	GCRF role	DP	Date / time	Interviewer
Baroness Valerie Amos	SOAS	GROW - Chair of chairs (1/2)	RCUK	30.05 1pm	Billy Bryan
David Thomlinson FREng	International Chairman of the Royal Academy of Engineering	Chair of GCRF Africa Catalyst	RAEng	01.06 9am	Billy Bryan
Dr Rob Horsch	Gates Foundation	GROW Chaired 2 panels	RCUK	04.06 5pm	Billy Bryan
Dr Simon Trace	Oxford policy management	Chair for the GCRF Foundation awards	STFC	29.05 3pm	Billy Bryan
Mick Johnson	Airbus	Chair - IPP	UKSA	14.06 11am	Billy Bryan
Prof Ash Amin	Christ's College Cambridge	Chair - Cities and Infrastructure	BA	04.06 11am	Billy Bryan
Prof Jenny Pearce	LSE	Chair of the PaCCS GCRF panel	AHRC	08.06 3pm	Billy Bryan
Prof Jillian Anable	Leeds	Chair of Tackling global development challenges through engineering and digital technology research	EPSRC	27.06 1pm	Billy Bryan
Prof Keith Gull	Univeristy of Oxford	GCRF Networking Grants Panel	AMS	12.06 4pm	Paul Simmonds
Prof Nandini Das	Liverpool	Chair of the Area Focused, Network Plus full stage call panel	AHRC	08.06 10am	Billy Bryan
Prof Nilay Shah	Imperial	Chair of Resilient and sustainable energy networks for developing countries	EPSRC	26.06 10am	Billy Bryan
Prof Peter Gregory	Reading	Chair of SASSA	BBSRC	31.05 11am	Billy Bryan
Prof Satya Parida	Pirbright Institute	Member of SASSA panel	BBSRC	11.06 1pm	Billy Bryan
Prof Sir Brian Hoskins	Imperial College London and Reading University	Co-chair - International Collaboration Awards	Royal Society	23.07 11am	Billy Bryan
Professor Stephen Gordon	University of Malawi	MRC-AHRC Global Public Health: Partnership Awards Call		29.05 12pm	Billy Bryan

Panel members and chairs - interview questions

Points to make prior to interview start – Use for all interviews

- We have been commissioned by BEIS to conduct a Foundation Evaluation of the GCRF, which includes the development of an evaluation framework and a process evaluation
- The evaluation started in October 2017 and will run until August 2018.
- This interview will feed in to the process evaluation
- You have already contributed to our online survey; many thanks!

- Now we are following up with these interviews to help us to better understand some of the qualitative feedback that has been provided.
- The individual questions reflect the headline questions in our evaluation brief, however, we have also picked out some more specific remarks you made in your survey response.
- What you say in this interview will only be reported in aggregate non-attributable form, and the notes to this interview will not be shared
- We would like to note the names of all our interviewees in the appendices to the final evaluation report. Are you content for us to include your name and organisation in the list. If no, that is okay?
- [In case anyone asks:] We expect the evaluation report to be published.

Introduce the project and Technopolis

Questions:

1. How well did the application and selection process work?

2. Do you feel confident the Panel was able to identify the best portfolio of projects?

3. How well did you and the Panel cope with any strongly divergent views from peer reviewers?

4. How helpful were the scores / feedback from the peer reviewers?

5. How did you balance competing needs, for example, between research excellence and impact on the ground?

6. Did the panel have a sufficient view of international partnerships and implementation plans?
    a. *Prompt: How are disputes are handled? What challenges do you face? What guidance do you receive? Is it appropriate? How do you score candidates?*

7. How well did the format and membership of the panel work?
    a. *Prompt: was there the right expertise and representation around the table?*
    b. *What did those representatives with ODA, research user, in-country experience offer to the decision-making process?*

8. What if any aspects of the **application and selection process** would you recommend funders consider changing to improve matters (and why)?
    a. *Does the process, or particular parts of the process, aid/hinder the optimal result which is funding the best projects?*

9. In what ways does GCRF differ (and add value) in comparison with other international development research? How does GCRF add value as compared with DFID research programmes for example

10. Do you have any thoughts on the programme design?

11. What, if any, aspects of the **programme design** would you recommend funders consider refining to improve impact, and why?

12. Finally, what are the key strengths of the GCRF scheme from your perspective? What if anything could be changed in order to make the programme more effective?

13. Any further comments?

[Thanks! Any further questions or comments, feel free to e-mail me]

Data tables – Survey of Grant Holder PIs

How long have you been working in the international development arena? (Includes your work on ODA eligible projects)		
Answer Choices	Responses	
Less than 2 years	23.89%	75
3-5 years	20.06%	63
6-9 years	8.28%	26
10 years plus	28.66%	90
This is my first project	19.11%	60
	Answered	**314**
	Skipped	**85**

How did you find out about the GCRF call for proposals? [select all that apply]		
Answer Choices	Responses	
I saw an announcement on the funder's website	33.45%	99
I received information from colleagues within my organisation	42.91%	127
I received an invitation to collaborate from another organisation	26.69%	79
I heard about the call through an email subscription alert	19.93%	59
I saw information about the call through social media (e.g. Twitter)	3.04%	9
Other (please specify)	9.46%	28
	Answered	**296**
	Skipped	**103**

Did you attend any of the following types of briefing events? [select all that apply]		
Answer Choices	Responses	
An applicants' briefing (e.g. webinar, workshop, town hall), run by a GCRF funding provider	24.83%	73
A briefing meeting (e.g. webinar, workshop, town hall), run by your own organisation	14.29%	42
I did not attend any briefing meeting/event	63.95%	188
Other type of briefing (please specify)	3.40%	10
	Answered	**294**
	Skipped	**105**

How involved were you in writing the proposal? [please select all that apply]		
Answer Choices	Responses	
I helped to develop the project idea	39.46%	116
I was the principal author of the proposal	58.50%	172
I co-wrote the proposal	29.93%	88
I commented on the draft proposal	18.03%	53
I provided a statement of support	9.18%	27
I was not involved in the proposal or application process	1.70%	5
Other type of contribution (please specify)	3.06%	9
	Answered	**294**
	Skipped	**105**

Overall, how satisfied were you with the information/guidance provided about the following aspects of the call?

	Very dissatisfied		Dissatisifed		Neutral		Satisfied		Very satisfied		N/A		Total	Weighted Average
The aims and objectives of the call	0.68%	2	0.34 %	1	3.75%	11	39.59%	116	54.27%	159	1.37%	4	293	4.48
The Sustainable Development Goals to be addressed	0.68%	2	0.34 %	1	9.22%	27	40.27%	118	46.08%	135	3.41%	10	293	4.35
ODA compliance	0.69%	2	0.00 %	0	9.34%	27	40.14%	116	44.98%	130	4.84%	14	289	4.35
The requirements for international collaboration	0.34%	1	0.34 %	1	8.19%	24	33.11%	97	56.31%	165	1.71%	5	293	4.47
Impact and sustainability	1.04%	3	0.35 %	1	12.15%	35	40.28%	116	44.44%	128	1.74%	5	288	4.29
The proposal structure and how to apply	0.68%	2	2.40 %	7	6.85%	20	39.38%	115	48.63%	142	2.05%	6	292	4.36
The response from funders to your questions	0.68%	2	0.68 %	2	5.80%	17	29.01%	85	44.71%	131	19.11%	56	293	4.44
Other type of call information (please specify)													9	
											Answered			**293**
											Skipped			**106**

How satisfied were you with the following selection processes used by the funder?

	Very dissatisfied		Dissatisfied		Neutral		Satisfied		Very satisfied		N/A		Total	Weighted Average
The number of application stages (e.g. outline, full and interview)	0.34%	1	0.69%	2	6.53%	19	40.21%	117	43.30%	126	8.93%	26	291	4.38
The evaluation criteria (e.g. scientific excellence, strength of partnership)	0.34%	1	2.05%	6	8.22%	24	45.55%	133	40.07%	117	3.77%	11	292	4.28
The transparency of the peer review and panel selection process	1.03%	3	4.12%	12	23.02 %	67	37.46%	109	24.40%	71	9.97%	29	291	3.89
The feedback on proposal performance	1.03%	3	2.41%	7	16.84 %	49	38.83%	113	27.49%	80	13.40%	39	291	4.03
The contract negotiation (e.g. suggested adjustments to the scope of the costs, work or partnership)	1.03%	3	2.76%	8	14.48 %	42	33.79%	98	28.28%	82	19.66%	57	290	4.06
The due diligence arrangements (e.g. scrutiny of costings and value for money)	0.69%	2	2.75%	8	17.18 %	50	41.92%	122	28.87%	84	8.59%	25	291	4.05
Other aspect of the selection process (please specify)													16	
											Answered			**292**
											Skipped			**107**

After your grant was awarded, to what extent were each of the following processes well organised?

	Very poorly organised	Poorly organised	Neither well nor poorly organised	Well organised	Very well organised	N/A	Total	Weighted Average

Financial and general progress reports	1.03%	3	1.37%	4	16.10%	47	34.93%	102	19.52%	57	27.05 %	79	292	3.97
Digitisation of processes e.g. recording of outputs	0.34%	1	2.07%	6	15.52%	45	25.52%	74	14.48%	42	42.07 %	122	290	3.89
Flexibility around project deliverables and timetabling	2.06%	6	2.75%	8	16.15%	47	28.18%	82	27.15%	79	23.71 %	69	291	3.99
Advice provided by the funders on project-related issues	1.03%	3	3.10%	9	15.86%	46	30.69%	89	24.48%	71	24.83 %	72	290	3.99
Opportunities to exchange experience with other project research teams	1.72%	5	6.19%	18	19.59%	57	21.65%	63	21.31%	62	29.55 %	86	291	3.78
Reporting requirements for future monitoring and evaluation	0.34%	1	3.42%	10	17.81%	52	33.90%	99	20.89%	61	23.63 %	69	292	3.94
Help and advice around follow-on funding	3.79%	11	6.90%	20	18.28%	53	17.93%	52	17.24%	50	35.86 %	104	290	3.59
Other important post-ward process (please specify)													31	
											Answered			**292**
											Skipped			**107**

To what extent do you agree or disagree with each of the following statements?

	Strongly disagree		Disagree		Neutral		Agree		Strongly agree		Total	Weighted Average
There was sufficient time to establish links with international partners	3.16%	9	18.25%	52	19.65%	56	47.37%	135	11.58%	33	285	3.46
We were able to involve our international partner in designing the research questions and methodology	2.83%	8	6.01%	17	18.37%	52	44.52%	126	28.27%	80	283	3.89
The call was a good fit with our international partner's strategic research priorities	0.35%	1	2.47%	7	11.31%	32	47.35%	134	38.52%	109	283	4.21
Our international partner is in a position to fully participate in the research	0.71%	2	4.24%	12	12.72%	36	40.64%	115	41.70%	118	283	4.18
There is a strong interest in the project among wider international stakeholders (e.g. research users)	0.36%	1	0.36%	1	7.47%	21	43.77%	123	48.04%	135	281	4.39
Our international partners are co-funding the research	16.19%	45	25.18%	70	29.50%	82	17.27%	48	11.87%	33	278	2.83
									Answered			**285**
									Skipped			**114**

To what extent do you agree or disagree with the following statements, characterising your GCRF work?

	Strongly disagree		Disagree		Neutral		Agree		Strongly agree		Total	Weighted Average
The project builds on earlier work funded by the UK Research Councils/National Academies/UKSA	10.56%	30	16.90%	48	19.37%	55	29.23%	83	23.94 %	68	284	3.39
The project is highly inter-disciplinary in its approach and methodology	0.00%	0	3.86%	11	14.04%	40	34.74%	99	47.37 %	135	285	4.26
The project is focused on delivering improvements to particular sustainable development goal(s)	0.35%	1	1.77%	5	5.30%	15	44.52%	126	48.06 %	136	283	4.38

The project is sharing UK research with the international community for the first time	6.69%	19	18.66%	53	23.59%	67	31.69%	90	19.37 %	55	284	3.38
The project is changing UK researchers'/actors' appreciation of the power of research in a developing countries setting	2.47%	7	6.36%	18	21.55%	61	41.34%	117	28.27 %	80	283	3.87
The project is improving the capability and international standing of its international partners	1.06%	3	1.06%	3	6.36%	18	49.47%	140	42.05 %	119	283	4.3
									Answered			**285**
									Skipped			**114**

In relation to your GCRF grant ...

Answer Choices	Responses	
How many international partner organisations were involved in the grant? Including non-academic partners such as charities or companies.	100.00%	281
How many of these partners have you worked with before?	99.29%	279
How many of these partners would you expect to work with again in the future?	98.22%	276
	Answered	**281**
	Skipped	**118**

Briefly describe your project's approach and one critical success factor relating to:

Answer Choices	Responses	
Ensuring a successful international partnership	99.61%	255
Ensuring a strong collaboration, in respect to equality and diversity (e.g. gender)	91.80%	235
Ensuring a lasting impact in your target country/region	97.27%	249
	Answered	**256**
	Skipped	**143**

What one quality would you say best distinguishes the GCRF from other funding in the international development arena?

Answered	**206**
Skipped	**193**

How do you think each of the following 'radical' changes might impact upon the Fund's effectiveness?

	Strongly negative impact				Neither positive nor negative impact				Strongly positive impact		Total	Weighted Average
Concentrate all GCRF funding on selected sustainable development goal priority topics	29.28%	77	21.29%	56	19.77%	52	15.21%	40	14.45%	38	263	2.64
Concentrate all GCRF funding on larger, longer-term funding (e.g. international centres of excellence)	25.94%	69	28.57%	76	14.29%	38	18.42%	49	12.78%	34	266	2.64
Concentrate all GCRF funding on smaller, shorter-term funding (e.g. networking and pump-priming)	20.97%	56	32.96%	88	23.22%	62	14.61%	39	8.24%	22	267	2.56
Pool all GCRF funds within a single, delivery agency	31.94%	84	20.53%	54	31.56%	83	9.51%	25	6.46%	17	263	2.38
Provide GCRF awards directly to international partners to fund collaborations with UK research	14.34%	38	22.64%	60	23.77%	63	24.15%	64	15.09%	40	265	3.03
									Answered			**267**
									Skipped			**132**

What one change to the GCRF rules would be likely to produce more equitable international partnerships?	
Answered	**209**
Skipped	**190**

If you could change one thing about the GCRF to make it more effective, what would it be and why?	
Answered	**197**
Skipped	**202**

Would you consider applying for GCRF funding again, in the future?		
Answer Choices	Responses	
Yes, definitely	88.39%	236
Yes, possibly	10.11%	27
No, probably not - please briefly explain why not	1.50%	4
	Answered	**267**
	Skipped	**132**

Please feel free to provide any further remarks about GCRF, which you feel may be helpful to improving its effectiveness going forward	
Answered	**103**
Skipped	**296**

Had you ever won an international development grant previously?		
Answer Choices	Responses	
Yes	43.49%	117
No	56.51%	152
	Answered	**269**
	Skipped	**130**

If yes, please name the most important fund(s). If you did not receive this type of funding please leave blank.		
Answer Choices	Responses	
Scheme/funder 1	100.00%	111
Scheme/funder 2	50.45%	56
Scheme/funder 3	21.62%	24
	Answered	**111**
	Skipped	**288**

Data tables – Survey of Grant Holder Co-Investigators

How long have you been working on similar projects aiming to tackle international challenges? (i.e. international development related work as part of your research area)		
Answer Choices	Responses	
Less than 2 years	19.70%	66
3-5 years	15.52%	52
6-9 years	15.52%	52
10 years plus	36.72%	123

This is my first project	12.54%	42
	Answered	**335**
	Skipped	**165**

How did you find out about the GCRF opportunity? [select all that apply]		
Answer Choices	Responses	
I saw an announcement on the funder's website	20.99%	68
I received information from colleagues within my organisation	52.47%	170
I received an invitation to collaborate from another organisation (e.g. UK partner / PI)	48.77%	158
I heard about the call through an email subscription alert	8.33%	27
I saw information about the call through social media (e.g. Twitter)	1.54%	5
Other (please specify)	2.16%	7
	Answered	**324**
	Skipped	**176**

Did you attend any of the following types of briefing events? [select all that apply]		
Answer Choices	Responses	
An applicants' briefing (e.g. webinar, workshop, town hall), run by a GCRF funding provider	13.75%	44
A briefing meeting (e.g. webinar, workshop, town hall), run by your own organisation	16.25%	52
I did not attend any briefing meeting/event	69.38%	222
Other type of briefing (please specify)	6.56%	21
	Answered	**320**
	Skipped	**180**

How involved were you in writing the proposal? [please select all that apply]		
Answer Choices	Responses	
I helped to develop the project idea	48.62%	158
I was the principal author of the proposal	10.77%	35
I co-wrote the proposal	48.62%	158
I commented on the draft proposal	52.31%	170
I provided a statement of support	23.08%	75
I was not involved in the proposal or application process	1.54%	5
Other type of contribution (please specify)	5.23%	17
	Answered	**325**
	Skipped	**175**

Overall, how satisfied were you with the information/guidance provided about the following aspects of the call?

	Very dissatisfied		Dissatisfied		Neutral		Satisfied		Very satisfied		N/A		Total	Weighted Average
The aims and objectives of the call	3.11%	10	1.55%	5	9.94%	32	36.02%	116	45.65%	147	3.73%	12	322	4.24
The Sustainable Development Goals to be addressed	2.49%	8	2.49%	8	12.15%	39	38.94%	125	39.88%	128	4.05%	13	321	4.16
ODA compliance	2.55%	8	2.55%	8	13.38%	42	36.94%	116	29.94%	94	14.65%	46	314	4.04
The requirements for international collaboration	2.49%	8	2.80%	9	8.10%	26	38.32%	123	44.24%	142	4.05%	13	321	4.24
Impact and sustainability	2.19%	7	2.19%	7	16.61%	53	39.18%	125	34.17%	109	5.64%	18	319	4.07

The proposal structure and how to apply	3.11%	10	2.80%	9	9.32%	30	42.86%	138	34.16%	110	7.76%	25	322	4.11
The response from funders to your questions	1.88%	6	0.31%	1	14.73%	47	27.27%	87	22.88%	73	32.92%	105	319	4.03
Other type of call information (please specify)													6	
											Answered			**323**
											Skipped			**177**

To what extent do you agree or disagree with each of the following statements?

	Strongly disagree		Disagree		Neutral		Agree		Strongly agree		N/A		Total	Weighted Average
There was sufficient time to establish good links with our partners	3.73%	12	18.32%	59	13.04%	42	43.79%	141	19.25%	62	1.86%	6	322	3.58
We were sufficiently involved in designing the research questions and methodology	0.00%	0	2.80%	9	9.01%	29	40.37%	130	46.27%	149	1.55%	5	322	4.32
The call was a good fit with our strategic research priorities	0.93%	3	0.62%	2	4.67%	15	35.83%	115	57.01%	183	0.93%	3	321	4.49
We were in a position to fully participate in the research	0.31%	1	0.93%	3	4.36%	14	34.27%	110	57.63%	185	2.49%	8	321	4.52
There is a strong interest in the project among wider stakeholders (e.g. research users)	0.31%	1	1.57%	5	3.14%	10	31.76%	101	62.58%	199	0.63%	2	318	4.56
We were sufficiently co-funding the research	0.95%	3	9.81%	31	22.47%	71	28.16%	89	12.97%	41	25.63%	81	316	3.57
											Answered			**322**
											Skipped			**178**

To what extent do you agree or disagree with the following statements, characterising your GCRF work?

	Strongly disagree		Disagree		Neutral		Agree		Strongly agree		N/A		Total	Weighted Average
The project is highly inter-disciplinary in its approach and methodology	0.31%	1	1.55%	5	2.48%	8	29.81%	96	65.53%	211	0.31%	1	322	4.59
The project is focused on delivering improvements to particular sustainable development goal(s)	0.31%	1	0.62%	2	3.43%	11	28.66%	92	66.36%	213	0.62%	2	321	4.61
The project is sharing this specific area/topic of UK research with the international community for the first time	2.50%	8	13.44%	43	19.38%	62	31.56%	101	31.56%	101	1.56%	5	320	3.77
The project is improving our research capability and international standing	0.31%	1	0.62%	2	3.12%	10	29.28%	94	66.04%	212	0.62%	2	321	4.61
											Answered			**322**
											Skipped			**178**

Briefly describe your project's approach and one critical success factor relating to:

Answer Choices	Responses	
Ensuring a successful international partnership	97.51%	274
Ensuring a strong collaboration, in respect to equality and diversity (e.g. gender)	91.10%	256
Ensuring a lasting impact in your target country/region	96.09%	270
	Answered	**281**

	Skipped	**219**

What one quality would you say best distinguishes the GCRF from other funding in the international development arena?	
Answered	**257**
Skipped	**243**

What one change to the GCRF rules would be likely to produce more equitable international partnerships?	
Answered	**228**
Skipped	**272**

If you could change one thing about the GCRF to make it more effective, what would it be and why?	
Answered	**227**
Skipped	**273**

Would you consider being part of a GCRF project again, in the future?		
Answer Choices	Responses	
Yes, definitely	89.19%	264
Yes, possibly	9.46%	28
No, probably not - please briefly explain why not	1.35%	4
	Answered	**296**
	Skipped	**204**

Please feel free to provide any further remarks about GCRF, which you feel may be helpful to improving its effectiveness going forward	
Answered	**107**
Skipped	**393**

Data tables – Survey of Unsuccessful applicants

How long have you been working in the international development arena? (Includes your work on ODA eligible projects)		
Answer Choices	Responses	
I had never carried out research in this area when I applied	31.30%	41
Less than 2 years	15.27%	20
3-5 years	16.03%	21
6-9 years	15.27%	20
10 years plus	22.14%	29
	Answered	**131**
	Skipped	**48**

How did you find out about the GCRF call? [select all that apply]		
Answer Choices	Responses	
I saw an announcement on the funder's website	40.48%	51
I received information from colleagues within my organisation	38.89%	49
I received an invitation to collaborate from another organisation	12.70%	16

I heard about the call through an email subscription alert	28.57%	36
I saw information about the call through social media (e.g. Twitter)	7.94%	10
Other (please specify)	10.32%	13
	Answered	**126**
	Skipped	**53**

Did you attend any of the following types of briefing events? [select all that apply]		
Answer Choices	Responses	
An applicants' briefing (e.g. webinar, workshop, town hall), run by a GCRF funding provider	21.43%	27
A briefing meeting (e.g. webinar, workshop, town hall), run by your own organisation	19.84%	25
I did not attend any briefing meeting/event	62.70%	79
Other type of briefing (please specify)	4.76%	6
	Answered	**126**
	Skipped	**53**

How involved were you in writing the proposal? [please select all that apply]		
Answer Choices	Responses	
I helped to develop the project idea	35.71%	45
I was the principal author of the proposal	73.02%	92
I co-wrote the proposal	32.54%	41
I commented on the draft proposal	5.56%	7
I provided a statement of support	7.14%	9
I was not involved in the proposal or application process	1.59%	2
Other type of contribution (please specify)	2.38%	3
	Answered	**126**
	Skipped	**53**

To what extent do you agree with the following statement? There was sufficient time to work with our international partners during the proposal development phase.

	Strongly agree		Agree		Neutral		Disagree		Strongly disagree		Total	Weighted Average
	13.60%	17	39.20%	49	18.40%	23	20.00%	25	8.80%	11	125	2.71
Other (please specify)											3	
											Answered	**125**
											Skipped	**54**

Overall, how satisfied were you with the information/guidance provided about the following aspects of the call?

	Very dissatisfied		Dissatisfied		Neutral		Satisfied		Very satisfied		N/A		Total	Weighted Average
The aims and objectives of the call	5.56%	7	7.94%	10	15.08%	19	39.68%	50	31.75%	40	0.00%	0	126	3.84
The scope and thematic focus of the call	3.97%	5	5.56%	7	16.67%	21	40.48%	51	33.33%	42	0.00%	0	126	3.94
The Sustainable Development Goals to be addressed	4.76%	6	7.94%	10	19.84%	25	38.10%	48	28.57%	36	0.79%	1	126	3.78
ODA compliance	2.40%	3	4.00%	5	24.00%	30	38.40%	48	27.20%	34	4.00%	5	125	3.88
The requirements for international collaboration	4.03%	5	5.65%	7	14.52%	18	41.13%	51	34.68%	43	0.00%	0	124	3.97
Impact and sustainability	6.45%	8	5.65%	7	16.13%	20	45.97%	57	25.00%	31	0.81%	1	124	3.78

The proposal structure and how to apply	6.45%	8	10.48%	13	13.71%	17	38.71%	48	29.84%	37	0.81%	1	124	3.76
The response from funders to your questions	6.45%	8	8.06%	10	21.77%	27	30.65%	38	18.55%	23	14.52%	18	124	3.55
											Answered			**126**
											Skipped			**53**

How satisfied were you with the following selection processes used by the funder?

	Very dissatisfied		Dissatisfied		Neutral		Satisfied		Very satisfied		N/A		Total	Weighted Average
The number of application stages (e.g. outline, full and interview)	7.20%	9	8.80%	11	21.60%	27	39.20%	49	16.80%	21	6.40%	8	125	3.53
The evaluation criteria (e.g. scientific excellence, strength of partnership)	12.80%	16	9.60%	12	20.00%	25	39.20%	49	16.00%	20	2.40%	3	125	3.37
The transparency of the peer review and panel selection process	19.05%	24	20.63%	26	21.43%	27	22.22%	28	12.70%	16	3.97%	5	126	2.88
The feedback on proposal performance	27.20%	34	21.60%	27	14.40%	18	21.60%	27	9.60%	12	5.60%	7	125	2.63
											Answered			**126**
											Skipped			**53**

What, if anything, has happened with your proposed project idea or partnership, following the decision by GCRF?

Answer Choices	Responses	
It has not been developed further and remains unfunded	37.10%	46
It was developed further and resubmitted to another GCRF call	6.45%	8
It was developed further and resubmitted to another research competition	6.45%	8
We launched a smaller capacity building project with our international partner	4.03%	5
We are continuing discussions with our international partner, exploring future options	33.06%	41
Other (please specify)	12.90%	16
	Answered	**124**
	Skipped	**55**

Would you consider applying for GCRF funding again, in the future?

Answer Choices	Responses	
Yes, definitely	52.38%	66
Yes, possibly	36.51%	46
No, probably not - please briefly explain why not	11.11%	14
	Answered	**126**
	Skipped	**53**

Please feel free to provide any further remarks about GCRF, which you feel may be helpful to improving its effectiveness going forward

Answered	**82**
Skipped	**97**

Had you ever won an international development grant before your application to GCRF?

Answer Choices	Responses	
Yes	38.58%	49
No	61.42%	78

	Answered	**127**
	Skipped	**52**

If yes, please name the most important fund(s). If you did not receive this type of funding please leave blank		
Answer Choices	Responses	
Scheme/funder 1	100.00%	47
Scheme/funder 2	51.06%	24
Scheme/funder 3	34.04%	16
	Answered	**47**
	Skipped	**132**

Data tables – Survey of Panel Members

Which of the following best describes your level of involvement with international development work? (Includes your work on ODA eligible projects)		
Answer Choices	Responses	
I have expertise in my discipline, with no substantive experience of international development research/work	15.85%	26
I have expertise in my discipline, with some experience of international development research/work	40.85%	67
I have expertise in my discipline with many years experience of international development research/work	42.07%	69
Other (please specify)	1.22%	2
	Answered	**164**
	Skipped	**15**

To what extent do you agree with the following statements?

	Strongly disagree		Disagree		Neutral		Agree		Strongly agree		Total	Weighted Average
There was sufficient training/guidance prior to the meeting	0.67%	1	9.33%	14	15.33%	23	60.67%	91	14.00%	21	150	3.78
Proposals were of a good general fit to the assessment criteria	0.00%	0	8.67%	13	14.00%	21	66.00%	99	11.33%	17	150	3.8
Sufficient time was given to properly assess proposals	2.01%	3	8.72%	13	12.75%	19	55.03%	82	21.48%	32	149	3.85
The assessment criteria were appropriate for identifying the best proposals	0.67%	1	6.67%	10	14.67%	22	60.67%	91	17.33%	26	150	3.87
The decision-making process was efficient	0.67%	1	5.37%	8	10.07%	15	52.35%	78	31.54%	47	149	4.09
The format of the meeting was conducive to achieving consensus	0.67%	1	5.37%	8	10.07%	15	41.61%	62	42.28%	63	149	4.19
The membership of the panel allowed for all proposals to be assessed robustly	0.67%	1	6.04%	9	16.78%	25	44.97%	67	31.54%	47	149	4.01
									Answered			**150**
									Skipped			**29**

Overall, how satisfied were you with the following aspects of the process?

	Very dissatisfied		Dissatisfied		Neutral		Satisfied		Very satisfied		N/A		Total	Weighted Average
The quality of the applications	0.00%	0	10.07%	15	14.09%	21	57.72%	86	18.12%	27	0.00%	0	149	3.84
The feedback from the peer review process	2.70%	4	4.05%	6	12.84%	19	46.62%	69	19.59%	29	14.19%	21	148	3.89

The guidance for panels	0.00%	0	6.16%	9	13.01%	19	44.52%	65	36.30%	53	0.00%	0	146	4.11
The construction of the final portfolio of projects	0.68%	1	4.76%	7	14.29%	21	45.58%	67	27.21%	40	7.48%	11	147	4.01
The provision of feedback to applicants	0.68%	1	0.68%	1	20.27%	30	33.11%	49	14.86%	22	30.41%	45	148	3.87
The process by which differences of opinion were identified and resolved	0.00%	0	4.05%	6	13.51%	20	40.54%	60	41.22%	61	0.68%	1	148	4.2
The chairing of panel discussions	0.00%	0	2.04%	3	8.16%	12	29.93%	44	53.74%	79	6.12%	9	147	4.44
The assessment and selection process as a whole	0.00%	0	5.41%	8	11.49%	17	47.97%	71	35.14%	52	0.00%	0	148	4.13
											Answered			**149**
											Skipped			**30**

Please briefly describe the qualities that characterised the best proposed international partnerships. For example, those that proposed both overseas researchers and overseas companies.	
Answered	**137**
Skipped	**42**

Please briefly describe the qualities that characterised the best impact statements / section on how the project would achieve impact. For example, those proposals that included producing a policy paper and holding local research-user workshops.	
Answered	**131**
Skipped	**48**

Please briefly describe how well the proposals presented their costs and benefits such that you were able to judge value for money	
Answered	**133**
Skipped	**46**

To what extent did the following dimensions influence the panel's final decision after initial review scores were made?

	Not at all		To a limited extent		To a medium extent		To a high degree		Total	Weighted Average
Fit to call	0.74%	1	4.41%	6	30.88%	42	63.97%	87	136	3.58
Research quality	0.00%	0	6.43%	9	22.14%	31	71.43%	100	140	3.65
International partnership	0.00%	0	2.16%	3	32.37%	45	65.47%	91	139	3.63
Impact on SDGs	3.73%	5	23.13%	31	52.99%	71	20.15%	27	134	2.9
Sustainability beyond funding	6.43%	9	37.86%	53	41.43%	58	14.29%	20	140	2.64
Equality and diversity	11.43%	16	50.00%	70	30.71%	43	7.86%	11	140	2.35
Value for money	2.14%	3	28.57%	40	52.14%	73	17.14%	24	140	2.84
Organisation and leadership	0.71%	1	15.00%	21	41.43%	58	42.86%	60	140	3.26
Links to previous international development work	2.16%	3	35.25%	49	43.88%	61	18.71%	26	139	2.79
End-user engagement	1.43%	2	20.71%	29	41.43%	58	36.43%	51	140	3.13
Other (please specify)									15	
							Answered			**140**
							Skipped			**39**

Please indicate which if any of the following factors were given additional weight by the panel in making it's recommendations as to the best portfolio

Answer Choices	Responses	
Geography - additional weight was given to fundable projects focusing on under-represented LMIC regions or countries	32.12%	44
Inter-disciplinarity - additional weight was given to fundable projects with a high degree of inter-disciplinarity	41.61%	57
International partnership - additional weight was given to fundable projects with a particularly strong international partnership	75.18%	103

Relevance in partner country - additional weight was given to fundable projects that demonstrated the relevance of the work to southern partners' strategic needs and priorities	72.99%	100
Existing body of work - projects were preferred if they built on an existing body of international development research	32.85%	45
Potential impact - additional weight was given to fundable projects with the strongest impact statements	62.77%	86
Strategic portfolio - additional weight given to creating a broad portfolio across different global/development challenges	12.41%	17
I was not involved in selecting the final portfolio and had no view of this	10.95%	15
Other (please specify)	8.76%	12
	Answered	**137**
	Skipped	**42**

What single change would you recommend regarding the assessment and selection process, which might improve its effectiveness?	
Answered	**128**
Skipped	**51**

What one piece of advice would you give to future applicants, which would be likely to improve the quality of applications (in terms of their likely impact)?	
Answered	**134**
Skipped	**45**

Please feel free to provide any other comments or advice that you believe will be of value to GCRF going forward	
Answered	**64**
Skipped	**115**

Appendix B: Process Evaluation - Additional data tables and figures

Table 27 GCRF Programme information for the Research Councils

DP programme lead	All funders involved	Programme title	Description
AHRC	AHRC	Research Networking scheme	The Research Networking Scheme is intended to support forums for the discussion and exchange of ideas on a specified thematic area, issue or problem. The intention is to facilitate interactions between researchers and stakeholders through, for example, a short-term series of workshops, seminars, networking activities or other events.
AHRC	AHRC	GCRF Area-Focused Network Plus Call	The call aims to support projects that take an area or place-based approach to addressing international development challenges through the commissioning of projects. Projects will focus on a cluster of countries, region, or 'area' otherwise defined (expectation is that applicants will provide a compelling vision for their chosen area) as the basis for addressing a number of interconnected development challenges within the specific context of the area in question. The 'Network Plus' model is a flexible mechanism whereby funding will be allocated to the lead RO to support a cross- institutional leadership team and international and non-academic partners to undertake 3 interconnected strands of work: i) Scoping, research leadership and partnership development activities, ii) Funding calls for innovative projects/activities (minimum of 40% of the budget must go to this), iii) The co-ordination, networking and synthesis of research funded as a part of the Network Plus grant
AHRC	AHRC	Translating Cultures and Care for the Future Innovation Awards on International Development	this call aims to support research that explores the distinctive contributions that arts and humanities research can play in promoting the economic development and social welfare of developing countries. The call seeks to encourage proposals situated at the intersection of the two themes, historicizing research linked to the area of Translating Cultures and considering the linguistic and intercultural dimensions of that associated with Care for the Future. Seeking proposals to address mainly one (but can be multiple) of four strands: Languages, cultural exchange and development assistance, Pressures in global mobility, Cultures and development, Cultural heritages, interpretation and representation. proposals including partnerships with organisations from outside the academic sector (notably those working in development contexts) are strongly encouraged.
AHRC	AHRC	Follow-on-Funding scheme	Applications can be submitted under the highlight notice for knowledge exchange, public engagement, pathways to impact, non-academic dissemination and commercialisation activities that arise unforeseeably during the lifespan of, or following, an AHRC-funded project and which have the potential to contribute towards international development. In addition proposals may be submitted to enhance the impact from AHRC projects which had some relevance to international development policy / practice or to ODA-recipient countries Will only fund proposals seeking to enhance the value and wider benefit of the original AHRC-funded research project and is not intended to support new research projects or provide supplementary funding for the continuation of research projects.

AHRC	AHRC	Large Grants Innovation Call	This call is intended to provide additional support to existing Large Grants awarded under the four AHRC themes: Digital Transformations; Science in Culture; Translating Cultures and Care for the Future.
BBSRC	BBSRC	Sustainable Agriculture for Sub-Saharan Africa (SASSA)	soil health, nutrient management, water management, managing crop pests and diseases. overall aims: to enhance food and nutritional security, and contribute to economic development, by improving the productivity and health of crops important to African farmers - particularly regionally important 'orphan' crops (ref 11) relevant to the needs of smallholders in multiple countries (as distinct from commodity crops traded in world markets or 'niche' crops of only local significance).
BBSRC	BBSRC	Bioinformatics and Biological Resources Fund	Fund aims to support the bioscience research community with the establishment, maintenance and enhancement of infrastructures. support high quality bioinformatics and biological resources that align with BBSRC's Strategic Plan: The Age of Bioscience. supply long-term funding and provide a stable environment for resource development and provision.
NSF	BBSRC, National Science Foundation (NSF), National Institutes of Health (NIH) and U.S. Department of Agriculture (USDA)	Ecology and Evolution of Infectious Diseases	A programme for collaborative projects involving researchers from the US and UK under the Ecology and Evolution of Infectious Diseases programme (EEID).
BBSRC	BBSRC	BBSRC GCRF Strategic Training Awards for Research Skills (GCRF-STARS)	The BBSRC Global Challenges Research Fund Strategic Training Awards for Research Skills (GCRF-STARS) programme aims to build a portfolio of sustainable and timely training resources to up-skill and develop researchers and graduate students, in research priority areas, in the UK and developing countries within the research skills required to help tackle global challenges.
BBSRC	BBSRC	Global Challenges Research Fund Translation Award	Projects funded through this Call will build on current or previous research grants and enable research outputs to be further developed into practical application to deliver benefit and impact in developing countries. At the end of the project, a route to application could include informing know-how and practices, a licensing agreement with a third party, the development of a spin-out company or social enterprise.
BBSRC	BBSRC	Impact acceleration accounts	IAAs introduce agility and flexibility for ROs who are empowered to take strategic-level decisions about how best to invest IAA funding within their specific context. This includes the opportunity to build upon, across and between individual projects to progress research outputs and outcomes towards impact.
BBSRC	BBSRC	NIB Data & Resources	BBSRC invites BBSRC NIBBs directors to work together as Network Directors to produce bids for (no more than) six international workshops/missions/scoping meetings. These should be designed to develop creative priority areas, identify research needs, strengthen established relationships, and develop new linkages relevant to industrial biotechnology and bioenergy (IBBE) that will impact International Development and meet ODA criteria
BBSRC	BBSRC	Scoping Workshops for Industrial Biotechnology and Bioenergy	A number of scoping workshops have taken place, enabling researchers in the UK and in developing countries to work together identify challenges, research needs, and priorities, to help UK academic and business communities prepare for future GCRF opportunities and establish links with overseas partners.

BBSRC	BBSRC	Scoping Workshops for Synthetic Biology	A number of scoping workshops have taken place, enabling researchers in the UK and in developing countries to work together identify challenges, research needs, and priorities, to help UK academic and business communities prepare for future GCRF opportunities and establish links with overseas partners.
IWYP	BBSRC and IWYP	International Wheat Yield Partnership (IWYP)	IWYP is based on a unique new model that brings both public and private partners together with the aim to fund and coordinate research, and deliver breakthroughs in wheat yield potential. IWYP seeks and supports specific research areas in wheat that will not only aid to reach their goals and objectives but also balance and enhance a larger Science Portfolio of connected projects that will further generate added value.
BBSRC	AHRC, BBSRC (leading), ESRC, MRC and NERC	GCRF Foundation Awards for Global Agricultural and Food Systems Research	deploy existing UK research strengths and/or emerging capabilities in specific research area(s) relevant to agriculture and food challenges in Low and/or Middle Income Countries (LMICs) promote multidisciplinary approaches in addressing the challenges encourage, where applicable, research partnerships between UK research teams and LMICs build on any existing UK-LMICs links develop new or enhanced research capacity for addressing the agriculture and food challenges of LMICs.
EPSRC	EPSRC	Resilient and sustainable energy networks for developing countries	This call supports research that aims to develop sustainable local energy networks, including off-grid to grid transitions (Energy, Engineering, LWEC).
EPSRC	EPSRC	Diagnostics, prosthetics and orthotics to tackle health challenges in developing countries	The aim of this activity is to support an internationally leading programme of research, centred around innovative healthcare technologies, to tackle the challenges faced by developing countries. Proposals must address one of the following two priority areas to be considered through this call: 'Low cost, rapid, point of care imaging and diagnostic technologies' and 'Affordable prosthetics and orthotics'
EPSRC	EPSRC	Tackling global development challenges through engineering and digital technology research	The aim of this activity is to support an internationally leading programme of research, centred around 1) engineering and 2) digital technologies, to tackle the challenges faced by the developing world.
ESRC	ESRC	GCRF Postdoctoral Fellowships	The ESRC GCRF Postdoctoral Fellowship Scheme provides a career development opportunity for those at a relatively early stage of their academic career who can demonstrate great potential in social science research, with an international development focus. These awards form a key part of ESRC's strategy to achieve the aims of GCRF and to promote excellence in UK social science capacity-building.
ESRC	ESRC	GCRF Centres competition 2016: Foundations of inclusive growth	The aims of the ESRC's GCRF Centres Competition 2016 are to: • develop interdisciplinary relationships within and beyond the social sciences around key global research challenges • build strong collaborations with UK and international non-academic stakeholders in the identification of these challenges • co-produce and deliver substantive and innovative interdisciplinary research agendas • build both UK and overseas capacity to address relevant challenges faced by developing countries
ESRC	ESRC	ESRC GCRF Strategic Networks call 2016	The strategic networks will support novel, interdisciplinary and international collaboration between researchers and non-academics to identify substantive research agendas and shape the future direction of GCRF funding. We actively encourage the formation of networks which will bring academics who have not previously worked on international development issues together with those who have.

ESRC	ESRC	GCRF Secondary Data Analysis Initiative highlight notice	The aims of this competition are: • Utilise existing data resources to produce high-quality, impactful research on developing countries • Improve the capacity and methods for secondary data research in and on developing countries • Co-produce substantive and innovative data research in readiness for future GCRF calls • Provide insight into existing data resources which can be used to conduct high quality research on developing countries.
ESRC	ESRC	GCRF New models of sustainable development	Aims to fund new interdisciplinary and innovative research which helps us to understand how new models of economic development (broadly defined) can help address the development challenges reflected in the UN's Agenda 2030. Proposals may be submitted under two broad themes:
ESRC	ESRC	GCRF Inequalities and skills acquisition in young people	The call aims to address how transitions to meaningful work could be more successfully and smoothly achieved and the aspirations of young people moving into the workplace be met.
ESRC	ESRC (leading), NIHR, MRC, AHRC, DfEnvironment, DEFRA, Veterinary Medicines Directorate (VMD)	Tackling antimicrobial resistance: behaviour within and beyond the healthcare setting	We use a broad definition of 'behaviour', including understanding the underlying determinants of behaviour and behaviour change, and factoring in cultural, organisational and individual-level influences. Recognising that infection control needs to be addressed both nationally and internationally, this call enables both UK and globally focused research.
ESRC	ESRC (secretariat) and AHRC, Finland - Academy of Finland (AKA), France - Agence Nationale de la Recherche (ANR), India - Indian Council of Social Science Research (ICSSR), Norway - Research Council of Norway (RCN), Poland - Narodowe Centrum Nauki (NCN), Slovenia - Ministry of Education, Science and Sport (MIZS), Switzerland - Swiss National Science Foundation (SNSF)	EqUIP call for collaborative research on sustainability, equity, wellbeing and cultural connections	The call aims to promote cooperation between funding agencies to help enhance research collaboration between social science and humanities research communities in Europe and India. The funders aim to support research into sustainability, equity, wellbeing and cultural connections, with the emphasis on Indian and European dimensions, in both contemporary and historical contexts.
MRC	MRC	Confidence in Global Mental Health Research: Institutional "pump-priming" awards	This call aimed to provide institutional "pump-priming" funds that will lay the grounds for future large scale, multi-disciplinary, cross-country global mental health research bids to address issues of primary relevance to LMICs. Invites proposals that explore healthy mental development and the aetiology of mental illness, and understanding how challenges to early brain development affect mental illness and cognition in LMIC settings.
MRC	MRC	Institutional "pump-priming" awards to develop new opportunities in Global Nutrition and Health Research	This call aimed to provide institutional "pump-priming" funds that will lay the grounds for future large scale, multi-disciplinary, cross-country global nutrition and health research bids to address issues of primary relevance to LMICs. Invites proposals that develop new research strategies to tackle nutrition and health challenges that are relevant to LMICs in the short, medium and long-term.

MRC	MRC (leading), ESRC, NERC, AHRC, BBSRC, EPSRC, DfH	Antimicrobial Resistance in a Global Context	This call will support three to four truly interdisciplinary teams conducting high quality innovative research to better understand the challenge posed by ABR in LMICs. It is anticipated that the research supported will help build capacity in this area of research, both in the UK and in partner countries.
MRC	AHRC, BBSRC, ESRC, MRC (leading) and NERC	Non-Communicable Disease (NCDs) foundation awards	Address a research question of relevance to existing or future health needs of Low and / or Middle Income Countries Demonstrate a clear vision for a substantial contribution to health research, and either (a) a credible route to developing the research/partnerships, or (b) a plan for testing the feasibility of this vision and allowing go / no go decisions Focus on novel internationally competitive research/translation Strengthen LMIC / UK partnerships during the course of the project
MRC	AHRC, BBSRC, ESRC, MRC (leading) and NERC	Infections Foundation Awards: Global Infections	Funding is available for any activity with potential to rapidly advance novel global health discovery and translation research, which is not immediately ready for submission as a standard project or programme application. In many new research areas, foundation funding will need to build capability at the same time as building towards new knowledge.
NERC	NERC	Innovation Follow-on Call: Enabling innovation in the UK and developing countries	This call picks up where research grants leave off and enables research outputs to be further developed into practical application, so their commercial or other potential outcomes can be realised. At the end of the project, a route to application could include a licensing agreement with a third party, the development of a spin-out company or a practical application. The practical application may not necessarily be commercial but should benefit third parties rather than the PI's institution. ODA funded proposals must focus on outcomes that promote the long-term sustainable growth, economic development and welfare of developing countries as their main objective.
NERC	NERC	National Capability ODA	Research funded through NERC NC-ODA Full proposals will form part of the UK's Official Development Assistance. Therefore, research proposals should clearly demonstrate that the primary purpose is to promote the economic development and welfare of a country or countries on the DAC list of ODA recipients as its main objective. This call relates to the NERC Centres only: BAS; BGS; CEH; NCAS; NCEO and Marine (the latter led by NOC).
NERC	NERC (leading), DFID	Understanding the Impacts of the Current El Niño Event	Proposals are invited for a new £4 million collaborative research programme on Understanding the Impacts of the Current El Niño Event funded by the Department for International Development (DFID) and NERC. Applications are invited for small projects of up to £300,000 (100% full economic cost) to study the impacts of the current El Niño event. Projects will be funded for a maximum duration of 18 months and must commence in April 2016. All projects are required to have a principal investigators based in a UK research organisation eligible for NERC funding. Co-investigators and researchers based in other organisations, including in low- and middle-income countries, are welcome but will receive funding through the lead research organisation.
NERC	NERC (leading), AHRC, and ESRC	Global Challenges Research Fund: Building Resilience	This call is open to proposals addressing resilience to – natural and man-made – environmental hazards in developing countries. The focus is on how to build resilience in relation to both sudden and slow-onset environmental hazards (e.g. land-degradation, deforestation, drought, hurricanes, climate change) taking into account the intersections and relationships with other contexts such as conflict and fragility, poverty and famine, urbanisation, economics and health/disease risks.

NERC	NERC (leading), ESRC & DIFD	Building resilience to natural disasters using financial instruments	The overarching goal of these projects is to have impact on the developing world. To achieve this, projects must work with practitioner project partners who have a role in the design, development and application of innovative financing mechanisms for developing countries (for example, non-governmental organisations, policymakers, disaster risk management actors, insurance companies).
RCUK	Collective fund	Interdisciplinary Research Hubs to Address Intractable Challenges Faced by Developing Countries	Must develop hubs that will help to deliver the UK Strategy for the GCRF. To establish and lead a number of challenge-led and impact-focused GCRF Interdisciplinary Research Hubs which meet the aims of Official Development Assistance. These should develop a portfolio of cross-cutting research, knowledge exchange and innovation activities
RCUK	Collective fund	GCRF Growing research capability	Consortia. Applications are invited for balanced programmes of capacity and capability strengthening, partnership building and research through a range of activity. They should be framed around up to three development challenges under one coherent vision and should reflect the strength and breadth of high quality UK research in the organisations involved. These challenges should be consonant with the UN's Sustainable Development Goals and/or the UK Aid Strategy.
STFC	STFC	STFC Global Challenge Research Fund Foundation Awards	To address challenges faced by Low and/or Middle Income Countries (LMICs) and strengthen capability for research and innovation in support of economic development and welfare, within both UK and LMICs. must be within the STFC core science programme (astronomy & space science, particle physics & particle astrophysics, nuclear physics and the computing and accelerator programmes supporting these) seed corn projects for early stage partnership building; small projects aimed at exploring the needs of LMICs, building collaborations and/or piloting activities; larger projects where collaboration and proven approaches are established and in a position to deliver long term, sustainable impact targeted at the challenges faced by developing countries.
STFC	STFC	Exploration and Concepts 2016	7 existing projects re-labelled as GCRF. This call is for pump priming projects aimed at exploring and/or demonstrating the application of STFC-funded science, technology, applications or expertise to the representative challenges that include energy, environment, climate change, healthcare, resilience, food and urban living
	AHRC and MRC	MRC-AHRC Global Public Health: Partnership Awards	The overarching driver of this partnership building activity is to develop inter-disciplinary research capacity and capability in both the UK and developing countries, jointly and collaboratively and across career stages. The aim is to generate reciprocal benefits through integrating understanding of cultures and histories into medical and public health challenges in a global context and to equip the next generation of researchers to work collaboratively and blend scientific, cultural and policy research.
	BBSRC, MRC	GCRF Call in Networks for Vaccine R&D	The aim is to support a small number of multidisciplinary Networks which foster collaboration, facilitate wider cross-disciplinary integrative participation (including biological, medical, engineering and physical sciences, environmental and social science research where appropriate) and build capability which together will contribute to and underpin the development of novel approaches in vaccines R&D.
	BBSRC, MRC	Networks in Vector Borne Disease Research	The funders aim to support interdisciplinary community Networks which will foster collaboration, facilitate wider cross-disciplinary integrative participation (including where appropriate environmental and social science research) and build capability which together will contribute to and underpin the development of novel strategies to control VBD of plants, animals and humans.
	AHRC and ESRC	Partnership for Conflict, Crime and Security Innovation Awards on Conflict and International Development	to support inter-disciplinary research innovation and international collaboration focussed on the interconnections between conflict and international development and with the potential to contribute to the welfare (broadly defined) and economic development of Low and Middle Income Countries (LMICs).

	AHRC and ESRC	Forced displacement of people	Through this call, we aim to demonstrate the capability of the UK research community to respond to pressing international crises, and to build interdisciplinary capacity to address complex challenges. The call is being managed to a challenging timetable which will require a rapid response from researchers, research organisations, our peer review community, and the Research Councils.
	ESRC and AHRC	GCRF New Social and Cultural Insights into Mental, Neurological and Substance Use Disorders in Developing Countries	This call aims to fund a portfolio of innovative and interdisciplinary research that provides social and cultural perspectives on mental, neurological, and substance use (MNS) disorders in developing countries.

Table 28 GCRF Programme information for the National Academies and the UKSA

Funder	Programme	Rounds	Rounds per year	Duration	Value
Royal Society	International Collaboration Awards (previously International Collaboration Awards for Research Professors)	2016 (10 awards) 2017 (15 awards)	1	3 years (first round was 5 years)	£75,000 a year (maximum from 2017 onwards of £225,000 over 3 years)
	Challenge Grants	2016 (37 awards) 2017 (22 awards) *Discontinued following 2017 round*	1	1 year	£100,000 (maximum)
	Commonwealth Science Conference	2017 only	N/A	N/A	N/A
	University Research Fellowships	2016 (6 awards)	1	5-8 years	Approx £100,000 a year
	Dorothy Hodgkin Fellowships	2017 (4 awards)	1	5-8 years	Approx £100,000 a year
Resilient Futures	FLAIR (AMS, BA, RAEng, Royal Society and African Academy of Sciences)	Launching May 2018	1	3-5 years	£150,000 a year (maximum)
	Challenge-led Grants (AMS, BA, RAEng, Royal Society)	2017 Cities and Infrastructure (13 awards) 2018 launching early 2018	1	3 years (first round was 16 months)	£500,000 (first round was £300,000)
	Frontiers of Development symposia (AMS, BA, RAEng, Royal Society)	2018 Inclusive Prosperity and Wellbeing in the Context of Mass Displacement	2	N/A	N/A
	Networking Grants (AMS, BA, RAEng, Royal Society)	2017 (41 awards)	2	1 year	£25,000 (maximum)
	Early Career Global Challenges Fellowships (AMS, BA, RAEng, Royal Society)	2016 onwards	1	Variable	Variable
AMS	Global Health Policy Workshops	2016 (2 workshops) 2017 (4 workshops) 2018 onwards 9 workshops planned (dates tbc)	Variable	N/A	N/A
	Springboard Fellowships (with Wellcome trust, British Hear Foundation and Diabetes UK)	2017 (5 awards)	1	2 years	£100,000 (maximum)
British Academy	Early Childhood Development Programme (50/50 GCRF and DFID funded)	2017	1	First round was 18 months	First round was £350,000
	Sustainable Development Programme	2016 onwards	1	First round was 16 months	First round was £360,000
Royal Academy of Engineering	Frontiers of Engineering for Development	2016/17 (2 events, 23 awards made) 2017/18 (2 events, 10 awards made, 10 more to be made) 2018/19 (2 events, 20 awards to be made)	2	Events: 2.5 days Seed funding: 1 year	£20,000 for one year
	Engineering a Better World	N/A	N/A	N/A	N/A
	Africa Prize for Engineering (with The Shell Centenary Scholarship Fund)	16 awards each year	1		£55,000 prize money each year
	GCRF Africa Catalyst	2016/17 (15 awards) 2017/18 (1 event, 8 awards) 2018/19 (1 event)	1	6 months - 3 years	Up to £300,000 over 3 years
	Higher Education Partnerships in sub-Saharan Africa (HEP SSA) (with the Anglo American Group Foundation)	2013/15 (2 awards) 2016/18 (1 event, 5 awards) 2017/19 (2 events, 4 awards) 2018/20 (up to 2 events and up to 5 awards to be made)	1	2 years	Up to £140,000 per award
	Engineering for Development Research Fellowships	2015/16 (5 awards), 2016/17 (2 awards), 2017/18 (4 awards offer, currently under assessment)	1	5 years	Up to £500,000 over 5 years at 80% of full economics costs and an additional £25,000 per annum is available (per award)

UKSA	International Partnership Programme	2016 (22 awards) 2017 (11 awards)	1	3-5 years	Small - £50,000; Large - £1,000,000

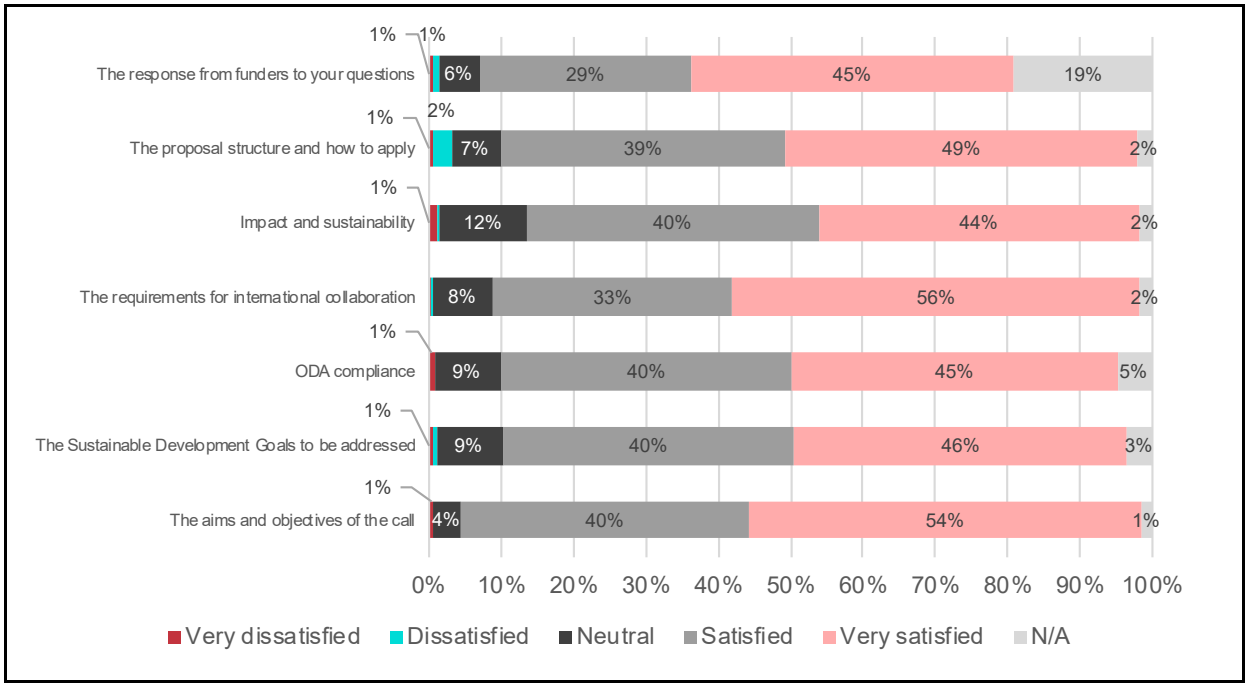
Table 29 Panel compositions for each Academy and UKSA programme

Delivery Partner	Programme title	No.*	Panel composition
AMS	GCRF Networking Grants	12	12 Panel Members (10 are fellows from across the Royal Academy of Engineering, Royal Society, Academy of Medical Sciences and British Academy and two representatives from international universities)
AMS	Springboard Awards	11	11 Panel Members (all Academy of Medical Sciences Fellows)
British Academy	Early Childhood Development Programme	N/A	9 Panel Members. Panel comprised National Academies' Fellows and other experts in the field
British Academy	Resilient Futures: Cities and Infrastructure Programme	N/A	9 Panel Members. Panel comprised National Academies' Fellows and other experts in the field
British Academy	Sustainable Development Programme	N/A	6 Panel Members. Panel comprised FBAs and other experts in the field
RAEng	Africa Prize for Engineering Innovation	4	4 members (3/4 African or African diaspora, 3/4 engineers)
RAEng	Engineering a Better World	N/A	N/A
RAEng	Frontiers of Development	5	5 members (4 non-engineers, 1 engineer)
RAEng	Frontiers of Engineering for Development	7	8 members (All from UK and engineers)
RAEng	GCRF Africa Catalyst	4	4 members (4 engineers, 1 non-engineer)
RAEng	GCRF Research Fellowships	5	5 members (all engineers)
RAEng	Higher Education Partnerships in sub-Saharan Africa	5	5 members (4 engineers, 1 non-engineer)
Royal Society	Challenge Grants	20	Panel of ~20
Royal Society	Dorothy Hodgkin Fellowships	N/A	Panel of ~20
Royal Society	International Collaboration Awards	27	Panel of ~30
Royal Society	University Research Fellowships	N/A	4 panels of ~20 members each
UKSA	International Partnership Programme	10	Majority technical experts, 2 M+E and ODA experts

*Data from Technopolis' formal data request (some individuals may not have consented to their sharing of details and thus are not included)

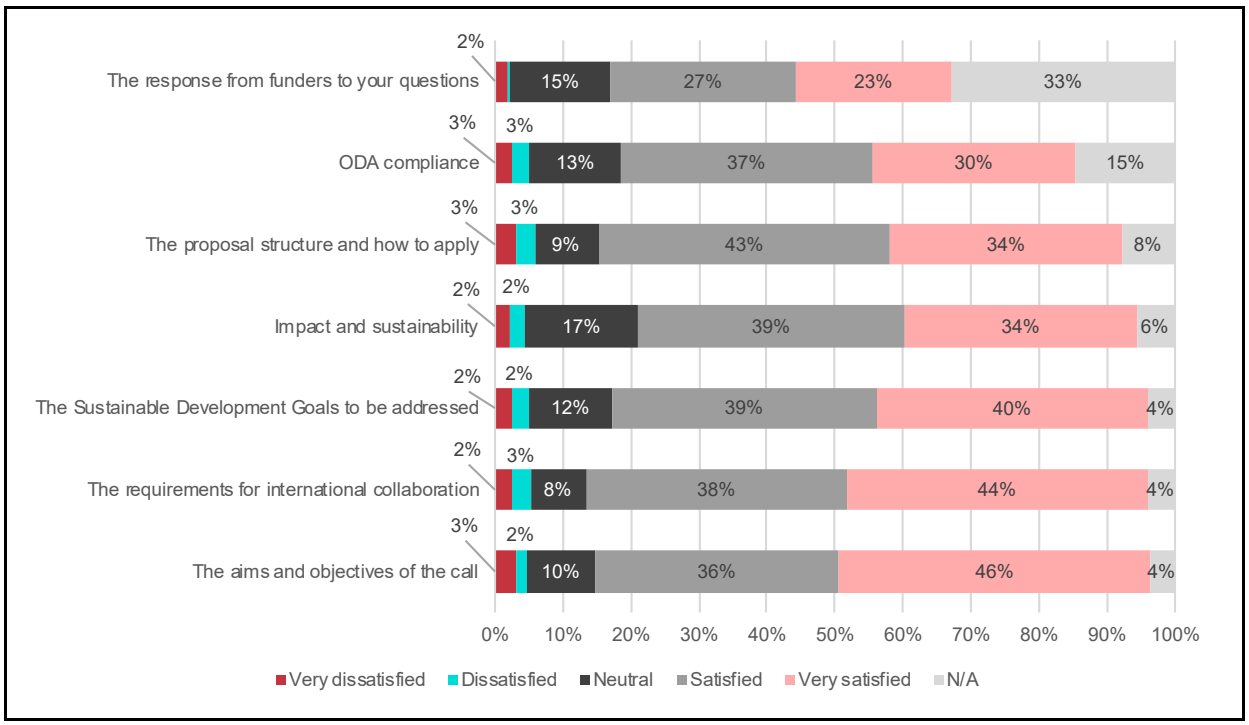
NB: Information supplied directly from delivery partners

Figure 55 PI satisfaction with information/guidance



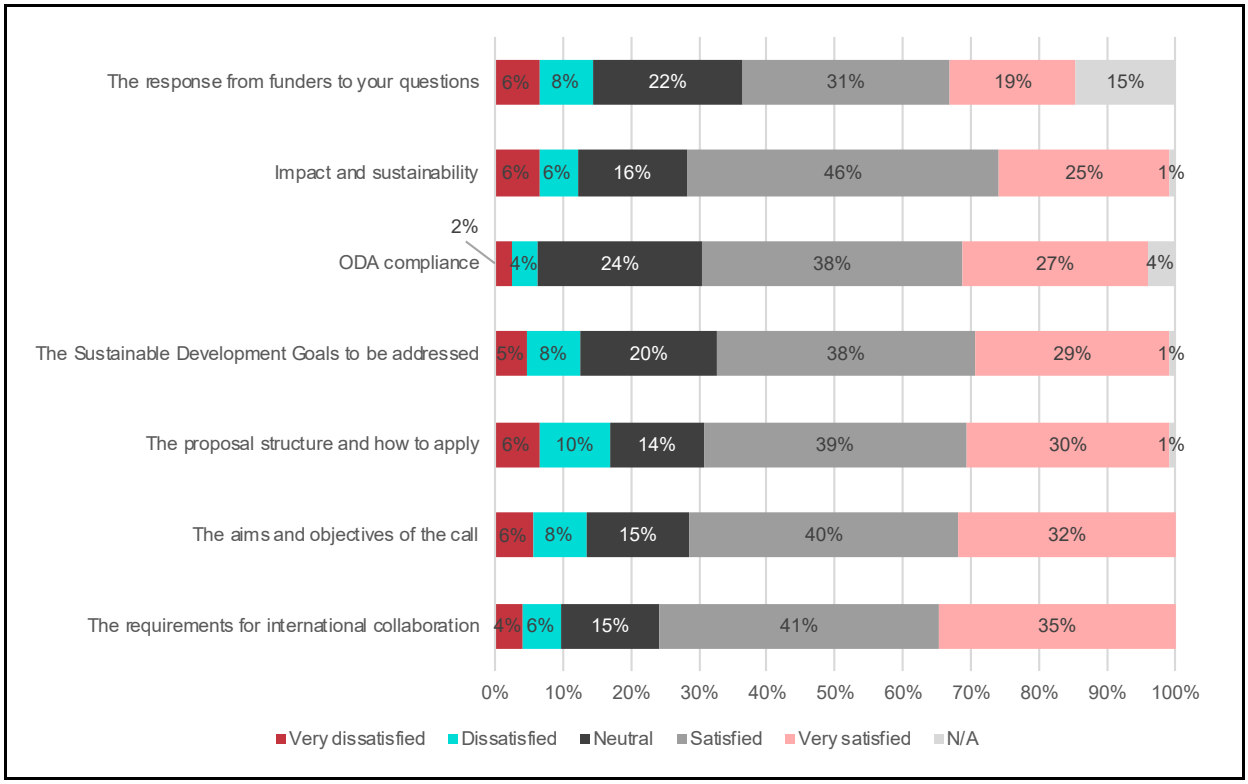
n=293

Figure 56 Co-Investigators' and Partners' satisfaction with information/guidance



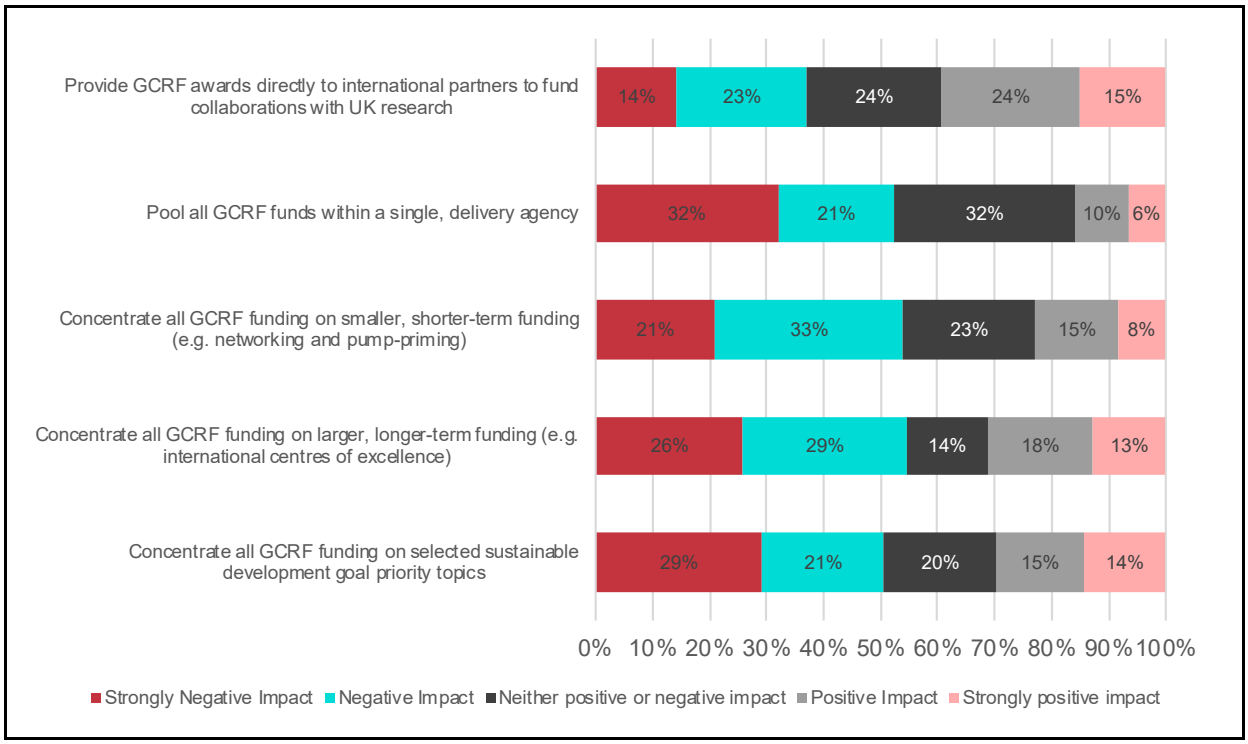
n=322

Figure 57 Unsuccessful applicants' satisfaction with information/guidance



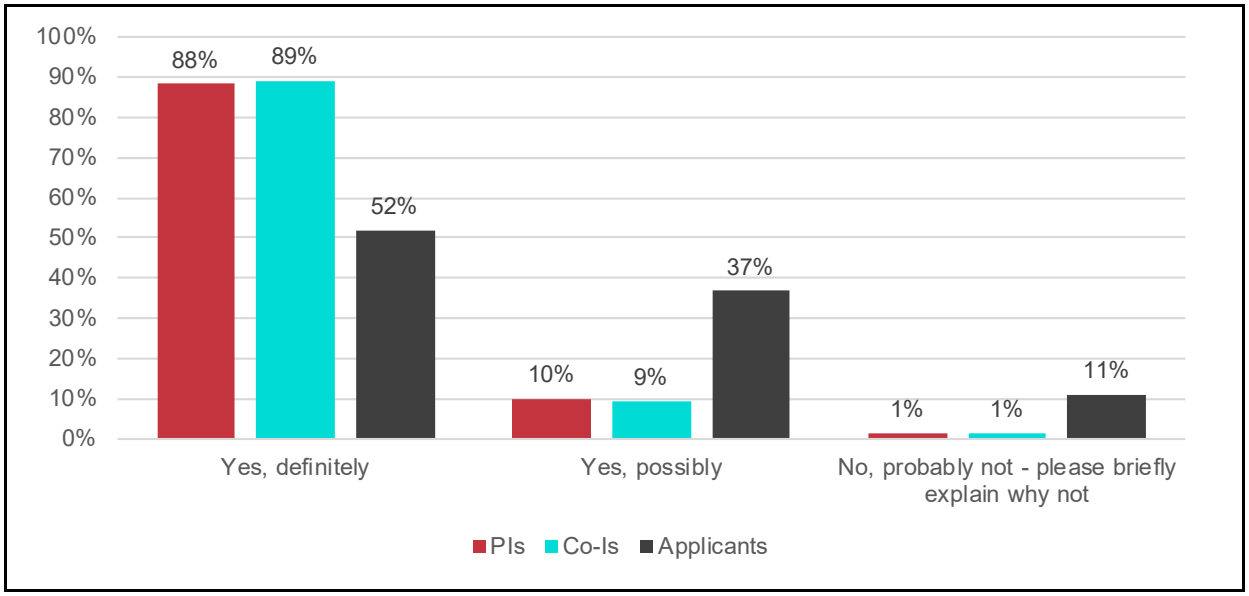
n=126

Figure 58 Grant holders' views on the likely impact of 'radical' changes



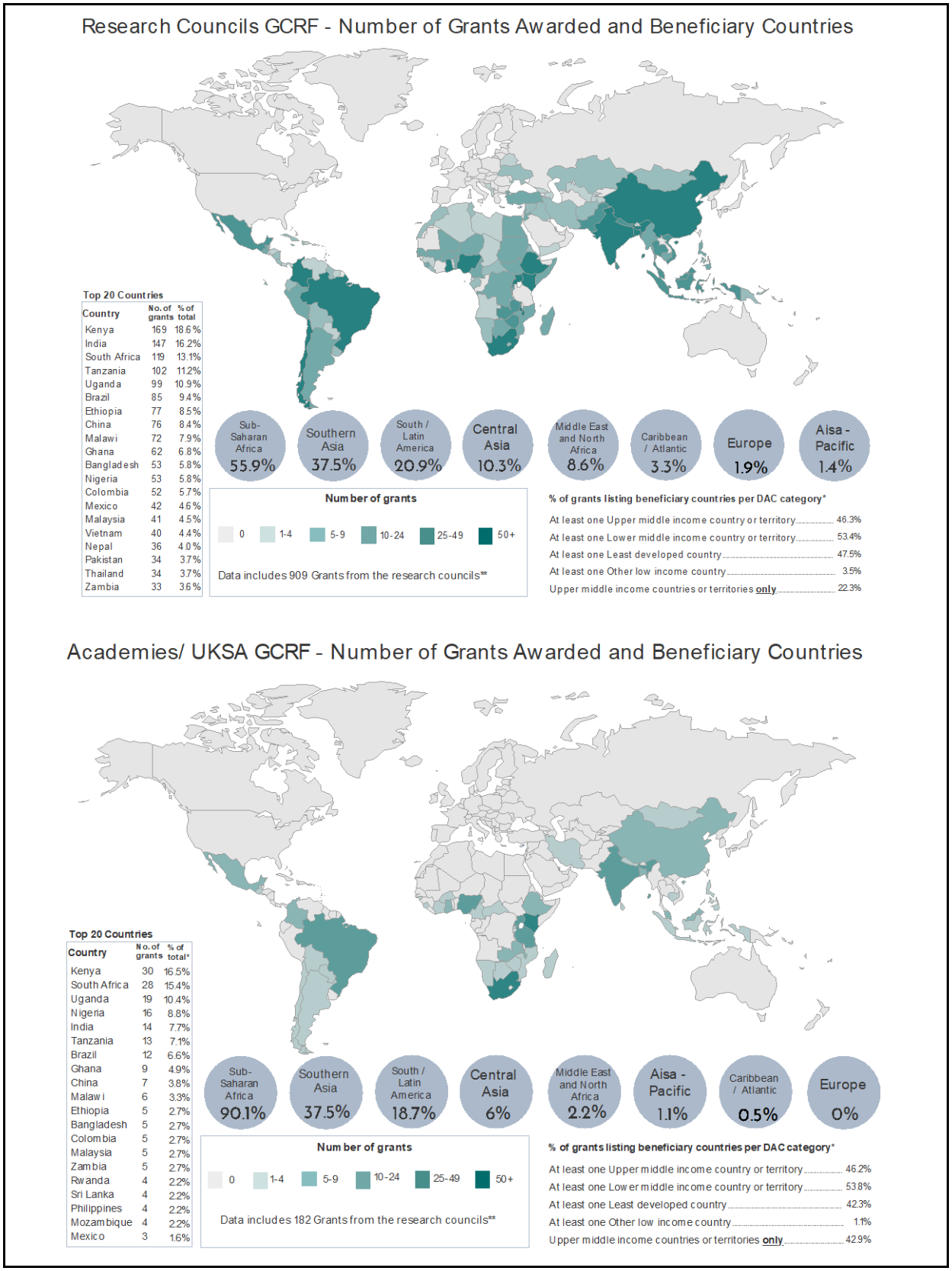
n=267

Figure 59 Consideration of future application



PIs: n=267; Co-Investigators: n=295; unsuccessful applicants: n=125

Figure 60 GCRF funded projects – beneficiary countries



*Country, Region and DAC category percentages are calculated based upon the number of individual grants that target them, rather than the overall number of times they are mentioned as being targeted. This is why percentages may exceed 100%

**Although the total number of grants exceeds this number, this is the amount of grants for which we have beneficiary country data

Table 30 Beneficiary country selection in first and second half of GCRF

Country	01/11/2016 and before (position out of 112)	01/11/2016 and before - total	After 01/11/2016 (position out of 125)	After 01/11/2016 - total	Difference in position (positive = climbed, negative = dropped)	Total projects	% of total awards made since 01/11/2016
Kenya	1	93	1	64	0	157	41%
India	2	72	3	57	-1	129	44%
South Africa	3	56	2	58	1	114	51%
Tanzania	4	55	5	43	-1	98	44%
Uganda	5	52	4	45	1	97	46%
China	7	45	7	32	0	77	42%
Brazil	8	42	6	33	2	75	44%
Ethiopia	6	46	10	27	-4	73	37%
Malawi	9	32	9	31	0	63	49%
Ghana	13	26	8	31	5	57	54%
Bangladesh	10	29	12	22	-2	51	43%
Nigeria	11	28	11	23	0	51	45%
Colombia	12	27	13	22	-1	49	45%
Mexico	15	26	18	16	-3	42	38%
Malaysia	14	26	25	13	-11	39	33%
Vietnam	18	16	14	22	4	38	58%
Nepal	16	17	15	19	1	36	53%
Thailand	19	15	17	17	2	32	53%
Zambia	24	13	16	18	8	31	58%
Pakistan	17	16	21	14	-4	30	47%
Rwanda	20	14	22	14	-2	28	50%
Indonesia	22	13	19	15	3	28	54%
Sri Lanka	21	14	27	13	-6	27	48%
Zimbabwe	29	10	20	15	9	25	60%
Philippines	23	13	33	10	-10	23	43%
Peru	28	11	30	11	-2	22	50%
Egypt	25	12	35	9	-10	21	43%
Burkina Faso	27	11	34	9	-7	20	45%

Note: the earliest date awarded was 01/09/2014 and the latest was 30/06/2018.

Figure 61 Comparison tables for target DAC/region/country – all funded projects

Regions

Region	Research Councils	% of grants	Academies / UKSA	% of grants	total	% of grants	% difference
Asia-Pacific	13	1.4%	2	1.1%	15	1.4%	**0.3%**
Caribbean/Atlantic	30	3.3%	1	0.5%	31	2.8%	**2.8%**
Central Asia	94	10.3%	11	6.0%	105	9.6%	**4.3%**
Europe	17	1.9%	0	0.0%	17	1.6%	**1.9%**
Middle East and North Africa	78	8.6%	4	2.2%	82	7.5%	**6.4%**
South/Latin America	190	20.9%	34	18.7%	224	20.5%	**2.2%**
Southern Asia	341	37.5%	45	24.7%	386	35.4%	**12.8%**
Sub-Saharan Africa	508	55.9%	164	90.1%	672	61.6%	**34.2%**

DAC categories

DAC category	Research Councils	% of grants	Academies / UKSA	% of grants	Total	% of grants	Difference between RCs and academies / UKSA
Least Developed Country	432	47.5%	77	42.3%	509	46.7%	**5.2%**
Lower Middle Income Country or Territory	485	53.4%	98	53.8%	583	53.4%	**0.4%**
Other Low Income Country	32	3.5%	2	1.1%	34	3.1%	**2.4%**
Upper Middle Income Country or Territory	421	46.3%	84	46.2%	505	46.3%	**0.1%**

Beneficiary countries

Country	Research Councils	Councils % of grants	Academies / UKSA	Academies / UKSA % of grants	Total	% of grants	% difference
Afghanistan	8	0.9%	0	0.0%	8	0.7%	0.9%
Albania	1	0.1%	0	0.0%	1	0.1%	0.1%
Algeria	1	0.1%	0	0.0%	1	0.1%	0.1%
Angola	4	0.4%	0	0.0%	4	0.4%	0.4%
Antigua and Barbuda	3	0.3%	0	0.0%	3	0.3%	0.3%
Argentina	17	1.9%	3	1.6%	20	1.8%	0.2%
Azerbaijan	1	0.1%	0	0.0%	1	0.1%	0.1%

Bangladesh	53	5.8%	5	2.7%	58	5.3%	3.1%
Belarus	3	0.3%	0	0.0%	3	0.3%	0.3%
Belize	3	0.3%	0	0.0%	3	0.3%	0.3%
Benin	11	1.2%	0	0.0%	11	1.0%	1.2%
Bhutan	1	0.1%	0	0.0%	1	0.1%	0.1%
Bolivia	7	0.8%	1	0.5%	8	0.7%	0.2%
Bosnia and Herzegovina	4	0.4%	0	0.0%	4	0.4%	0.4%
Botswana	19	2.1%	3	1.6%	22	2.0%	0.4%
Brazil	85	9.4%	12	6.6%	97	8.9%	2.8%
Burkina Faso	21	2.3%	1	0.5%	22	2.0%	1.8%
Burundi	11	1.2%	0	0.0%	11	1.0%	1.2%
Cabo Verde	2	0.2%	1	0.5%	3	0.3%	0.3%
Cambodia	16	1.8%	1	0.5%	17	1.6%	1.2%
Cameroon	15	1.7%	3	1.6%	18	1.6%	0.0%
Central African Republic	6	0.7%	1	0.5%	7	0.6%	0.1%
Chad	4	0.4%	0	0.0%	4	0.4%	0.4%
Chile	10	1.1%	2	1.1%	12	1.1%	0.0%
China	76	8.4%	7	3.8%	83	7.6%	4.5%
Colombia	52	5.7%	5	2.7%	57	5.2%	3.0%
Comoros	4	0.4%	0	0.0%	4	0.4%	0.4%
Congo	4	0.4%	0	0.0%	4	0.4%	0.4%
Cook Islands	1	0.1%	0	0.0%	1	0.1%	0.1%
Costa Rica	9	1.0%	0	0.0%	9	0.8%	1.0%
Côte d'Ivoire	10	1.1%	1	0.5%	11	1.0%	0.6%
Cuba	5	0.6%	0	0.0%	5	0.5%	0.6%
Democratic Republic of the Congo	12	1.3%	0	0.0%	12	1.1%	1.3%
Djibouti	2	0.2%	0	0.0%	2	0.2%	0.2%
Dominica	5	0.6%	0	0.0%	5	0.5%	0.6%
Dominican Republic	3	0.3%	0	0.0%	3	0.3%	0.3%
Ecuador	8	0.9%	0	0.0%	8	0.7%	0.9%
Egypt	22	2.4%	0	0.0%	22	2.0%	2.4%
El Salvador	2	0.2%	0	0.0%	2	0.2%	0.2%
Equatorial Guinea	2	0.2%	0	0.0%	2	0.2%	0.2%
Eritrea	7	0.8%	0	0.0%	7	0.6%	0.8%
Ethiopia	77	8.5%	5	2.7%	82	7.5%	5.7%
Fiji	5	0.6%	1	0.5%	6	0.5%	0.0%
Former Yugoslav Republic of Macedonia	1	0.1%	0	0.0%	1	0.1%	0.1%
Gabon	5	0.6%	0	0.0%	5	0.5%	0.6%
Gambia	24	2.6%	0	0.0%	24	2.2%	2.6%

Georgia	4	0.4%	0	0.0%	4	0.4%	0.4%
Ghana	62	6.8%	9	4.9%	71	6.5%	1.9%
Grenada	4	0.4%	0	0.0%	4	0.4%	0.4%
Guatemala	11	1.2%	1	0.5%	12	1.1%	0.7%
Guinea	4	0.4%	0	0.0%	4	0.4%	0.4%
Guinea-Bissau	4	0.4%	1	0.5%	5	0.5%	0.1%
Guyana	5	0.6%	0	0.0%	5	0.5%	0.6%
Haiti	8	0.9%	0	0.0%	8	0.7%	0.9%
Honduras	3	0.3%	0	0.0%	3	0.3%	0.3%
India	147	16.2%	14	7.7%	161	14.8%	8.5%
Indonesia	30	3.3%	3	1.6%	33	3.0%	1.7%
Iran	9	1.0%	1	0.5%	10	0.9%	0.4%
Iraq	9	1.0%	0	0.0%	9	0.8%	1.0%
Jamaica	10	1.1%	0	0.0%	10	0.9%	1.1%
Jordan	16	1.8%	0	0.0%	16	1.5%	1.8%
Kazakhstan	5	0.6%	0	0.0%	5	0.5%	0.6%
Kenya	169	18.6%	30	16.5%	199	18.2%	2.1%
Kiribati	2	0.2%	0	0.0%	2	0.2%	0.2%
Kosovo	1	0.1%	0	0.0%	1	0.1%	0.1%
Lao People's Democratic Republic	5	0.6%	0	0.0%	5	0.5%	0.6%
Lebanon	19	2.1%	1	0.5%	20	1.8%	1.5%
Lesotho	7	0.8%	0	0.0%	7	0.6%	0.8%
Liberia	8	0.9%	0	0.0%	8	0.7%	0.9%
Libya	1	0.1%	0	0.0%	1	0.1%	0.1%
Madagascar	16	1.8%	3	1.6%	19	1.7%	0.1%
Malaw i	72	7.9%	6	3.3%	78	7.1%	4.6%
Malaysia	41	4.5%	5	2.7%	46	4.2%	1.8%
Mali	11	1.2%	0	0.0%	11	1.0%	1.2%
Marshall Islands	1	0.1%	0	0.0%	1	0.1%	0.1%
Mauritius	6	0.7%	1	0.5%	7	0.6%	0.1%
Mexico	42	4.6%	3	1.6%	45	4.1%	3.0%
Mongolia	5	0.6%	1	0.5%	6	0.5%	0.0%
Montserrat	3	0.3%	0	0.0%	3	0.3%	0.3%
Morocco	8	0.9%	0	0.0%	8	0.7%	0.9%
Mozambique	20	2.2%	4	2.2%	24	2.2%	0.0%
Myanmar	12	1.3%	0	0.0%	12	1.1%	1.3%
Namibia	6	0.7%	3	1.6%	9	0.8%	1.0%
Nepal	36	4.0%	2	1.1%	38	3.5%	2.9%
Nicaragua	6	0.7%	0	0.0%	6	0.5%	0.7%
Niger	13	1.4%	0	0.0%	13	1.2%	1.4%

Nigeria	53	5.8%	16	8.8%	69	6.3%	3.0%
Pakistan	34	3.7%	0	0.0%	34	3.1%	3.7%
Panama	2	0.2%	0	0.0%	2	0.2%	0.2%
Papua New Guinea	7	0.8%	0	0.0%	7	0.6%	0.8%
Paraguay	3	0.3%	1	0.5%	4	0.4%	0.2%
Peru	21	2.3%	0	0.0%	21	1.9%	2.3%
Philippines	24	2.6%	4	2.2%	28	2.6%	0.4%
Rwanda	30	3.3%	4	2.2%	34	3.1%	1.1%
Saint Helena	1	0.1%	0	0.0%	1	0.1%	0.1%
Saint Lucia	6	0.7%	0	0.0%	6	0.5%	0.7%
Saint Vincent and the Grenadines	6	0.7%	0	0.0%	6	0.5%	0.7%
Samoa	1	0.1%	0	0.0%	1	0.1%	0.1%
Sao Tome and Principe	1	0.1%	0	0.0%	1	0.1%	0.1%
Senegal	15	1.7%	0	0.0%	15	1.4%	1.7%
Serbia	2	0.2%	0	0.0%	2	0.2%	0.2%
Seychelles	5	0.6%	0	0.0%	5	0.5%	0.6%
Sierra Leone	11	1.2%	2	1.1%	13	1.2%	0.1%
Solomon Islands	1	0.1%	0	0.0%	1	0.1%	0.1%
Somalia	14	1.5%	0	0.0%	14	1.3%	1.5%
South Africa	119	13.1%	28	15.4%	147	13.5%	2.3%
South Sudan	9	1.0%	0	0.0%	9	0.8%	1.0%
Sri Lanka	28	3.1%	4	2.2%	32	2.9%	0.9%
Sudan	11	1.2%	0	0.0%	11	1.0%	1.2%
Suriname	1	0.1%	0	0.0%	1	0.1%	0.1%
Swaziland	4	0.4%	0	0.0%	4	0.4%	0.4%
Syria	8	0.9%	0	0.0%	8	0.7%	0.9%
Tajikistan	2	0.2%	0	0.0%	2	0.2%	0.2%
Tanzania	102	11.2%	13	7.1%	115	10.5%	4.1%
Thailand	34	3.7%	0	0.0%	34	3.1%	3.7%
Togo	4	0.4%	0	0.0%	4	0.4%	0.4%
Tunisia	8	0.9%	0	0.0%	8	0.7%	0.9%
Turkey	12	1.3%	0	0.0%	12	1.1%	1.3%
Uganda	99	10.9%	19	10.4%	118	10.8%	0.5%
Ukraine	8	0.9%	0	0.0%	8	0.7%	0.9%
Uruguay	8	0.9%	0	0.0%	8	0.7%	0.9%
Uzbekistan	3	0.3%	0	0.0%	3	0.3%	0.3%
Vanuatu	6	0.7%	0	0.0%	6	0.5%	0.7%
Venezuela	1	0.1%	0	0.0%	1	0.1%	0.1%
Vietnam	40	4.4%	0	0.0%	40	3.7%	4.4%
West Bank and Gaza Strip	9	1.0%	1	0.5%	10	0.9%	0.4%

Yemen	3	0.3%	0	0.0%	3	0.3%	0.3%
Zambia	33	3.6%	5	2.7%	38	3.5%	0.9%
Zimbabwe	32	3.5%	2	1.1%	34	3.1%	2.4%

Figure 62 Funded and unfunded comparison tables for target DAC/region/country

DAC Status

DAC category	Funded		Unfunded		**% difference**
	Funded	% of grants	Unfunded	% of applications	
Least Developed Country	432	47.5%	359	45.8%	**1.7%**
Lower Middle Income Country or Territory	394	43.3%	406	51.9%	**8.5%**
Other Low Income Country	174	19.1%	120	15.3%	**3.8%**
Upper Middle Income Country or Territory	421	46.3%	374	47.8%	**1.5%**

World region

Region	Funded		Unfunded		**% difference**
	Funded	% of grants	Unfunded	% of applications	
Asia-Pacific	13	1.4%	12	1.5%	**0.1%**
Caribbean/Atlantic	30	3.3%	23	2.9%	**0.4%**
Central Asia	94	10.3%	104	13.3%	**2.9%**
Europe	17	1.9%	25	3.2%	**1.3%**
Middle East and North Africa	78	8.6%	92	11.7%	**3.2%**
South/Latin America	190	20.9%	150	19.2%	**1.7%**
Southern Asia	341	37.5%	358	45.7%	**8.2%**
Sub-Saharan Africa	508	55.9%	403	51.5%	**4.4%**

Countries

Country	Funded		Unfunded		**% difference**
	Total	% of grants	Total	% of applications	
Afghanistan	8	0.9%	14	1.8%	0.9%
Albania	1	0.1%	4	0.5%	0.4%
Algeria	1	0.1%	9	1.1%	1.0%
Angola	4	0.4%	13	1.7%	1.2%
Anguilla	0	0.0%	2	0.3%	0.3%
Antigua and Barbuda	3	0.3%	3	0.4%	0.1%
Argentina	17	1.9%	12	1.5%	0.3%
Armenia	0	0.0%	4	0.5%	0.5%
Aruba	0	0.0%	1	0.1%	0.1%
Azerbaijan	1	0.1%	5	0.6%	0.5%
Bahamas	0	0.0%	1	0.1%	0.1%

Bahrain	0	0.0%	1	0.1%	0.1%
Bangladesh	53	5.8%	79	10.1%	4.3%
Barbados	0	0.0%	3	0.4%	0.4%
Belarus	3	0.3%	2	0.3%	0.1%
Belize	3	0.3%	5	0.6%	0.3%
Benin	11	1.2%	14	1.8%	0.6%
Bermuda	0	0.0%	1	0.1%	0.1%
Bhutan	1	0.1%	6	0.8%	0.7%
Bolivia	7	0.8%	8	1.0%	0.3%
Bosnia and Herzegovina	4	0.4%	4	0.5%	0.1%
Botswana	19	2.1%	20	2.6%	0.5%
Brazil	85	9.4%	71	9.1%	0.3%
British Indian Ocean Territory	0	0.0%	2	0.3%	0.3%
Burkina Faso	21	2.3%	15	1.9%	0.4%
Burundi	11	1.2%	11	1.4%	0.2%
Cabo Verde	2	0.2%	5	0.6%	0.4%
Cambodia	16	1.8%	14	1.8%	0.0%
Cameroon	15	1.7%	28	3.6%	1.9%
Cayman Islands	0	0.0%	1	0.1%	0.1%
Central African Republic	6	0.7%	11	1.4%	0.7%
Chad	4	0.4%	12	1.5%	1.1%
Chile	10	1.1%	9	1.1%	0.0%
China	76	8.4%	77	9.8%	1.5%
Christmas Island	0	0.0%	1	0.1%	0.1%
Cocos (Keeling) Islands	0	0.0%	2	0.3%	0.3%
Colombia	52	5.7%	25	3.2%	2.5%
Comoros	4	0.4%	6	0.8%	0.3%
Congo	4	0.4%	10	1.3%	0.8%
Cook Islands	1	0.1%	2	0.3%	0.1%
Costa Rica	9	1.0%	7	0.9%	0.1%
Côte d'Ivoire	10	1.1%	15	1.9%	0.8%
Croatia	0	0.0%	1	0.1%	0.1%
Cuba	5	0.6%	5	0.6%	0.1%
Curaçao	0	0.0%	1	0.1%	0.1%
Democratic People's Republic of Korea	0	0.0%	2	0.3%	0.3%
Democratic Republic of the Congo	12	1.3%	19	2.4%	1.1%
Djibouti	2	0.2%	7	0.9%	0.7%
Dominica	5	0.6%	5	0.6%	0.1%
Dominican Republic	3	0.3%	6	0.8%	0.4%
Ecuador	8	0.9%	14	1.8%	0.9%
Egypt	22	2.4%	25	3.2%	0.8%
El Salvador	2	0.2%	6	0.8%	0.5%

Equatorial Guinea	2	0.2%	5	0.6%	0.4%
Eritrea	7	0.8%	9	1.1%	0.4%
Ethiopia	77	8.5%	56	7.2%	1.3%
Fiji	5	0.6%	5	0.6%	0.1%
Former Yugoslav Republic of Macedonia	1	0.1%	1	0.1%	0.0%
French Guiana	0	0.0%	4	0.5%	0.5%
French Polynesia	0	0.0%	2	0.3%	0.3%
French Southern Territories	0	0.0%	2	0.3%	0.3%
Gabon	5	0.6%	10	1.3%	0.7%
Gambia	24	2.6%	22	2.8%	0.2%
Georgia	4	0.4%	5	0.6%	0.2%
Ghana	62	6.8%	52	6.6%	0.2%
Grenada	4	0.4%	2	0.3%	0.2%
Guadeloupe	0	0.0%	2	0.3%	0.3%
Guatemala	11	1.2%	7	0.9%	0.3%
Guinea	4	0.4%	12	1.5%	1.1%
Guinea-Bissau	4	0.4%	8	1.0%	0.6%
Guyana	5	0.6%	5	0.6%	0.1%
Haiti	8	0.9%	4	0.5%	0.4%
Honduras	3	0.3%	5	0.6%	0.3%
Hong Kong	0	0.0%	1	0.1%	0.1%
India	147	16.2%	173	22.1%	5.9%
Indonesia	30	3.3%	28	3.6%	0.3%
Iran	9	1.0%	7	0.9%	0.1%
Iraq	9	1.0%	13	1.7%	0.7%
Jamaica	10	1.1%	8	1.0%	0.1%
Jordan	16	1.8%	22	2.8%	1.0%
Kazakhstan	5	0.6%	8	1.0%	0.5%
Kenya	169	18.6%	116	14.8%	3.8%
Kiribati	2	0.2%	3	0.4%	0.2%
Kosovo	1	0.1%	2	0.3%	0.1%
Kuwait	0	0.0%	1	0.1%	0.1%
Kyrgyzstan	0	0.0%	7	0.9%	0.9%
Lao People's Democratic Republic	5	0.6%	10	1.3%	0.7%
Lebanon	19	2.1%	27	3.4%	1.4%
Lesotho	7	0.8%	11	1.4%	0.6%
Liberia	8	0.9%	12	1.5%	0.7%
Libya	1	0.1%	6	0.8%	0.7%
Macao	0	0.0%	1	0.1%	0.1%
Madagascar	16	1.8%	9	1.1%	0.6%
Malawi	72	7.9%	70	8.9%	1.0%
Malaysia	41	4.5%	27	3.4%	1.1%

Maldives	0	0.0%	6	0.8%	0.8%
Mali	11	1.2%	12	1.5%	0.3%
Marshall Islands	1	0.1%	2	0.3%	0.1%
Martinique	0	0.0%	2	0.3%	0.3%
Mauritania	0	0.0%	10	1.3%	1.3%
Mauritius	6	0.7%	10	1.3%	0.6%
Mayotte	0	0.0%	2	0.3%	0.3%
Mexico	42	4.6%	31	4.0%	0.7%
Micronesia	0	0.0%	3	0.4%	0.4%
Moldova	0	0.0%	1	0.1%	0.1%
Mongolia	5	0.6%	3	0.4%	0.2%
Montenegro	0	0.0%	2	0.3%	0.3%
Montserrat	3	0.3%	2	0.3%	0.1%
Morocco	8	0.9%	10	1.3%	0.4%
Mozambique	20	2.2%	23	2.9%	0.7%
Myanmar	12	1.3%	18	2.3%	1.0%
Namibia	6	0.7%	16	2.0%	1.4%
Nauru	0	0.0%	3	0.4%	0.4%
Nepal	36	4.0%	42	5.4%	1.4%
New Caledonia	0	0.0%	3	0.4%	0.4%
New Zealand	0	0.0%	1	0.1%	0.1%
Nicaragua	6	0.7%	8	1.0%	0.4%
Niger	13	1.4%	11	1.4%	0.0%
Nigeria	53	5.8%	66	8.4%	2.6%
Niue	0	0.0%	1	0.1%	0.1%
Norfolk Island	0	0.0%	1	0.1%	0.1%
Northern Mariana Islands	0	0.0%	1	0.1%	0.1%
Oman	0	0.0%	1	0.1%	0.1%
Pakistan	34	3.7%	54	6.9%	3.2%
Palau	0	0.0%	1	0.1%	0.1%
Panama	2	0.2%	4	0.5%	0.3%
Papua New Guinea	7	0.8%	9	1.1%	0.4%
Paraguay	3	0.3%	5	0.6%	0.3%
Peru	21	2.3%	23	2.9%	0.6%
Philippines	24	2.6%	22	2.8%	0.2%
Puerto Rico	0	0.0%	3	0.4%	0.4%
Qatar	0	0.0%	1	0.1%	0.1%
Réunion	0	0.0%	4	0.5%	0.5%
Russia	0	0.0%	1	0.1%	0.1%
Russian	0	0.0%	1	0.1%	0.1%
Rwanda	30	3.3%	26	3.3%	0.0%
Saint Helena	1	0.1%	3	0.4%	0.3%
Saint Kitts and Nevis	0	0.0%	3	0.4%	0.4%

Saint Lucia	6	0.7%	3	0.4%	0.3%
Saint Martin (French part)	0	0.0%	2	0.3%	0.3%
Saint Pierre and Miquelon	0	0.0%	1	0.1%	0.1%
Saint Vincent and the Grenadines	6	0.7%	3	0.4%	0.3%
Samoa	1	0.1%	2	0.3%	0.1%
Sao Tome and Principe	1	0.1%	4	0.5%	0.4%
Saudi Arabia	0	0.0%	2	0.3%	0.3%
Senegal	15	1.7%	12	1.5%	0.1%
Serbia	2	0.2%	9	1.1%	0.9%
Seychelles	5	0.6%	6	0.8%	0.2%
Sierra Leone	11	1.2%	24	3.1%	1.9%
Singapore	0	0.0%	1	0.1%	0.1%
Sint Maarten (Dutch part)	0	0.0%	1	0.1%	0.1%
Slovakia	0	0.0%	1	0.1%	0.1%
Solomon Islands	1	0.1%	8	1.0%	0.9%
Somalia	14	1.5%	16	2.0%	0.5%
South Africa	119	13.1%	104	13.3%	0.2%
South Sudan	9	1.0%	8	1.0%	0.0%
Sri Lanka	28	3.1%	30	3.8%	0.8%
Sudan	11	1.2%	16	2.0%	0.8%
Suriname	1	0.1%	4	0.5%	0.4%
Swaziland	4	0.4%	9	1.1%	0.7%
Syria	8	0.9%	15	1.9%	1.0%
Taiwan (Province of China)	0	0.0%	1	0.1%	0.1%
Tajikistan	2	0.2%	4	0.5%	0.3%
Tanzania	102	11.2%	64	8.2%	3.0%
Thailand	34	3.7%	26	3.3%	0.4%
Timor-Leste	0	0.0%	5	0.6%	0.6%
Togo	4	0.4%	8	1.0%	0.6%
Tonga	0	0.0%	4	0.5%	0.5%
Trinidad and Tobago	0	0.0%	5	0.6%	0.6%
Tunisia	8	0.9%	12	1.5%	0.7%
Turkey	12	1.3%	34	4.3%	3.0%
Turkmenistan	0	0.0%	3	0.4%	0.4%
Turks and Caicos Islands	0	0.0%	2	0.3%	0.3%
Tuvalu	0	0.0%	4	0.5%	0.5%
Uganda	99	10.9%	90	11.5%	0.6%
Ukraine	8	0.9%	6	0.8%	0.1%
Uruguay	8	0.9%	4	0.5%	0.4%
Uzbekistan	3	0.3%	5	0.6%	0.3%
Vanuatu	6	0.7%	6	0.8%	0.1%
Venezuela	1	0.1%	5	0.6%	0.5%
Vietnam	40	4.4%	32	4.1%	0.3%

Virgin Islands (British)	0	0.0%	2	0.3%	0.3%
Virgin Islands (U.S.)	0	0.0%	2	0.3%	0.3%
Wallis and Futuna	0	0.0%	1	0.1%	0.1%
West Bank and Gaza Strip	9	1.0%	6	0.8%	0.2%
Western Sahara	0	0.0%	2	0.3%	0.3%
Yemen	3	0.3%	5	0.6%	0.3%
Zambia	33	3.6%	30	3.8%	0.2%
Zimbabwe	32	3.5%	26	3.3%	0.2%

Appendix C: Funding Allocations at National Funding Councils

The tables below summarise the GCRF allocations made to each national funding body from BEIS over the 2016/17, 2017/18 and 2018/19 academic years, and indicative allocations for 2019/20. The majority of these figures were supplied directly by representatives from the NFCs, some were obtained later during routine searches by Technopolis.

Table 31 GCRF allocations distributed to NFCs over 2016-18

National Funding Council	Allocations 16/17	Allocations 17/18	GCRF allocations 18/19	Total (distributed so far)	% of funding over 2016/17 and 2017/18
Research England*	£20,000,002	£40,912,500	£54,750,000	£115,662,502	82%
SFC[193]	£2,000,000	£4,012,495	£10,279,379	£16,291,874	12%
DfE NI	£600,000	£1,345,707	£723,217	£2,668,924	2%
HEFCW	£1,200,000	£2,319,187	£2,201,205	£5,720,392	4%
Total (distributed so far)	**£23,800,002**	**£48,589,889**	**£67,953,800**	£140,343,691	100%

Table 32 Indicative GCRF allocations to NFCs for 2018-21

National Funding Council	Indicative allocations 19/20
Research England	£62,980,000
SFC	£11,820,621
DfE NI	£671,934
HEFCW	£2,045,119
Total	**£77,517,674**

[193] SFC Research Excellence Grant and Global Challenges Research Fund for AY 2017-18 Annex A: http://www.sfc.ac.uk/funding/university-funding/university-funding-research/university-research-funding.aspx

Based upon the allocation data available, the total GCRF funding allocated (distributed and indicative) to national Funding Councils is £218,506,077, or 14.57% of the total £1.5bn available over this five-year phase of the GCRF broken down as follows:

Table 33 Total GCRF funding across the current phase of funding

National Funding Council	Total GCRF funding 2016–2021	% of total funding
Research England	£178,637,502	82%
SFC	£28,115,507	13%
DfE NI	£3,500,788	2%
HEFCW	£8,252,280	4%
Grand total	**£218,506,077**	**100%**

Allocation methods for years 1 and 2 – 2016/17 and 2017/18

Two rounds of GCRF support have been allocated to NFCs, and consequently to their HEIs, in academic years 2016/17 and 2017/18. These allocations came directly from BEIS with the guidance that NFCs must distribute the funding to HEIs, whether through a formula funding route or otherwise. In the first year, MoUs were signed separately between the Scottish, Welsh and Northern Irish NFCs and BEIS to this effect with a Letter of Offer (LoO) being distributed to HEIs soon after from NFCs. A grant letter to Research England was used rather than a MoU. This process was rapid and, in all cases, meant that no accepted allocation approach was used across NFCs and thus scrutinising to the standards of ODA and BEIS were developed more in the following years. Although the general approach to determining HEI allocations from NFCs was consistent in using formula funding as a guide, the exact approach did vary across the NFCs and requires some explaining here.

Research England 16/17 and 17/18

All HEIs eligible for Research England's recurrent research funding are eligible for GCRF funding, with the allocation of GCRF funds allocated pro rata to mainstream QR (plus London weighting); thus, the larger research-intensive universities will necessarily have a larger allocation than the smaller less research intensive HEIs. This funding is distributed pro rata to mainstream QR and is included in the annual grant tables for each HEI. Research England's 2017/18 circular letter detailing funding allocations for the year[194] assigned £37m (up from £20m in the previous year) for its GCRF block grant contributions (to English HEIs), outlining in one paragraph how the fund should be used and how the HEI's activities would

[194] HEFCE (2017) Sample grant letter: 'Memorandum of Assurance and Accountability part 2: Schedule for <Institution name> for the academic year 1 August 2017 to 31 July 2018' (paragraph 40) http://www.hefce.ac.uk/media/HEFCE,2014/Content/Funding,and,finance/Annual,funding/For,institutions/17-18/July,2017/HEI%202017-18%20MAA%20Part%202%20(Funding%20agreement).pdf

be audited (ODA compliance). However, there was an additional award to Research England of £11m made during the course of the year, which came from the Unallocated fund. This 30% addition brought the total to £48m for 2017/18.

Research England relied on HEIs to allocate GCRF block grant to 'eligible' types of GCRF work (this has changed now ODA checks are done by NFCs themselves). Specifically, Research England expects HEIs to comply with annual reporting arrangements, they specifically state: '…we will expect institutions to confirm, at the end of the academic year, that they have spent their allocation and used it in accordance with the terms of the funding and provide examples to evidence the benefits of the spend'. These arrangements were the same for the first two years.

HEFCW 16/17 and 17/18

HEFCW did not use the QR route in the first year because of the timing issue already mentioned and instead announced GCRF support as a separate funding stream and in the Circulars as a supplement to QR. At the request of BEIS, HEFCW allocated the 2016/17 funding to universities in Wales in proportion to their Research Council grant income. Some teaching-led universities have very little Research Council income. For them, allocating the GCRF funding pro-rata to Research Council income would produce very small GCRF allocations. To avoid this, GCRF funding is only provided to those universities which would generate an allocation of at least £50k through the operation of the pro-rata allocation formula, meaning that 4/8 HEIs received the funding in practice. This threshold approach is consistent with their allocations for Higher Education Research Capital. A Circular was issued to inform University Vice-chancellors of the funding in November 2016 which was then paid in December 2016. The arrangements for 2017/18 were identical to this but with a longer lead-in time to inform Vice-Chancellors of incoming funds (circular issued in August 2017 and paid September 2017) and an increased total of £2,319,187, effectively near doubling each HEI's allocation (the same 4/8 were eligible).

The monitoring for these two years increased progressively in scrutiny up to the present monitoring arrangements that require three-year strategies (discussed in a later section). In 2016/17, Vice-Chancellors of HEIs in receipt of GCRF funding from HEFCW had to sign a 'Declaration of Expenditure' to confirm the supplied GCRF funding was used for the purposes outlined in the circular[195] (under point 9). For 2017/18, HEFCW requires HEIs to submit a report on how they used their GCRF allocation, including: 'the methodology used to allocate the funding internally; information about the projects and activities supported; and the developing countries which benefitted from the activity'.[196] In addition, HEIs in both years were asked to provide three case studies outlining examples of GCRF activities supported fully or in-part by their HEFCW GCRF allocation. In addition, HEIs in both years were asked to provide three case studies outlining examples of GCRF activities supported fully or in-part by their HEFCW GCRF allocation. All of this monitoring information is reported annually to BEIS by HEFCW.

[195] HEFCW (23rd November 2016) 'Circular – Global challenges Research Fund 2016/17'
[196] HEFCW (25th August 2017) 'Circular – Global challenges Research Fund 2017/18'

SFC 16/17 and 17/18

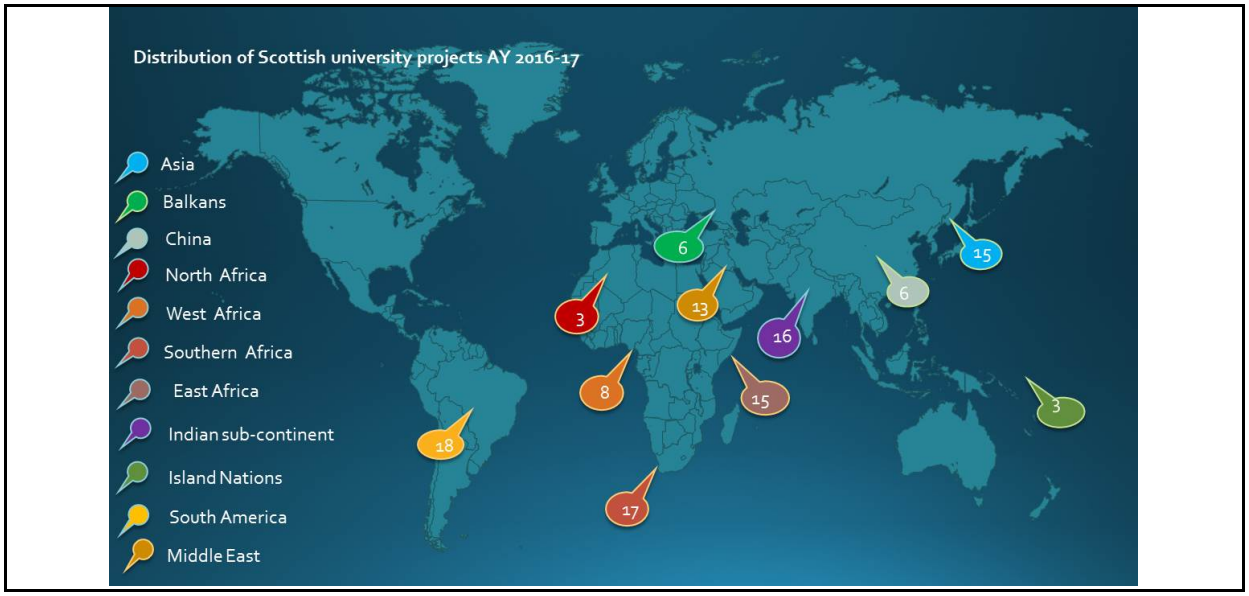
SFC's GCRF formula funding aims to develop HEIs' research on developing countries and international collaboration strategies. It is distributed in combination with Newton funding under the Research Excellence Grant (REG) B which is driven by REG A which is quality related using the REF results. In this way, it rewards those who are already strong in research and encourages HEIs to do the best they can in REF to receive this extra support. This approach was used for years 1 (£2,392,400) and 2 (£4,012,000) with no changes planned to adapt the allocation process in the future (barring the three-year strategies explained in the later section).

The 2016/17 funding was allocated in December 2016 and was welcomed by HEIs despite being distributed later than expected and had to be spent by the end of March 2017. SFC published a Circular[197] which supplied information on GCRF including ODA requirements and how funding could be spent to which HEIs had to reply to accept the support – all 19 in Scotland accepted. The representative from SFC heard that for those HEIs who had not been involved in ODA related activities before (art colleges for example), had to think more about what projects they could field, as did not always have existing partnerships, although GCRF was good for setting these up initially, which is one positive outcome of this support. More experienced/larger HEIs allocated GCRF into the overheads of existing GCRF projects. For many HEIs, the first year of allocation was a challenge as they had to work quickly to spend the funding, but the SFC representative was impressed by their capability when invited to post-award presentations by HEIs to showcase their activities. The feedback received from HEIs described how GCRF was a catalyst for starting new projects and increased interdisciplinary for departments, bringing them together even in the early stages. This opportunity for funding started those internal collaboration discussions which stemmed to wider partnerships across HEIs and internationally.

Final reports were requested in Spring 2017 and identified that SFC's GCRF allocation had supported 120 projects in 51 countries.

[197] SFC (6 December 2016) 'Official Development Assistance research allocations for 2016-17' http://www.sfc.ac.uk/web/FILES/Announcements_SFCAN152016_OfficialDevelopmentAssistanceresearchallo/SFCAN152016_Official_Development_Assistance_research_allocations_2016-17.pdf

Figure 63 SFC GCRF funding - Distribution of Projects AY2016-17



Source: 'ODA Funding 2016-17: Summary of institutional reports' provided with permission by David Beards at SFC

Whilst making maps from this data, the DAC list was used to check ODA compliance. This checking was done by the SFC representative we interviewed who checked the summaries of every single project to ensure each country was on the DAC list – although they could not deep dive into this due to the workload required. This reporting also helped to provide collaborative information back to universities – e.g. research X at university B is working on issue C, this allowed for some networking for researchers looking at niche topics. Overall this first year, M&E worked well, although some HEIs struggled – more because they weren't used to dealing with this type funding often, e.g. some were unsure when funded activities had to be spent by. HEIs were reportedly very conscientious about spending the money correctly which was encouraging and showed that they welcomed the funding opportunity. A consistent point of feedback was that HEIs wanted a clearer view for the future so that they could prepare their funding plans – around three years. SFC commented that the funding provided, which was intended to cover 20% of FEC for GCRF costs, often did not match the estimated institutional FEC. For year 2, more prior notice for HEIs was given by issuing the Circular[198] in September 2017. They were given until the end of the academic year to spend the money (August 2018). Although almost twice the amount of support was provided for 2017/18, there was no Newton funding available that year which they had been relying on. The same monitoring system was used in year 2 as in year 1, final reports are due July 2018.

In addition, we were informed that Universities Scotland (January 2017) hosted a meeting of research admins/planners for each HEI that included presentations from people involved in GCRF and some funding academies. The aim of this was to get people together, pose questions and raise awareness, which helped SFC to field those questions and share best practice. Another was run in September 2017 at St Andrews where one-minute academic

[198] SFC (26 July 2017) 'Official Development Assistance research allocations for 2017-18: Global Challenges Research Fund (GCRF)'

'speed dating' was run to set up new partnerships – again, funders were present to field more questions. More of these events are being organised for each year.

DfE NI 16/17 and 17/18

Both allocations across these two years from BEIS to DfE NI were based on the Barnett formula. Support for both years were allocated to the two HEIs in Northern Ireland from DfE NI using LoOs that simply required signatures from the HEIs to confirm they wished to receive the support. The proportion of the near £2m available was allocated pro-rata to Research Council income.

In the first year, an interim report was requested in April 2017 and a final report in September 2017 which detailed how funding was internally allocated, to which projects (in supporting FeC), and what outcomes the funding yielded. Top level metadata on projects, funding amount contributed, GCRF challenge areas, DAC list countries targeted, and benefits were also reported. ODA compliance was not scrutinised in this year. In the following year, a profile of expenditure was required to check against the HEIs' plans, if compliance is not met the support is recouped and could be withheld in the future. HEIs provide profiled expenditure ahead of being awarded funds to explain how they will spend the money given to them. In the MoU for this second year,[199] BEIS explicitly asked DfE NI (and other NFCs) to put in place proportional monitoring processes to ensure ODA compliance and be able to provide evidence of impact on target countries. Final reports were due in April 2018 for DfE NI to then report to BEIS in June 2018.

The support from 2018/19 onwards is based on an average of the last three years of Research Council drawdown, 2013–16 in this case until more recent data is made available – similar to Wales and Scotland but different to England. This has meant that the support allocated to DfE NI will be less than in the first two years of GCRF support, yet the planning and operation cost of providing the funding is still viewed as justifiable and the support is welcomed by DfE NI.

Allocation method for year 3 onwards for all NFCs – 2018/19, 2019/2020, 2020/2021

The methods for determining allocation amounts to HEIs have not changed materially for any of the NFCs. However, the conditions on which this funding is granted changed for the 2018/19 allocation and those beyond. As discussed, NFCs received a share of GCRF through core science funding which is a dual funding mechanism where Research Councils will provide 80% FEC for HEI research activities, and NFCs contribute towards the additional 20%. This is the case both for core science funding and GCRF, although this is not the only, or primary, purpose of the funding. There was some criticism from the ICAI review and DFID that identified the lack of scrutiny around how this funding was spent by HEIs. At that time,

[199] MoU between BEIS and the DfE NI (June 2017) – 'Relating to the payment of GCRF for ODA research'

spend was tracked through the core science funding reporting which produces simple high-level spending figures from the NFCs. ODA reporting requires more detailed evidence about how HEIs spend GCRF to prove they are indeed supporting ODA eligible activities.

Research England spearheaded a new process to monitor GCRF activity and check the ODA compliance of that activity in the HEIs, subsequently approved by BEIS. They request three-year strategies from their HEIs, which are then summarised and reported to BEIS. Case studies will also be requested from HEIs as well as an annual GCRF monitoring report. If any HEI(s) does not submit a strategy or is not assessed as ODA compliant, and so does not receive an allocation, that portion of the overall GCRF pot will be redistributed to all HEIs receiving an allocation. HEIs do not receive more or less GCRF support on the basis of the strength of their strategy, they simply receive their pre-determined allocation only if their strategy is assessed as ODA compliant. Vice-chancellors at HEIs were formally notified about this in January 2018 and their three-year strategies were requested.

The strategies were assessed by NFCs, ODA experts and expert researchers using set criteria developed by Research England that is being used across the NFCs, this includes:

- A sound and sustainable approach to ODA activity, in line with the HEI's core strategy, the wider GCRF strategy produced by the delivery partners, and ODA guidelines
- An appropriate and compliant plan for spending QR GCRF allocations in 2018/19, in line with GCRF and ODA eligibility criteria
- Appropriate and compliant intentions for future spending of QR GCRF allocations in line with both GCRF and ODA criteria
- Identification of main intended outcomes and impacts
- A sound approach to managing ODA activities, including appropriate processes to monitor, evaluate and report GCRF and ODA activity in the HEI, and the ability to account for actual funding body GCRF expenditure

HEIs were sent a guidance document and strategy templates in January 2018. This document also outlined ODA eligible activities that HEIs could support, using the guidance of the GCRF SAG.[200] In some cases, HEIs were asked to clarify or expand upon some elements of their submitted strategy. Research England notified HEIs of the outcome in July 2018, allowing time for HEIs to plan accordingly depending on the outcome before allocations began to be distributed from Autumn 2018.

Research England helped instigate this as they conducted a pilot survey in which English HEIs were asked how their GCRF money had been spent in 2016-17.[201] This was formally requested by the ODA board in early 2017 and also included survey questions about the Newton fund.[202] All of the 28 HEIs sampled responded and supplied evidence for their QR related, GCRF and Newton allocation spends. Although it could be confirmed that the HEIs did spend their GCRF and Newton allocations on ODA-eligible activity, Research England identified that 'only a small number of HEIs (seven) were able to directly account for their

[200] Global Challenges Research Fund Strategic Advisory Group: Criteria for GCRF Funding, http://www.rcuk.ac.uk/funding/gcrf/sagtor/
[201] Research England – How HEIs have used QR allocations to support overseas development research activity in relation to GCRF and Newton Funding 2017
[202] Research England – ODA Officials Group Paper: How HEIs have used QR allocations to support ODA-eligible research in relation to GCRF and Newton Funding July 2017

total QR spend on ODA activity, (i.e. to separate it from wider QR allocations or broader funding of ODA research)'.

These findings were reported to the ODA board in October 2017, the board wanted greater reassurance on how the money was being spent by HEIs. Not only did they want this information after the spend but also prospectively, hence the three-year ODA strategies outlining what they will spend ODA funds on. HEIs had to send strategies for approval by March 2018. BEIS will see the outcomes of those strategies in a summary form as there will be upwards of a hundred. Research England has 122 universities and colleges within its remit, so outsourced this exercise through a tender launched in early 2018. The annual monitoring will likely require information on the types of activity funded (e.g. pump priming, capacity building and meeting FECs) as well as information on DAC list countries partnered with, impacts and outputs and a complete breakdown of spend. The monitoring template will be designed by Research England's contractors, due to be available in Autumn 2018. HEFCW issued some prospective reporting guidance to their HEIs within their 2018/19 Circular:[203]

> HEIs should expect to be required to:
>
> *Quantify and break down activities by spending for their whole GCRF allocation for the year in question*
>
> *Provide information on the types of activity funded, the DAC list countries involved, and the impacts and outputs produced.*
>
> *Report on their progress against the intentions outlined in their strategies, and explain how activities align with their strategy or why any activities have diverged from their strategy.*
>
> *Provide evidence as to why any activity funded through their GCRF allocation from HEFCW is relevant and primarily beneficial to the economic development and welfare of developing countries.*

At present, the NFCs do not always know their indicative GCRF allocation and cannot guarantee exactly what the future amounts will be per year, so it is by definition not possible for them to commit to fund everything in the HEIs' thee-year strategies in years two and three. There is also the added complication of changes to funding in-year that may occur again in the future, as in the case of Research England already discussed. The other three NFCs have implemented this monitoring exercise, but instead conducting the M+E work internally as they have far fewer HEIs as compared with England. In developing this process, Research England has followed the HEIF approach[204] on how to operationalise the strategies process. This is not done at all with QR or other formula funding, so the GCRF development is unusual and there may yet be some reaction from the HE community to the final proposals.

[203] HEFCW (29 January 2018) Circular – Global challenges Research Fund 2018/19
[204] HEIs in receipt of HEIF allocations have to provide a strategy for Knowledge Exchange, to be approved as the basis for funding.

Appendix D: Evaluation types

- **Formative** evaluation - conducted during the implementation phase of an intervention to improve performance. May also serve a compliance purpose.
- **Process** evaluation – concerned with funders' and implementers' organisational polies, management practices, delivery mechanisms, and the linkages between these. Designed to improve performance; a type of formative evaluation.
- **Summative / Effectiveness evaluations** - conducted at the end of an intervention (or a phase) to determine the extent to which higher level results have been produced.
- **Impact evaluation** - provides information, normally summatively, about the impacts produced by an intervention - positive and negative, intended and unintended, direct and indirect. An impact evaluation should establish the causal attribution for the observed changes (impacts). Impact evaluation may be achieved through a range of quantitative or qualitative methods.

And also:

- **Developmental** evaluation – a close to real-time approach that is part a continuous development learning loop. Particularly used in social change interventions in complex or uncertain environments.
- **Review** – is a periodic or ad hoc assessment of performance or progress of a policy, section, institution, programme or project. Unlike evaluation, which assesses results, (outcomes or impacts) of initiatives, review tend to emphasise operational aspects and are therefore closely linked to the monitoring function. (DFID, 2013)

Appendix E: Complexity and Causality

One type of response to evaluating complex situations has been to take a reductive perspective, and utilise quantitative evaluation approaches. While these responses may appreciate the challenge that complexity presents to government, the need for a learning, adaptive government, and the need to avoid being methods-led[205], they still privilege counterfactually derived evidence. An example often cited is the Medical Research Council (MRC)'s influential publication: '*Developing and Evaluating Complex Interventions: New Guidance*'[206]. This promotes quantitative approaches; in essence it takes the complex to be complicated, with parts interacting predictably. Therefore, "by focusing on the intervention, the [MRC] framework misses the point that interventions interact with complex systems in ways that cannot be predicted. The evaluation challenge lies in understanding this interaction"[207, 208].

Others have responded to the challenge of evaluating complex and emergent systems by exploring and advancing approaches that can establish and causality and explain how change happens in such situations. By-and-large these are techniques drawn from the social sciences. The status of evaluation has progressed since 2002, when it was opined that: "evaluation must move beyond its traditional concern with measuring effect sizes and degrees of goal achievement to embrace a theory-based approach to explanation. … However, theory-based evaluation, while holding out considerable promise for the development of knowledge to underpin more effective policy making, nevertheless presents significant challenges in terms of articulating theories, measuring changes and effects, developing appropriate tests of theoretical assumptions, and in terms of the generalizability of results obtained in particular contexts."[209]

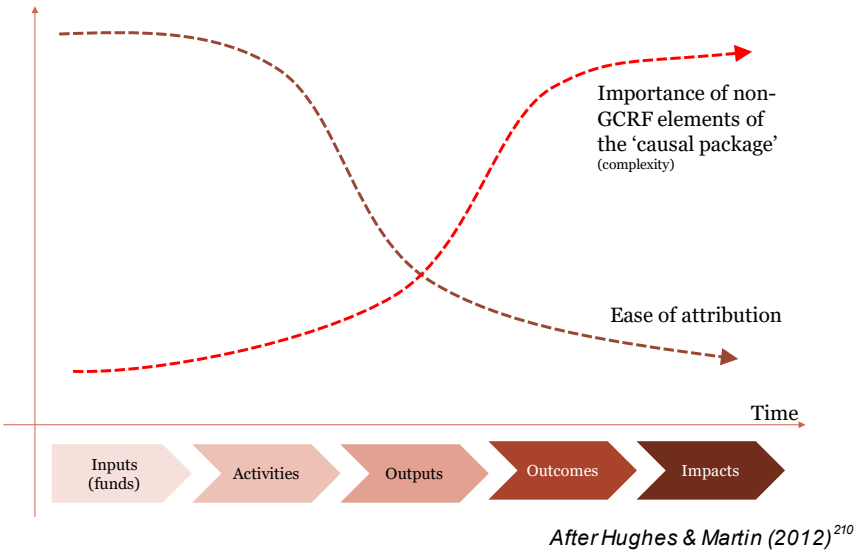
In these type of approaches to evaluating complex evaluands, two important aspects are:

- approaches to causality
- the importance of context

Causality

As outlined above, GCRF increases in complexity as it progresses towards impacts. This is not unusual, but the scale of the ambition of GCRF – targeting global challenges – makes this much more pronounced. This is the crux of the evaluation challenge - the inverse relationship between complexity in the 'outcomes in context' domain and the ease with which causality can be assessed (Figure 64).

[205] Breckon, J. (2015). *Better Public Services Through Experimental Government*. Alliance for Useful Evidence, London. https://www.alliance4usefulevidence.org/publication/better-public-services-through-experimental-government/
[206] MRC (2008). *Developing and Evaluating Complex Interventions: New Guidance*. Medical Research Council, London. https://mrc.ukri.org/documents/pdf/complex-interventions-guidance/
[207] Ling (2012). Evaluating complex and unfolding interventions in real time. *Evaluation*, 18 (1), 79-91.
[208] The digital version of the MRC guidance now includes a headline: "*Following considerable development in the field since 2006, MRC and NIHR have jointly commissioned an update of this guidance to be published in 2019*". https://mrc.ukri.org/documents/pdf/complex-interventions-guidance/
[209] Sanderson, I. (2002). Evaluation, Policy Learning and Evidence-Based Policy Making. *Public Administration*, 80 (1), 1-22



After Hughes & Martin (2012)[210]

Figure 64. GCRF results, causal package and attribution

Establishing cause-and-effect linkage, or making a causal claim, may be achieved through four possible models:

- **Regularity frameworks**, that statistically analyse the frequency of association between cause and effect
- **Counterfactual frameworks**, that determine the difference between two situations identical apart from the intervention in question. This is the basis for RCTs and quasi-experimental approaches
- **Multiple causation**, in combinations of causes that lead to effect are analysed in configurational approaches, such as QCA and contribution analysis
- **Generative causation**, in which the mechanisms that cause effects are identified, for example through theory-based and realist approaches[211]

The first and second of these models depend on being able to manipulate the causal actors and control the context of intervention, the third and fourth are suited to situations, such as GCRF, where this control is not feasible and evaluators must depend on observation.

In using the term causality, it is important to be clear that this does not imply a linear or binary relationship between cause (intervention) and effect (impact). It is possible that the relationship between cause and effect may be:

- Both **necessary and sufficient**: the cause always leads to the intended effect and is the only way to achieve this
- **Necessary but not sufficient**: the cause is a necessary precondition for intended effects but they will not be achieved with other factors
- **Sufficient but not necessary**: the intervention is one way to arrive at the effect but

[210] Alan Hughes and Ben R. Martin (2012). *Enhancing Impact - The Value of Public Sector R&D*. CIHE-UK~IRC Task Force on Enhancing Value: Getting the Most out of UK Research. London & Cambridge. https://www.cbr.cam.ac.uk/fileadmin/user_upload/centre-for-business-research/downloads/special-reports/specialreport-enhancingimpact.pdf

[211] Stern, E. (2015). *Impact Evaluation A Guide for Commissioners and Managers*. BOND, London. https://www.bond.org.uk/data/files/Impact_Evaluation_Guide_0515.pdf

- there are other ways.
- Neither necessary nor sufficient but a **contributory cause:** the intervention is a vital part of a 'package' of causal factors that together are sufficient to produce the intended effect. However on its own the programme is neither sufficient nor always necessary – if for example other effective **causal packages** did not include the intervention of interest.[212]

The concept of '**contributory cause'**, recognises that effects may be produced by several causes at once, , none of which might be necessary nor sufficient for impact on its own. Thus effects are a result of a '**causal package**', which is the. the intervention plus other factors. The idea 'causal packages' is most relevant in the impact evaluation of complex interventions, such as GCRF. The intervention is a contributory cause of the impact if:

- The causal package with the intervention was sufficient to bring about the impact, and
- The intervention was a necessary part of that causal package[213].

Contributory causality is relevant when it is likely when there is more than one possible cause, i.e. the intervention is just one part of a causal package. In complex systems the cause will seldom be the intervention – something done to the system – taken alone.

It should be noted that the evaluation approach should over-emphasis the causal question 'did the intervention make a difference?'; equally important is the explanatory question 'how did the intervention make a difference?' The how question gets to the heart of causal mechanism, and allows context to be examined – 'when', 'where', and for whom does the intervention work; 'under in what conditions?' [214].

The Importance of Context

How context is dealt with is a important differentiator between different evaluation approaches. Experimental approaches conceive of contextual factors as confounding variables for which the evaluator should control. In theory-based approaches, interventions are considered to operate in interaction with context (people, policies, culture, etc) and so context is key to understanding the interplay between programmes and effects. Context is therefore considered to be part of the evaluation, as it is critical to uncovering the circumstances in which, and the reasons why, a particular intervention works. These approaches acknowledge that particular contexts can enhance or detract from programme effectiveness and that such contexts may include factors that are within or outside the control of implementers[215].

It therefore follows that in theory-based approaches and realistic evaluation the impact of interventions cannot be determined with any degree of confidence if there is no knowledge about the context within which they have taken place. "An understanding of context is, therefore, vital in relation to attributing cause. Context is also seen as important in terms of

[212] Elliot Stern, Nicoletta Stame, John Mayne, Kim Forss, Rick Davies, and Barbara Befani (2012). *Broadening the Range of Designs and Methods for Impact Evaluations*. Working Paper 38. DFID, London. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/67427/design-method-impact-eval.pdf

[213] Stern, E. (2015). *Impact Evaluation A Guide for Commissioners and Managers*. BOND, London. https://www.bond.org.uk/data/files/Impact_Evaluation_Guide_0515.pdf

[214] Byrne, D. (2013). Evaluating complex social interventions in a complex world. *Evaluation*, 19 (3), 217-228.

[215] Blamey, A. and Mackenzie, M. (2007). Theories of Change and Realistic Evaluation Peas in a Pod or Apples and Oranges? *Evaluation*, 13(4), 439 – 455.

replicating the intervention in any future setting or in learning about possible generalizable causal pathways".[216]

[216] Blamey & Mackenzie (2007). (2007). Theories of Change and Realistic Evaluation Peas in a Pod or Apples and Oranges? *Evaluation*, 13(4), 439 – 455.

Appendix F: List of people met - Evaluation Strategy & Theory of Change

Name	Role & Organisation
Alex Herbert	Associate Director of Research, Research England
Alex Hulkes	Head of Insights, ESRC
Alexandra Spittle	Secretary, Strategic Advisory Group; UKRI
Andrew Clark	Royal Academy of Engineering
Athene Gadsby	UKSA
Catherine Cameron	ICAI
Claire Edwards	Senior Evidence and Evaluation Manager, UKRI
Claire Goldstraw	ODA Research Management Team
David McAllister	Associate Director Research & Innovation Talent, BBSRC
David Taverner	Caribou Digital / UKSA
Elaina Davis	Dept of Health & Social Care
Emily Gale	Programme Manager - evaluation team, MRC
Fiona Goff	Head of Evidence, NERC
Gary Grubb	Associate Director of Programmes, AHRC
Georgia Siora	Director, Warwick Economics & Development
Helena Mills	HEFCE/ Research England
Imelda Bates	Liverpool School of Hygiene and Tropical Medicine (GROW award holder)
Jamie Fotheringham	Team Leader, Newton Fund Evaluation
Jane Nicholson	Associate Director, EPSRC
Janet Geddes	Innovate UK
Jeremy Martin	BEIS
Jessica Clark	ODA Research Management Team
Jill Jones	Head of Global Health Strategy, MRC
Jon Cooper	Project Director, Fleming Fund Evaluation
Julia Kemp	Research & Evidence Division, DFID
Kate Hamer	Head of International, NERC
Kelly Howard	Academy of Medical Science

Laura Bones	Senior Policy Manager, UKRI (Newton Fund)
Linda Tiller	Senior Research Manager, HEFCW
Louise Olofsson	Royal Academy of Engineering
Lucy Broomfield	STFC
Mark Claydon-Smith	Associate Director for International Development, UKRI
Michael Schultz	Team Leader, Prosperity Fund Evaluation
Michelle Manning	Senior Programme Manager (International), NERC
Natasha Bevan	Head of International Grants, Royal Society
Pam Mason	Head of International, ESRC
Paul McDonald	Director of Grants, Royal Society
Paul Murphy	Higher Education Policy and Finance, DfE-NI
Paul Reeves	Senior Evaluation Manager, BBSRC
Paul van Gardingen	University of Leicester
Professor Jeff Waage	London International Development Centre
Rebecca Tanner	ODA Data and Analysis, UKRI
Rob Felstead	Senior Policy Manager, UKRI
Sarah Honour	Head of Science and Innovation Strategy and ODA, BEIS
Sarah Plowman	Senior Policy Manager, UKRI
Sian Rowland	Senior Policy Manager, UKRI
Stephen Loader	21st Century Challenges Programme Manager, STFC
Stuart Taberner	Director of International and Interdisciplinary Research, UKRI
Sue Smart	Head, Evidence & Evaluation; EPSRC
Sumi David	Strategic Lead for Strategy, Evidence and Impact, AHRC
Tanya Floyd	Royal Society
Tim Hayward	Caribou Digital / UKSA
Val Snewin	Dept of Health & Social Care

Appendix G: Terms of Reference

Section 4 – Specification

Introduction

- Under the last Spending Review (CSR), the Department for Business, Energy and Industrial Strategy (BEIS) had its Official Development Assistance (ODA) spend increased by means of a new Global Challenges Research Fund (GCRF). This significant spend aims to leverage the UK's world-leading research base to ensure that UK research takes a major role in addressing the problems faced by developing countries and in pioneering new ways of tackling global challenges.

- BEIS wishes to commission experts in ODA evaluation and research evaluation to develop a theory of change for the GCRF, to conduct a process evaluation of initial activities and then, building on this work, to design an evaluation strategy and framework for 2018-2022. The purpose of the foundation study is to enable an international best practice evaluation of GCRF. This includes seeking to build a shared sense of ownership by BEIS and the delivery partners of the theory of change and the performance criteria.

Background to the BEIS ODA spend

- Official Development Assistance (ODA) is provided by official agencies (including state and local governments) with the promotion of economic development and welfare of developing countries as its main objective. ODA is monitored by the Organisation for Economic Cooperation and Development (OECD). ODA funded activity focuses on promoting the long-term sustainable growth of countries on the OECD Development Assistance Committee (DAC) list.

- The UK Government has committed to spending 0.7% as a proportion of the UK's Gross National Income (GNI) on ODA. DFID is responsible for monitoring progress against the 0.7% target and reporting the UK's ODA spend to the OECD DAC on behalf of all Government Departments. While DFID also allocates the majority of UK ODA, an increasing share is spent by other Departments, including Health, FCO & BEIS. Due to a notable increase in ODA spend on research, BEIS is forecast to become the second largest contributor to UK ODA spend by the end of the CSR period.

- BEIS ODA spend will leverage the UK's world-leading research base to ensure that UK research takes a major role in addressing the problems faced by developing countries and in pioneering new ways of tackling global challenges.

- BEIS ODA is delivered through the already established Newton Fund, through the new Global Challenges Research fund (GCRF) and ODA spend from the core science and research budget. The ODA Governance Board chaired by the Minister for Universities and Science provides oversight of all BEIS ODA funds.

- Although UK based research organisations (universities and research institutes) will be the main recipients of BEIS ODA funding, the funding offers the opportunity to collaborate with research partners overseas. Funding will be allocated on an open, competitive basis with the primary purpose of generating outcomes and impacts that will contribute to the economic development and welfare of developing countries.

- All proposals for ODA research funding must 'promote the economic development and welfare of a developing country or countries as their primary objective' and aligned with the Paris Declaration Principles.[1] In assessing proposals, GCRF 'delivery partners' (see below) will assess the quality of the research proposed and the potential impact on economic welfare and development of LMIC countries, as set out in the pathways to impact[2]. In all cases, the research supported is directly and primarily relevant to the problems of developing countries, with developing countries as the primary beneficiary of the research outcomes and impacts. In the case of the Newton Fund, there is a particular focus on research which will contribute to a reduction in poverty on this objective alongside research excellence and seeks to further sustainable development in the partner countries.

Global Challenges Research Fund

- The Global Challenges Research Fund (GCRF) is an ODA funding stream to ensure that UK research takes a leading role in working collaboratively to address the problems faced by developing countries. £1.5bn is allocated for GCRF between 2016/17 and 2020/21.

- The GCRF will mobilise the UK's world leading research base in close partnership with academic and non-academic partners worldwide to address key challenges facing developing countries, through supporting disciplinary and interdisciplinary challenge-led[3] research, which will strengthen capacity for research and innovation within developing countries and the UK, and provide agile response to emergencies, where there is an urgent research need.

- GCRF funding will include support for research on global issues affecting developing countries such as: emerging threats to animal and plant health; flooding and famine resulting from climate change; and health research programmes, including vaccines and viral threat. BEIS has set out its overarching principals for the fund in its 'Statement of Intent'. In addition, after consultation by delivery partners with the academic community an overarching GCRF Strategy was produced[4]. This sets out the fund's three key themes:

  Equitable access to sustainable development. Our vision is to create new knowledge and drive innovation that helps to ensure that everyone across the globe has access to:

  - secure and resilient food systems supported by sustainable marine resources and agriculture
  - sustainable health and well being
  - inclusive and equitable quality education
  - clean air, water and sanitation
  - affordable, reliable, sustainable energy.

[1] The Paris Declaration on aid effectiveness : http://www.oecd.org/dac/effectiveness/45827300.pdf
[2] The GCRF delivery partners have prepared some additional guidance on ODA pathways to impact.
[3] To identify challenges RCUK sought advice from its Strategic Advisory Group and through engagement with the stakeholder community. More detail can be found at: http://www.rcuk.ac.uk/funding/gcrf/challenges/
[4] The GCRF BEIS statement of Intent' and the 'GCRF Strategy' can be found at https://www.gov.uk/government/publications/beis-official-development-assistance-research-and-innovation

Sustainable economies and societies. The GCRF will also encourage research that in the longer-term, builds:

- sustainable livelihoods supported by strong foundations for inclusive economic growth and innovation
- resilience and action on short-term environmental shocks and long-term environmental change
- sustainable cities and communities
- sustainable production and consumption of materials and other resources.

Human rights, good governance and social justice. The GCRF will also support research that enables us to:

- understand and respond effectively to forced displacement and multiple refugee crises
- reduce conflict and promote peace, justice and humanitarian action
- reduce poverty and inequality, including gender inequalities.

- These themes will also inform the basis of funding calls from the GCRF's Collective Fund.

- The primary delivery partners (DPs) for the GCRF are the Research Councils and the National Academies[5]. These will play the central role of supporting a collection of programmes focused on global challenges identified in the strategy. As with existing Research Council strategic programmes, project selection will be managed through independent review in accordance with the Haldane principle. HEFCE and the devolved Administrations will administer GCRF funds to support:

  - Capacity and capability building
  - Interdisciplinary and collaborative research activity
  - Generating impact from research both within and beyond the sector
  - Pump-priming activities to underpin GCRF and Newton bids to other funders, including relationship building
  - Meeting the Full Economic Costs (FEC) of GCRF and Newton research funded by other delivery partners.

- The UK Space Agency will deliver a new International Partnership Programme focused on improving the capability of developing countries by providing basic services including telecommunications in locations which are often remote and using earth observation techniques to provide a rapid response to disasters such as earthquakes or typhoons.

[5] GCRF Delivery partners are:

- Academy of Medical Sciences
- British Academy
- Royal Academy of Engineering
- Royal Society
- Arts and Humanities Research Council (AHRC)
- Biotechnology and Biosciences Research Council (BBSRC)
- Economic and Social Research Council (ESRC)
- Engineering and Physical Sciences Research Council (EPSRC)
- Medical Research Council (MRC)
- Natural Environment Research Council (NERC)
- Science and Technology Facilities Council (STFC)
- Research Councils UK (RCUK)
- Higher Education Funding Councils for England (HEFCE)
- UK Space Agency

- This investment is in addition, and complementary to, Government's existing ODA research investments, such as DFID'S research programme, the Newton Fund, and the new Ross Fund.

- The Fund is already being put to good use, as the recent £1m Rapid Response call for research grant applications to tackle the Zika virus demonstrates. Other calls which have either awarded grants or are in progress include:
  - Infections Foundation Awards: Global Infections
  - GCRF Foundation Awards for Global Agricultural and Food Systems Research
  - Non-Communicable Disease (NCDs) foundation awards
  - Towards a Sustainable Earth: The environment-human landscape - Pre-announcement of Opportunity
  - Forced displacement of people
  - Partnership for Conflict, Crime and Security Innovation Awards on Conflict and International Development

  A full list of the calls to date can be found on the RCUK website.[6]

The Newton Fund and GCRF

- The Newton Fund's aim is to develop science and innovation partnerships that promote the economic development and welfare of developing countries. The fund consists of £75 million each year from 2014 for 5 years and delivers three broad categories ("pillars") of activity with partner countries:
  - **People** – improving capacity building in science and innovation, individually and institutionally through for example PhD partnerships, researcher mobility schemes, fellowships STEM and technical training.
  - **Research** – research collaborations on development topics using collaborative research grants and providing support for longer-term institutional links.
  - **Translation** – creating collaborative solutions to development challenges and strengthening innovation systems through business to academia and business to business collaborations, research and innovation bridges and training policy professionals.

- The Newton Fund already has an evaluation programme underway being managed by an external contractor[7].

- As ODA funding streams, the Newton Fund and the Global Challenges Research Fund share the same primary objective: to promote economic development and welfare of developing countries. They share a secondary objective to contribute to the continued strength of the UK's research and innovation base and our wider prosperity and global influence.

- However, the mechanisms via which they will achieve these shared objectives are fundamentally different (but complementary):
  - The Newton Fund supports bilateral and regional science and innovation partnerships between the UK and selected developing countries in order to build science and innovation capacity in developing countries and address specific and global

[6] http://www.rcuk.ac.uk/funding/gcrf/gcrfprevcalls/

[7] In August 2015 Coffey International Development Ltd in conjunction with Public and Corporate Economic Consultants (PACEC) were appointed by the Department of Business Innovation and Skills (BIS) to undertake a longitudinal evaluation of the Newton Fund. The Evaluation Strategy report has not been published yet but is included in the tender pack.

development challenges affecting the partner country. It is a requirement of the fund that UK investment is matched by investment from the partner country.

- The Global Challenges Research Fund provides dedicated funding to UK led research focused on addressing global challenges which most significantly impact upon developing countries. It will achieve this through supporting challenge-led disciplinary and interdisciplinary research, strengthening capacity for research and innovation within developing countries and providing an agile response to emergencies, where there is an urgent research need.

- Further information regarding GCRF and evaluating ODA research can be found on the RCUK and UKCDS websites[8]:

- http://www.rcuk.ac.uk/funding/gcrf/
- http://www.ukcds.org.uk/resources/evaluating-the-impact-of-research-programmes

Project Purpose, Objective and Scope

- It is BEIS' ambition to undertake a robust and thorough evaluation of the GCRF. UK Aid Strategy commits "*All departments spending ODA will be required to put in place a clear plan to ensure that their programme design, quality assurance, approval, contracting and procurement, monitoring, reporting and* ***evaluation processes*** *represent international best practice*"; this includes GCRF. BEIS understands that evaluation of ODA relevant research can have particular challenges due to the separation of research and impact through extended distance, jurisdiction, culture and perhaps language. This orientation towards explicit problems/opportunities lends itself to a "theory of change" approach which helps overcome some of the difficulties associated with research evaluation and impact assessment.

- BEIS has decided to procure this evaluation in two parts: this Foundation Stage and a subsequent Main Evaluation. The Foundation Stage will enable modest evaluation activity to be combined with detailed design work in 2017. It will be commissioned through DFID's Global Evaluation Framework Agreement. Depending on successful completion of this Stage, the Main Evaluation will be commissioned in 2018[9] (through a procurement route selected by BEIS)[10]. This work is being undertaken in collaboration with DFID to ensure it can benefit from DFID's ODA evaluation experience.

1. The Foundation Stage is expected to comprise three modules:

    A. Theory of Change

    B. Process Evaluation

    C. Main Evaluation Strategy and Framework

- The overall aim of this contract, therefore, is to develop an evaluation strategy for the

[8] Additional information can be found at:
http://www.rand.org/pubs/monographs/MG1217.html
http://www.roma.odi.org/
https://www.idrc.ca/en/article/new-evaluation-tool-now-available-assess-research-quality

[9] The design and timing of the Main Stage evaluation will be directed by the findings of this work. Should the foundation stage identify data issues or constraints, a later start for the Main Stage could be considered, as well as the inclusion of an interim stage.

[10] The successful contractor for the Foundation stage will not be prevented from bidding for the Main stage.

GCRF based on a theory of change and a process evaluation of initial GCRF activities.

- The scope of the project will be the entire GCRF.

Additional information can be found at:
http://www.rand.org/pubs/monographs/MG1217.html
http://www.roma.odi.org/
https://www.idrc.ca/en/article/new-evaluation-tool-now-available-assess-research-quality

Detailed requirements

We expect that study will comprise the following elements, though we are open to ideas and options for revision or expansion.

A. Theory of change

- BEIs and the GCRF delivery partners have developed an early Theory of Change (ToC) for the fund. This is built on the aims of the fund which are set out in the GCRF Strategy and the detailed criteria for GCRF funding as developed by the Strategic Advisory Group. A diagram of this early ToC is included in Annex A.

- The evaluation team will build on this early work to develop a thorough GCRF Theory of Change (or, possibly, theories of change). Without prescribing a particular style of ToC we would expect this to comprise a summary description (say 200 words), a detailed diagram (showing routes from activities and outputs, through intermediate and later outcomes to ultimate impacts, with assumptions and potentially linking mechanisms through which progress is anticipated) and an explanatory, evidence based and referenced narrative of a few thousand words. It will be important to articulate how the fund's goals will delivered across 14 partner organisations working in a range of countries, through different partnerships and looking at different themes, through a wide range of calls and programmes.

- For evaluation and other purposes, clear intervention logic is needed within the ToC to provide a framework for the assessment of progress and achievements and to map the causal chain of events and assumptions underpinning the fund. This will also need to take into consideration the unanticipated outcomes and opportunities which arrive from research-led collaborations and interventions. In addition a clear vision of the intervention logic across the delivery partners will ensure a common understanding of the funds intended logic and avoid differing interpretations or misunderstandings of aims and objectives.

- Preparation for this module will involve a rapid mapping of the pre-GCRF landscape, Many delivery partners were already supporting ODA eligible research prior to the GCRF. The contractor will need to understand the scale and focus of this work. This will be a high level look at the areas/themes of international development research rather than a detailed audit-type exercise. The aim is to gain a general sense of the relevant areas which the delivery partners feel have been their research areas of focus up to 2015 and the related activities which they have undertaken or funded. If data is readily available, this should be collected.

- Secondly, it will be essential to draw on previous and ongoing ODA research evaluations, including an examination of relevant Theories of Change developed for Newton, selected major DFID research programmes and others.

- It is important to emphasise that the evaluation team's role will be to facilitate, articulate, challenge and present a ToC, rather than to determine or be seen as owners of this ToC.

- The objective is a single, shared ToC, with the narrative used to explain any observed and significant variation amongst DPs. However, if necessary, the evaluation team may conclude and advise that more than one ToC should be produced.

B GCRF process evaluation

- A number of calls and projects under the GCRF have already been launched. So far 26 calls have been announced via the Research Councils and the Space Agency, and a number of programmes have been instigated by the academies.

- This stage of the project will undertake a process review of calls to date to understand the GCRF priorities, themes, geographies and awards. It will explore how the calls identified above have operated in practice and examine any lessons to be learned which can feed into policy development and design of future calls. This will include exploration of how calls have been framed, the selection processes and outcomes and the types of partnerships envisaged. This will also include a review of the BEIS allocation process and the operation of the collective fund. This work could also draw on material or completed process reviews already undertaken by individual delivery partners. Questions could include:

  Delivery partners call process

  - Which global challenges have been identified and selected, and on what basis?
  - How have delivery partners framed the calls?
  - Overview analysis of the responses to calls, including
    - volume
    - financial value
    - models of partnership with southern and other non-UK institutions and researchers
    - interdisciplinarity
    - research questions
    - pathways to impact
    - gender, and other aspects of inclusion
  - Do responses fit the frame of the calls adequately?

  Selection process by delivery partners

  - How do partners ensure ODA compliance?
  - What selection processes have operated, including for sifting to invite full proposals?
  - How are selection panels composed (academics, Southern representation, development experts and so forth) and how, in practice, do they reach decisions?
  - To what extent have factors beyond research excellence influenced decisions (the development focus, likely impact, Southern involvement, value for money)?
  - What scrutiny has been applied to successful applications to ensure appropriate costing and value for public money?

  Characteristics of grantees

- Which types of bids and which organisations are successful?
- What research is being funded in which locations?
- What are the approaches to partnerships and capability building among successful applications?
- What are the key features of the pathways to impact outlined in successful applications?
- How inclusive are successful applications in respect of gender and other equality and diversity dimensions?

Types of GCRF research

- What are the fields of research and how do they relate to the global challenges?
- To what extent is the research blue-skies or applied?
- What is the nature of international collaboration (co-author, data sources, reviews etc),
- To what extent does it build on existing research platforms? How much co-funding is received and from what sources?

BEIS Allocation Processes

- Has the process by which funds have been distributed to delivery partners been clear and transparent?

Delivery of the Collective Fund

- How well have the various delivery partners worked together on the fund?
- How have bids been handled under the collective fund?
- How effectively have funds been distributed?
- Has this process been clear and transparent?

- A further approach could be to undertake an analysis of successful bids and those strong bids that were nevertheless not awarded, in order to identify any common characteristics that predict success or otherwise (and potentially provide groups of applications to track through the main evaluation). However, this could be difficult to achieve across the whole scheme due to the volume of proposals. There are also data sharing aspects which would need to be considered to make this viable (i.e. data sharing of information of unfunded but fundable applications). Contractors should consider whether there are viable approaches to this work.

- This work will also provide an opportunity to explore with delivery partners their individual monitoring and evaluation approaches of their own GCRF programmes and identify commonalities which can feed into the overall GCRF evaluation strategy. It should also explore with delivery partners the various levels at which the fund can be evaluated, that is whether by theme, country, region, by delivery partner or across the fund as a whole.

- It is envisaged that this work will require close collaboration with delivery partners given that they will be undertaking their own reviews of their individual calls and the questions outlined above may be answered by aggregating this information. It is anticipated that this stage will require both interviews with leading ODA staff and a sample of panel members, and analysis of delivery partners' data on call bids and awards. Contractors are invited to suggest the best approach to this work.

- At this stage it is expected that an interim report will be delivered focussing particularly on the landscape mapping and process evaluation. A full report of process evaluation will be

part of the final deliverables. This is not only expected to provide initial evaluation feedback on progress towards GCRF objectives but should also form a view on its efficiency, both in aggregate and in those areas where there has been greatest activity to date. BEIS and DfID may also wish to see some disaggregated results provided confidentiality is protected.

C. Main Evaluation Strategy and Framework

- Stages A & B of this project will feed into the development of an overarching evaluation strategy and a detailed evaluation framework for the GCRF. The strategy will set out an approach for a robust, feasible & proportionate evaluation which will provide both accountability for the sizeable public expenditure on GCRF and learning on what worked well, what did not and why. The evaluation framework should set out overarching questions, methods and data sources, with (as appropriate) judgement criteria and indicators that will guide assessment and any aggregation of results across delivery partners. The strategy will need to consider which evaluation criteria are most relevant to research and research excellence in the context of ODA objectives.

- The overall objective of the main evaluation will be to establish the extent to which the goals of the GCRF are achieved or, given time lags, are likely to be achieved. A second aim is to assess whether the GCRF is delivered in a way that represents **value for money**.

- The evaluation strategy will need to take into consideration the well-known challenges of articulating and understanding the impacts of research, particularly the issues of attribution, time-lags, counterfactuals, and the inclusion of both anticipated and unanticipated forms of impact. We recognise that this will require a multidimensional approach which takes into account the variety and complexity of routes to impact and the range of impact types which can arise from research. In developing the strategy the possibility of counterfactual comparison and providing an indication of GCRF additionally should be explored. Alternatively, Research Excellence Framework data could be used, for example, to test for and compare the presence of known 'success factors', such as research excellence track record and pathways to impact either with a contribution analysis or an attribution (quasi-experimental) approach. While such work may not lead to a view on the additionally of the GCRF model, it could usefully help inform debate on causal factors.[11]

- We also recognise that the scale, geographical spread and the complexity of the GCRF makes evaluation challenging, as impacts will have been far from fully realised over the life of the Fund or even within a year or two of its end. Hence, our expectation is that assessment of progress in relation to the Theory of Change will comprise a substantial feature of the main evaluation.

- The evaluation strategy will need to describe carefully a method for value for money assessment. This could be based or drawn upon DFID 4E's Framework, listed below with example questions, but alternatives will be considered.
    - Economy – are funds allocated and managed prudently, so that inputs are of appropriate quality and cost?
    - Efficiency – how well are inputs translated into research outputs? What makes for efficient, harmonious partnership working?

[11] A good discussion of relevant methods is provided by the American Evaluation Association RTD TIG https://higherlogicdownload.s3.amazonaws.com/EVAL/271cd2f8-8b7f-49ea-b925-e6197743f402/UploadedImages/RTD%20Images/FINAL_RTD_Paper_20150303.pdf;

- Effectiveness – to what extent are research activities and outputs achieving – or on pathways towards achieving – positive outcomes and ultimate development impacts?
- Equity – are award processes and partnership structures, and behaviours therein, lessening gender, north\south and other inequalities in research participation and practice? How well are gender and other equity dimensions addressed in the substance of the funded research?

- The evaluation strategy should integrate gender and social inclusion, sustainability and socio-economic issues (e.g political, ethnic, rural poor), assess risks and propose mitigations and scrutinise ethical considerations with regard to what is proposed.

- It is anticipated that the evaluation strategy will propose a mix of primary data collection and secondary analysis of available data (see following paragraphs), incorporating high quality quantitative and qualitative methods. While we appreciate that quantitative data may not always be available for a baseline level of comparison, we shall encourage suggestions for robust quantitative methodologies and appropriate baseline metrics.

- Across all aspects of the evaluation strategy, contractors will need to recognise and where possible use delivery partners monitoring systems and data. In addition, the strategy might involve bringing together research impact assessments or programme evaluations undertaken by Delivery Partners or by the individual awards themselves.

- Consideration will also need to be given to the wealth of evidence collected in the Research Excellence Framework (REF). The REF represents one of the most comprehensive research evaluations, including the impact of research and wider socio-economic impact. Contractors should take the REF into consideration when thinking about methodologies to be proposed in the evaluation Strategy and consider how data from REF2021 could feed into the broader BEIS GCRF Impact Evaluation. Contractors may also want to consider EU Framework Programme evaluations, some of which have examined 'global challenges'.[12]

- As the design of the evaluation for GCRF gets underway it will be important to ensure, where appropriate, that there are harmonised approaches to the Newton evaluation, and overarching GCRF ODA reporting and evaluation. Irrespective of the suitability of harmonised approaches, there is a need to ensure that evidence collection and the structures underpinning these are suitable for this purpose. Whilst there is complementarity with the Newton evaluation, the scope of GCRF is wider and there is perhaps a greater need to assess the novelty of research results. Consequently the evaluation methods for GCRF need not be the same as for Newton.[13]

- The design stage will entail development of the key evaluation questions, in consultation with BEIS, DFID, the delivery partners and others. This process will involve revisiting the theory of change to help frame evaluation design questions. The progression from research design, to investigation and application is seldom linear. There is often a need to revisit the intervention logic at different stages, based on insights on how research is directly applied or embodied into other work. To give an initial illustration, the evaluation questions could include:

  - What challenges were addressed and how were these conveyed and understood in

[12] EU Framework Programmes: https://royalsociety.org/~/media/policy/projects/eu-uk-funding/uk-membership-of-eu.pdf

the call processes in calls?

- Are the **processes** utilised by the GCRF fit for purpose?
- How much additional support from other sources did funding through GCRF allow researchers or partner organisations to leverage?
- How many new international partnerships has the GCRF created?
- How many UK research and commercial opportunities were created by the GCRF?
- What benefits to UK academics were created by GCRF?
- Did partnership arrangements between delivery partners work well? If so, what best practice can be determined? What could be done to facilitate their joint activities and co-ordination?
- How well were gender and issues of diversity addressed?
- Were the GCRF financing mechanisms were effective in administering funds?
- What strong potential solutions to development problems were generated by projects funded under GCRF?
- Has the GCRF contributed to **economic development and social welfare** in DAC countries? How have these varied across regions?
- How much did activities in GCRF contribute to building research capacity in partner countries?
- Where has GCRF contributed to increased international or local knowledge of the key issues identified and of the nature of constraints to action.
- Are there any **broader actual or potential impacts** of the Fund, including unanticipated ones?
- Can we identify **good practice** for the funding of capacity building for development, considering what worked across the GCRF programmes?

Methodology and Data availability

- Please note that we are committed to quality and rigour in line with international good practice in evaluation. Structured quantitative surveys will proceed only with evidence that a high response rate is achievable.

- As indicated above, the project will include mapping the pre-GCRF landscape and undertake a process evaluation of the first year. This work should also examine the data sources available which can be used to address future evaluations and identify gaps. There are a number of different metrics already being collected by each Delivery Partner, as well as by BEIS. Where possible these will be made available to contractors to enable them to undertake the initial stages of this project and feed into the design of the theory of change and evaluation strategy. The key data sources are set out below.Programme-level metrics

Programme-level metrics

- BEIS and the GCRF team will be using an Activity Tracker to record all activities being undertaken by Delivery Partners both funding activities and the development of activities. This is updated quarterly. Using these data, BEIS will routinely look across the existing reporting mechanisms and draw some basic conclusions and recommendations such as how many grants have been awarded and how much money has been and will be spent

per Delivery Partner.

Grant-level input data

- Most Delivery Partners have standard mechanisms for recording data regarding the award of grants – the common ones are:
  - Principal and Co-investigators and their locations
  - Grant application documentation (for the Research Councils this includes a case for support, ODA justification, Pathways to Impact statement etc.; this will vary across the Delivery Partners)
  - Amount of funding
  - Duration of funding
  - Names of partners
  - Leveraged funding from other partners

Grant-level outputs and outcomes data

- Most Delivery Partners have standard mechanisms of reporting outputs and outcomes from those receiving funding. Some common ones are listed below but it should be born in mind that some output data may not be comprehensive or robust, or collected by all deliver partners:
  - Publications/papers
  - Collaborations & Partnerships
  - Further Funding
  - Engagement activities
  - Influence on Policy, Practice, Patients & the Public
  - Intellectual Property, Patents & Licensing
  - New products (including non-commercial)
  - Spin outs
  - Secondments, placements
  - Expenditure
  - Key findings
  - Narrative of impacts (only for some Research Councils)

Research Councils' Outputs and Outcomes collection systems

- All seven Research Councils primarily use a common self-reported system for the collection of outputs and outcomes information. At present, the Research Councils use Researchfish®. Researchfish® collects information on most types of relevant outputs and outcomes; the Research Councils are currently reflecting on the nature of some of the data posed and exploring additional needs. Researchfish® is a system used by multiple UK and international funders (over 80) and changes to the questions set require agreement across those organisations to ensure suitability. There is a small set of questions which are specific to the Research Councils for which changes can be more easily, i.e. with a year's lead in time prior to the formal submission period dependent on any technological challenges which an additional question or a change to the question might pose. Researchfish® does not ask grantees to answer specific questions relating

to International Development impact.

Research Councils' Outputs and Outcomes reporting

- Award holders are able to add information to Researchfish® at any time of the year but the information is formally submitted to the Research Councils during the data collection periods which in future years will be undertaken in February-March. The reporting of broader societal and economic outputs and outcomes is still in its relative infancy within the UK's research community, albeit, globally within the research funding sphere, the UK is a leader in this field. Engagement with such reporting and the articulation of broader societal and economy impact over the last decade has been aided by the Research Councils' adoption of Pathways to Impact (i.e. supporting and encouraging the development of broader engagement and impact opportunities) and REF2014 (i.e. with regard to articulating the nature and breadth of that impact).

- It should be noted that some types of information may not be routinely or consistently collected and there may be a need to develop more bespoke approaches to access certain outcome evidence.

Evaluation uses

- The full evaluation will be used in the following ways:
  - To ensure that BEIS is able to demonstrate whether the Fund has been delivered effectively and represented value for money.
  - BEIS will use evidence on what has worked in this first phase to support any bid to the Treasury for its future funding and continuation.
  - To inform future decisions on the design and implementation of current and future research, capacity, and innovation building programmes.
  - To allow BEIS, the Delivery Partners and others to learn, respond to and encourage what approaches are already working in delivering the GCRF goals.

Outputs and deliverables

- Successful applicants will provide the following:
  - Regular progress reports summarising progress made in the various stages of the project.
  - A fully drafted Theory of Change
  - One interim report, expected to focus particularly on the landscape mapping and process evaluation.
  - A full report of process evaluation
  - The proposed Evaluation Strategy and Framework
  - Two presentation to BEIS at dates to be agreed

  Proposals should include a brief plan for public communication of outputs from modules A & B, to complement the required deliverables.

Timetable

- A detailed timetable will be developed with contractors at the project inception but broad timings are expected to be as follows.

- Mid September 2017 – Award Contract
- November 2017 – Initial theory of change presented
- January/February 2018 – interim report with finalised ToC and early findings of process evaluation
- April 2018 – draft final reports: i) completed process evaluation and ii) Evaluation Strategy and Framework
- June 2018 – Final reports agreed.

Evaluation Management Arrangements

- Day to day management will be with BEIS and a small management group comprising BEIS and DFID analysts and GCRF policy official(s). This group will have responsibility for receiving and approving outputs, which it may forward for independent peer review. An advisory group will be established for the course of this and the main stage. This will include representatives of delivery from BEIS, the Delivery Partners and DFID, as well as independent experts.

- It is anticipated that any bids will include a management plan which highlights regular liaison with BEIS and at least one meeting with the Evaluation Advisory Group.